THE ORE.-BIN

Volume XVII

1955

STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
Head Office: 1069 State Office Bldg., Portland 1, Oregon
Telephone: COlumbia 2161, Ext. 488

****

OREGON'S MINERAL INDUSTRY FOR 1954

By
The Staff

Total value of Oregon's mineral production for 1954 has not yet been released by the U.S. Bureau of Mines. The 1953 total is given in an advance summary by the Bureau as $24,118,000. This is $2½ million less than the total for 1952 and nearly $4½ million less than the 1951 production. The reduced values for 1952 and 1953 reportedly reflect the smaller amounts of sand, gravel, and stone used in road building and hydroelectric projects. It seems likely that the 1954 total will not differ greatly from the 1953 estimate.

Nonferrous metal production in the State in 1954 was small but interest in the search for metals was greater than it has been for some time. Gold mining, the whipping boy of the metals field, suffered another setback in Oregon when the Powder River Dredging Company suspended operations in August. Total gold production for 1954 was $228,900 but future production will probably dwindle to only a few thousand dollars a year. On the brighter side of the metals picture, 1954 saw production of ferronickel by the Hanna Nickel Smelting Company at Riddle and silicon metal from National Metallurgical's pilot plant at Springfield. Several new chrome deposits were found in southwest Oregon and deliveries to the Grants Pass Government purchasing depot showed no signs of slackening. Prospecting for quicksilver was accelerating toward the end of the year and many known properties were being reappraised. Interest in uranium was mounting even though commercial quantities have yet to be found. Reportedly, several parties are making aerial and field reconnaissance surveys in eastern Oregon. Investigations of diatomite deposits were made by large out-of-state mining companies. Two new limestone operations, both in eastern Oregon, began producing. On the whole, construction continued at a consistent level compared to 1953 which meant a good, if decreased, demand for sand, gravel, stone, and portland cement.

Total amount of government land leased in Oregon for oil and gas exploration is well over a million acres. Most of this has been leased since July 1954. This indicates that the next few years may show a real effort on the part of the major oil companies to determine if oil and gas occur in the State in commercial quantities.

Metallics

Gold, silver, copper, lead, and zinc

Gold mining, once the pride of Oregon's mineral industry, suffered an almost fatal blow in 1944 with the closing of the Powder River Dredging Company operation near Sumpter, Baker County. Total gold production for the year was approximately one-twentieth of the 1940 record high of over $4 million when there were 304 producing properties in the State. The Powder River Dredging Company's bucket-line dredge, which has been operating almost continuously, except for the World War II years, since June 1935, was the last of the six bucket-line dredges that were operating in 1940. The virtual end to gold mining in the State can be attributed to War Production Board Order L-208 which closed all gold mining operations for the duration of World War II and to the fact that the cost of producing gold since 1940 has more than doubled while the price received by the miner remains at the 1934 price of $35.00 an ounce.

Gold production in the State is now wholly dependent on the few small placer operations, mainly in Josephine and Jackson counties, which mine when water is available and the small lode mines of Grant County. The Buffalo mine near Granite, presently operated by the Boaz Mining Company, continues to be the most consistent producer of the lode mines. It employs six to eight men and maintains operations throughout the winter, during which time concentrates are stockpiled. At the Pyx mine, also in eastern Grant County, considerable exploration was carried on by the Greenhorn Mountain Development Company in 1954. A 25-ton test mill was erected and some production was made before shutting down for the winter. The small amount of silver produced ($12,906) resulted from production of gold and other nonferrous metals.

Copper, lead, and zinc output in 1954 was very small and came principally from the smelting ore shipped from the Buffalo mine. The Standard mine on Dixie Creek in Grant County continued exploration work started in late 1953. Some spectacular cobalt ore was found along with continued good showings of copper ore. Granby Consolidated Company of Canada tentatively completed a diamond-drilling program of the Turner-Albright copper mine in the Waldo mining district of Josephine County. The Rowley copper mine in the Tiller-Drew mining district of southern Douglas County was examined by a Nevada mining company. The State's total copper production amounted to four tons and was valued at $2,376.

Chromite

Mining and prospecting for chromite showed a healthy increase this past year, proving that, given the proper incentive, domestic production can be achieved and new prospects found. A preliminary estimate by the U.S. Bureau of Mines credits Oregon with approximately 10,000 short tons produced during the year valued at nearly $785,000. This figure represents an increase of more than 66 percent compared to 1953. During 1954 California produced an estimated 28,800 short tons valued at $2,347,000, an increase of approximately 13 percent compared to 1953. Ore produced from both states was shipped to the Government purchasing depot at Grants Pass.

Fifteen chrome concentrating mills operated during the year. Twelve of the mills are in southwestern Oregon and three in the John Day area of Grant County. Four of the mills were completed in 1954.

Some low-grade deposits which were active in 1953 shut down but new discoveries more than offset the closures. Notable among the new discoveries was a high-grade deposit on Red Mountain south of Ashland which began shipping 50 percent ore late in the year and the opening up of a new ore body at the Oregon Chrome mine on the Illinois River.

At Coquille, Coos County, Pacific Northwest Alloys, Inc., started to upgrade stockpiled chromite sand concentrates produced during World War II. The upgraded material will

be treated in the company's plant at Meade, Washington, to make low-carbon ferrochrome. Reportedly, Mineral Sands Company of Lansing, Michigan, will build and operate a plant for treating chromite sands on coastal land leased from Coos County.

The 38,800 short tons of Oregon and California chromite delivered to the Government purchasing depot in 1954 brings the cumulative total since the inception of the chrome-buying program to 94,800 short tons or 84,644 long tons (final figures have not been released). This is 42 percent of the total of 200,000 long tons to be brought under the program which expires in 2½ years. It is difficult to understand why such a short period and low tonnage buying program was set up by the Government as it only encourages surface prospecting. Exploration programs undertaken to prove tonnages of chrome sufficient for substantial plants are not warranted as the termination of the program would come before capital expenditure could be returned.

Mercury

Mercury mining was decidedly on the upswing in late 1954 and indications are that in 1955 Oregon's many known deposits will be viewed with more interest than has been shown since World War II. The prime reason for the renewed activity was the increase in price, from $187 per 76-pound flask in January to a high of $325 in October, and a year-end price of $322. Another factor was the announcement by General Services Administration of a Government purchase program for mercury in which 125,000 flasks of domestic mercury will be purchased at a guaranteed price of $225 per flask. The guaranteed price will be in effect until December 31, 1957. How successful the Government purchase plan will be remains to be seen for not one flask has been purchased to date. The major mercury producers are quick to point out that, considering the increased cost in production, the $225 Government price is not much better than the average 1938 price of $75½ per flask.

The increased price came just early enough in the year to keep the State's mercury production from collapsing altogether. Total estimated production for 1954 is 500 flasks, a decrease of more than 20 percent from 1953. The decrease is largely the result of the closure from February to June of the Bonanza mine near Sutherlin, Douglas County. Minor production came from the Towner and Maury Mountain mines in Crook County.

Cordero Mining Company installed a small furnace at its Horse Heaven mine in Jefferson County in December to treat broken ore left in the mine when a fire caused a shutdown of the property in December 1944. Activity was reported at the Mother Lode mine in Crook County where the Canyon Creek Mining Company developed some ore and reconditioned a Herreshoff furnace leased from the Ochoco Mining Company. Exploration at the Roba-Westfall mine on Murderers Creek in western Grant County was partly financed by a $20 thousand DMEA loan. The Glass Buttes property in northeastern Lake County was reported to have been leased by Kennametal Corporation.

Nickel

The outstanding development in Oregon's mineral industry in 1954 was the completion of the Hanna nickel smelter near Riddle, Douglas County, in southwestern Oregon. Mining of the nickel silicate ore body on Nickel Mountain was started late in May, and in July the first ferronickel ingots were poured. This project which involved an expenditure of about $35 million is the first commercial production of nickel from domestic ore in the United States.

Ore is mined from an open pit located near the summit of Nickel Mountain and crushed in an adjacent plant. From the crusher the ore is carried on a 1½-mile aerial gravity tramway to the smelting plant at the base of the mountain. In 1954 three furnaces were put into operation at the smelter. Permanent employees total nearly 300.

During the year the U.S. Bureau of Mines published results of electric smelting tests on nickel laterite from Red Flat, Curry County, and indicated that mining and smelting of the ore was technically feasible. The Bureau also conducted field investigations of nickel laterite in Josephine and Curry counties and the adjoining area in northern California. The State Department of Geology and Mineral Industries cooperated with the Bureau in the Oregon part of this investigation.

Iron

The Orr Engineering and Chemical Company mined and processed a small amount of limonite at Scappoose, Columbia County. Their product was used in desulphurizing manufactured gas at the Portland Gas and Coke Company plant in Portland. The Orr plant also produced mineral stock feed and mineral pigment.

Aluminum and bauxite

National Metallurgical Corporation's electric smelting pilot plant for the production of aluminum-silicon alloy was completed at Springfield, Lane County, early in 1954. Silicon metal and some aluminum-silicon were produced. Raw materials used for the two products were silica from the Bristol Silica Company, Rogue River, and clay from near Laws, California. Harvey Machine Company purchased the Government's alumina-from-clay plant in Salem and early in July reported that research on processes for the production of alumina from Salem Hills bauxite was successful. Reportedly a pilot plant is to be built.

The Department of Geology and Mineral Industries continued field exploration of high-iron bauxite deposits, particularly in the Salem area where considerable hand augering was done and some of the area was topographically mapped. A preliminary report on the work was issued in September and final results will be published in 1955. Bauxite occurrences at Estacada, Park Place, and Gladstone in Clackamas County were inspected and sampled.

Nonmetallics

Sand, gravel, and crushed stone

Concrete aggregate supplied by approximately forty sand and gravel operators in the Willamette Valley constituted the bulk of the State's production of this commodity. Sand and gravel is by far the largest source of mineral wealth in the State, totaling $14,647,000 in 1953, the latest year for which figures are available. The growing demand for closer tolerance in aggregate size made it desirable for some plants to install more elaborate crushing and sizing equipment.

Building and monumental stone

Pacific Cut Stone Company continued mining of rhyolite tuff at its Willowdale quarry in northern Jefferson County. A quarry gang saw was installed during the year to increase production, all of which was shipped to Seattle. Joe Marsden quarried and sawed basalt at the Rocky Butte quarry in Portland, and A. Faoro & Son operated the Carver quarry in Clackamas County. D. A. Temple expanded operations at his Pine Grove tuff quarry in Wasco County by setting up auxiliary plants to shape rough quarry blocks at Grants Pass, Oregon, and Vancouver, Washington. The Northwest Granite Company at Haines, Baker County, which has been furnishing finished monumental stone from its granite quarry near Haines for over 40 years, continued its normal production.

Clay

One of Oregon's oldest industries, the manufacture of clay brick and tile, continued production at about the same rate as the past few years. According to an estimate by the U.S. Bureau of Mines, combined production of clay for brick and tile and shale for lightweight aggregate is expected to be nearly the same as in 1953 when 232,000 short tons were

produced. A total of eighteen brick and tile plants were in operation. In addition, Pacific Stoneware imported some out-of-state clay for the manufacture of stoneware at its plant in Portland.

Diatomite

The Great Lakes Carbon Company, Dicalite Division, plant at Lower Bridge, Deschutes County, operated at capacity during the year. An excellent paper describing the history, geology, mining, and products of this operation was presented at the American Institute of Mining and Metallurgical Engineers 1954 Pacific Northwest Metals and Minerals Conference by D. F. Dyrsmid. Publication will probably be in one of the A.I.M.E. technical journals. Investigation and exploration which culminated in large-scale leasing and locating was done by several large mining companies in central and southeastern Oregon. A new company, Malheur Wunder Earth, Inc., is reported to have obtained control of approximately 3400 acres of land in the Harper-Westfall area of northern Malheur County.

Lightweight aggregates

Although there were few new developments in the lightweight aggregates field during the year, production increased slightly and the industry entrenched itself more firmly as a supplier to the building and construction industries. Expanded shale was produced by two concerns in the Portland area, while four pumice producers in central Oregon were active. Smithwick Concrete Products quarried shale near Vernonia and shipped to Portland for furnacing. Empire Building Materials quarried and fired shale near Sunset Tunnel in Washington County. Both companies manufactured blocks and other precast units and supplied bulk aggregate. Shipments have been made as far as Edmonton, Canada.

In the Bend area Cascade Pumice Company and Central Oregon Pumice Company were active during the year. Deschutes Concrete Pumice Company mined lump pumice for their own block manufacture but shipped no bulk pumice. Harney Concrete Tile Company at Burns and Western Pumice Sand Company of Klamath Falls, both pumice producers, continued operations. Volcanic cinders were used extensively for highway ballast throughout central Oregon by the State Highway Commission. The cinders were obtained from State-owned pits. A minor amount of cinders was also supplied for block manufacture by some of the pumice producers.

Limestone

The State's three cement plants produced at capacity during 1954. Construction activity maintained a level comparable to 1953 and indications point to a continuing high demand for cement.

National Industrial Products Company, after a successful exploration plan started in 1953, set up a crushing and screening plant at Nelson on Burnt River, Baker County, and began supplying high-grade limestone, mainly to the Boise, Idaho, area. By late 1954 production was about fifteen railroad cars a day. A crew of approximately twenty-five is employed. The Chemical Lime Company, Baker, made a test shipment to the sugar plant at Nyssa in December. The company's quarry is at the head of Marble Creek, Baker County. This is a new operation and marks the reopening of a deposit that has been closed for many years. Oregon Portlant Cement Company's operation at Lime, Baker, County, completed installation of a belt conveyor between newly opened quarries and the plant. The Ideal Cement Company started trucking limestone from its Marble Mountain quarry in Josephine County to its plant at Gold Hill as the result of cessation of operations of the C. & O. C. Railroad. Pacific Carbide and Alloys Company continued to quarry at the Black Marble deposit near Enterprise, Wallowa County. Some of their production reaches the agstone market in the Willamette Valley.

Agstone was produced in Polk County at Dewitt's quarry and the Oregon Portland Cement Company's deposit. Limestone from the latter also goes to the company's cement plant in Oswego. Agricultural limestone used in the State during the year is estimated to be 50,000 tons, a little less than was spread in 1953.

Perlite

There was no production of perlite in Oregon in 1954. The claims controlled by the Northwest Perlite Corporation near Sheaville, Malheur County, were successfully explored by diamond drilling and, reportedly, a large tonnage was indicated.

Silica

The Bristol Silica Company, Rogue River, was the sole producer of silica in the State. To meet the increasing demand for their high purity product, the company completed installation of a new rod mill, extra screening capacity, and a washing plant this past year. Investigations into the possibilities of opening a new quarry in Stevens County, Washington, were also conducted. Mr. F. I. Bristol, owner of the company, reported that Northwest metallurgical plants used his silica in the manufacture of silicon metal, ferrosilicon, and silicon carbide. A new market for crushed silica for roofing granules was developed. As in the past, a major consumer was the refractory brick trade. Catalytic silica for the petrochemical industry, ferroalloy plants, and miscellaneous users accounted for the remainder of the output.

Oil and gas

In 1954 five new test drillings were started for oil and gas in Oregon. Two of these were in Douglas County and three were in northern Malheur County. Oil Developers, Inc., (Community Oil and Gas Company) Scott No. 1 was the deepest test in Douglas County and was reportedly at 3600 feet by late December. El Paso Natural Gas Company's test near Double Mountain south of Vale was drilling below 6600 feet at year's end and had become the deepest Oregon drilling east of the Cascade Mountains. Drilling at the other two sites in Malheur County was suspended pending developments, and drilling at the second well in Douglas County was sporadic.

Continued surface exploration and interest in both eastern and western Oregon by major and minor oil companies, large and small independent concerns, and individuals have resulted in extensive leasing activity. Total government land now under lease for oil and gas exploration in the State is in excess of a million acres, most of which has been leased since July 1954.

All oil and gas drilling in the State must now be done according to rules of the oil and gas conservation law passed by the 1953 Legislature and administered by the Department. Miscellaneous Paper No. 4, issued by the Department, contains the rules and regulations which were adopted after public hearings had been held.

****

IDAHO HAS NEW DREDGING LAW

Idaho's new dredging law, passed as an initiative at the November 2 election, was put into effect December 1954 by official proclamation of Governor Len Jordan, according to the Wallace Miner. Under the new law, regulation of dredge mining is transferred from the State Mine Inspector to the State Board of Land Commissioners. Dredge mining is defined by the law as placer mining operations to recover minerals with the use of a dredge boat or sluice washing plant, whether fed by a bucket line, dragline, or other supply capable of moving 500 cubic yards of earth per day.

The new law requires operators to obtain a permit to dredge and to post a bond. The application fee for the permit is $50 for each 50 acres or fraction thereof, and the required surety bond is $300 for each acre. The bond is to insure smoothing of dredged lands and restoration of streams to original courses, both of which are required by the law. If water used in mining flows into a stream, settling ponds must be constructed "to reasonably clarify" the water before discharge into the stream. Periodic inspections of dredge operations are to be made by the Land Board and the cost is to be paid by the permittee. Permits to dredge are not transferable and owners of land to be dredged must give their approval to the application.

****

MINING NEWS

Eastern Oregon

The Burt Hayes interest in the Haggard and New chromite mine near John Day has been purchased by C. G. Cafarelli, Salt Lake City, and J. J. Kinsella, Belview, Idaho. Mr. Kinsella is in charge of operations on the property. Future plans call for enlargement of both mining and milling capacity although the old Hayes mill is still being used at present. Mr. Hayes reopened the Haggard and New, an old property, in the spring of 1953 and except for a few weeks during the worst of winter has been a consistent shipper. The ore has milled about 2 to 1 to yield a concentrate averaging nearly 50 percent Cr_2O_3 with a 2.95 to 1 chrome-iron ratio.

Mr. Hayes was the first operator to ship chromite concentrates from the John Day area to the Grants Pass purchasing depot under the present chrome purchasing program. His first concentrates came from ore from the Dry Camp property on Indian Creek, Grant County. The Dry Camp claims have since been controlled by several parties. Present operator is the John Day Mining Company.

* * * * *

The Chemical Lime Company of Baker delivered a test shipment of crushed limestone to the Amalgamated Sugar Company's plant at Nyssa, Oregon, in December 1954. The rock originated from the Chemical Lime Company's property at the head of Marble Creek and was handled through a temporary crushing plant set up on property owned by the company near Wingville. The Marble Creek deposit was a source of burned lime during the early days of Baker's history and the present shipment represents the first production from the property since the early operators suspended activity.

Southwestern Oregon

The McTimmonds brothers of Grants Pass uncovered a new massive chromite body on claims they were leasing on Red Mountain about 12 miles southwest of Ashland, Jackson County. During the latter part of 1954 they shipped 18 tons of lump chrome which averaged better than 51 percent chromic oxide. Their latest shipment assayed 55.57 percent chromic oxide with a chrome-iron ratio of 3.92 to 1 and brought $165.28 per ton at the buying station in Grants Pass. The ore is unusual in that fractures in the massive chromite are coated with malachite, a hydrous copper carbonate.

* * * * *

Tulare Bros. Mining Company of Gold Hill has leased the Wonder group, Daily Dozen group, Roy Jackson group, Bowser properties, and the White claims from J. R. Holman, Walter B. Freeman, and LaVern Twombley. The chrome properties are located on Chetco Divide in Curry County. Holman and associates developed the Wonder property during the summer of 1954 and erected an 80-ton mill.

* * * * *

Wesley Pieren and Antone J. Nielsen of the Evergreen Mining Company started the latter part of December to strip overburden with a bulldozer prior to placering for gold on Galice and North Fork creeks. The company holds six claims on North Fork Creek and eight on Galice Creek in T. 35 S., R. 8 W., Josephine County.

* * * * *

M. W. Parker, Grants Pass, has set up a stone-sawing and finishing plant in Grants Pass to supply the local demand. Rough blocks of varicolored volcanic tuff are supplied by D. A. Temple from the Rainbow Rock quarry near Pine Grove, Wasco County.

****

McKAY ESTABLISHES OFFICE OF MINERALS MOBILIZATION

Interior Secretary Douglas McKay established an Office of Minerals Mobilization (OMM) within the Interior Department on January 14, according to an announcement in the January 17 American Mining Congress Bulletin. This was in accord with the recommendation of the President's Cabinet Committee on Minerals Policy that the Interior Department should establish closer contact with the mineral industry to aid in government policy making. The new office will be responsible to Felix Wormser, Assistant Secretary for Mineral Resources, and will be staffed by 37 people in the next fiscal year.

According to an Interior Department statement, OMM will have, among others, the following functions with respect to strategic and critical metals and minerals:

Gathering and evaluating data as to productive capacity and supplies from both domestic and foreign sources.

Recommending establishment, or modification, of expansion goals and programs, including financial incentives and aids for overcoming shortages.

Recommending programs, including legislation, to maintain an adequate minerals, metals, and fuels mobilization base.

Formulating foreign mineral exploration and development programs.

Assisting the Office of Defense Mobilization in plans for stockpiling of strategic and critical materials.

The Defense Minerals Exploration Administration (DMEA) will not be affected by formation of the new group, and the General Services Administration (GSA) will continue handling procurement, it was reported.

****

MINERAL INDUSTRIES CENSUS UNDER WAY

The 1954 census of the nation's mineral industries, the first since 1939, is being conducted jointly by the U.S. Bureau of Census and the U.S. Bureau of Mines. The Census Bureau's survey, formerly conducted every 5 years, was interrupted by World War II and by the failure on the part of Congress to provide funds during postwar years. Census forms will be sent out this month to some 40,000 establishments in the mineral industries. The forms will request information to cover the Bureau of Mines' annual canvas of minerals output together with the Census Bureau's survey of employment, equipment, expenditures, and other items related to mineral production. The two agencies are coordinating their programs in such a way as to avoid duplication of effort on the part of the mineral industries canvassed.

****

FUELS VOLUME PUBLISHED BY BUREAU OF MINES

The U.S. Bureau of Mines Minerals Yearbook, published in one volume since 1936, has grown to such proportions that a three-volume division has been initiated for the 1952 edition. In this new arrangement, volume I is made up of the chapters on mineral commodities, both metals and nonmetals; volume II is devoted to the mineral fuels; and volume III is made up of chapters covering salient mineral statistics on each of the 48 States, Alaska, and the Territories. The change from a one-volume to a three-volume presentation was made necessary by the difficulties in binding and the inconvenience in handling so thick a book. Volume II, the first of the three parts to be published, contains chapters on coal and related products, petroleum and related products, and helium. It is for sale now by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C., for $2.25 cloth bound. Volumes I and III will be published later but publication date has not been announced.

****

STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
Head Office: 1069 State Office Bldg., Portland 1, Oregon
Telephone: COlumbia 2161, Ext. 488

****

QUALITY OF OREGON WATERS

In a recent report entitled "The industrial utility of public water supplies in the United States," 1/ the U.S. Geological Survey has published chemical analyses of the water furnished to residents of 1,315 cities in the United States. Fifteen Oregon cities are represented, namely, Albany, Astoria, Baker, Bend, Coos Bay, Corvallis, Eugene, Klamath Falls, La Grande, Medford, Pendleton, Portland, Roseburg, Salem, and Springfield. Results of these analyses demonstrate that the value of water as a natural resource in the State is greatly enhanced by the quality of the municipal supplies.

A brief review of the report is given below together with a summary of the analyses of 15 public water supplies in Oregon.

Chemical character of water

Hardness: Knowledge of the chemical character of the water is an important factor in the selection of sites for most industrial plants. Of particular importance is information about the hardness of water, for hardness is a characteristic that affects both domestic and industrial use. In domestic use, hardness of water results in excessive consumption of soap and the formation of scale in vessels in which the water is boiled. In industrial use, hardness causes scale to be deposited in hot-water pipes, heaters, and steam boilers, resulting in economic loss through increased fuel consumption and breakdown of equipment. Moreover, hard water used in manufacturing can adversely affect both the process and the product, as, for example, in the dyeing of textiles.

Hardness is caused chiefly by the presence of calcium and magnesium in the water, and is expressed in the analyses as parts per million (ppm) calcium carbonate. Hardness is a relative quantity. Portland's very soft water has a hardness of only 9 ppm calcium carbonate, while Pendleton's water has a hardness of 95. A resident of Portland might consider the Pendleton water hard, while a resident of Sioux City, Iowa, who uses water with a hardness of 472, would probably consider the Pendleton water rather soft. The average hardness of the Oregon waters analyzed is 34. Only two other states, Maine and South Carolina, have, on an average, softer water. The water supplies of 25 states have an average hardness of more than 100 ppm calcium carbonate, while ten of these have an average hardness of more than 200. However, the water supplies of almost every state in the union show a range in hardness -- sometimes a very wide range. In Florida, for example, the hardness of untreated water samples varied from 12 to 1,060. For purpose of comparison with Oregon waters, the hardness of some of the public water supplies in Washington and California are shown as follows:

Washington	(Source)	Hardness (ppm $CaCO_3$)
Pasco	Columbia River	70
Seattle	Cedar River impounded in Lake Youngs	18
Spokane	13 wells	157
Tacoma	Chiefly from Green River	18
Vancouver	Wells and springs	55

1/ Part 1, "States east of the Mississippi River," Water-Supply Paper 1299; Part 2, "States west of the Mississippi River," Water-Supply Paper 1300. For sale by Superintendent of Public Documents, Government Printing Office, Washington 25, D.C. Price $1.75 each.

California	(Source)		Hardness (ppm $CaCO_3$)
Fresno	45 wells		72-163
Los Angeles	Owens Valley Aqueduct		84
	Los Angeles River		274
	Local wells		210
	Colorado River[1]	untreated	315
		treated	125
San Diego	San Diego River and Colorado River[1]		231
San Francisco, various sources, chiefly:			
	Tuolumne River impounded in Hetch Hetchy reservoir		9
	Calaveras Creek and Arroyo Hondo impounded in Calaveras reservoir		99

Dissolved minerals: All natural waters contain dissolved minerals, for water in contact with soils and rocks, even for only a few hours, will dissolve some mineral matter. Ground water (wells and springs) usually contains more dissolved mineral matter than surface runoff (rivers and lakes), for it remains in contact with soils and rocks for longer periods of time. As shown in the table on opposite page, Pendleton water from springs and deep wells contains 203 ppm dissolved solids, while Bend water from Tumalo Creek contains only 37 ppm. The concentration of dissolved minerals in river water may, however, be increased by drainage from irrigated areas, mines, and discharge from industrial and municipal wastes. Dissolved mineral constituents that affect the value of water for most purposes are: silica (SiO_2), iron (Fe), manganese (Mn), calcium (Ca), magnesium (Mg), sodium (Na), potassium (K), carbonate (CO_3), bicarbonate (HCO_3), sulfate (SO_4), chloride (Cl), fluoride (F), and nitrate (NO_3). These are expressed in the analyses in parts per million, and their total amounts are designated as "dissolved solids." Analyses of the dissolved solids in Bend and Pendleton water supplies are as follows:

	SiO_2	Fe	Mn	Ca	Mg	Na	K	CO_3	HCO_3	SO_4	Cl	F	NO_3	Total Dis. Sol.
Bend	19	.03	--	3.5	.6	2.0	.8	0	8	.8	.9	.0	.1	37
Pendleton	44	.2	--	25	8.0	26		0	146	15	12	.2	.1	203

Color: Color in water analysis refers to the appearance of water that is free of suspended material. Material in suspension may cause water to appear yellow, red, or brown, but this water may be colorless after the suspended matter has been removed. Color is due to roots, stems, leaves, and other organic matter in water. Swamp waters may have as much as 200-300 units of color. A color of 10 units or less us usually not noticed. Coos Bay water untreated has an undesirable color of 100 (see table on opposite page). Treatment reduces the color to 6, but at the same time increases the hardness.

PH: By pH is meant the hydrogen-ion concentration. The pH range is from 0 to 14. A solution with a pH of 7 is said to be neutral. Decreasing values denote increasing acidity, and values increasing above 7 denote increasing alkalinity. The pH value of most natural waters ranges between 6 and 8. Waters of low pH have corrosive properties.

---

[1] An increasing amount of treated water from the Colorado River is being supplied by the Metropolitan Water District of Southern California to 5 counties in the southern part of that state.

SUMMARY OF ANALYSES OF 15 PUBLIC WATER SUPPLIES IN OREGON*

City	Source	Treatment	Dissolved solids ppm	Hardness ppm $CaCO_3$	Color	pH	Temp.	Date collected
Albany	South Santiam River	Coagulation with alum and lime	76	42	---	---	---	April 12, 1945
Astoria	Bear Creek and tributaries impounded in artificial lakes	Chlorination and occasional $CuSO_4$ for algae control	73	27	10	7.0	---	June 7, 1950
Baker	Goodrich Lake, Marble, Pine, and Elk creeks	Chlorination and occasional ammoniation	56	37	3	7.4	49	June 19, 1951
Bend	Tumalo Creek	Chlorination	37	11	7	6.7	46	June 18, 1951
Coos Bay	Pony Creek	(before treatment)	57	9	100	6.1	58	May 7, 1947
	Pony Creek	Prechlorination, color removal by coagulation with alum and lime, filtration, and aeration	73	37	6	7.1	66	June 15, 1951
Corvallis	Rock Creek	Filtration, chlorination, and ammoniation	76	37	5	7.5	64	June 14, 1951
	Willamette River	(before treatment)1/	54	20	---	---	---	Nov. 27, 1950
Eugene	McKenzie River	Prechlorination, coagulation, and filtration	48	17	7	7.5	59	June 14, 1951
Klamath Falls	4 flowing wells	Chlorination	141	52	---	8.2	67	March 22, 1949
La Grande	Beaver Creek	Chlorination	68	21	5	6.8	55	June 19, 1951
Medford	Big Butte Spring	None	99	35	---	6.9	42	April 21, 1947
Pendleton	Springs and wells	Chlorination	203	95	---	7.2	---	January 1949
Portland	Bull Run River2/	Chlorination and ammoniation	30	9	15	7.0	59	Sept. 19, 1947
Roseburg	North Umpqua River	Prechlorination, coagulation, sedimentation, and filtration	80	43	---	7.6	53	March 10, 1949
Salem	North Santiam River	Chlorination and ammoniation	45	17	5	7.3	64	June 14, 1951
Springfield	Willamette River3/	Filtration and chlorination	61	36	---	---	---	April 12, 1951

*Complete analyses given in Water-Supply Paper 1300, p. 327-336.

1/ Treatment of water by new plant will include coagulation, sedimentation, filtration, and chlorination.

2/ Bull Run River impounded in Lake Ben Morrow Reservoir on river, and in Bull Run Lake near summit of Cascades. Water diverted from Bull Run River through 3 steel conduits for 24 miles to 4 reservoirs on Mount Tabor and 2 reservoirs in Washington Park. Distribution mainly by gravity.

3/ Analysis is for untreated water.

Industrial requirements

Quality of process water for industrial uses must meet specific requirements for each product. For instance, water used for baking has to be free of substances that might produce undesirable tastes, odors, and colors. Too much hardness retards fermentation, although some calcium is necessary for yeast action, and too little softens the gluten, resulting in soggy bread. The quality of water used in brewing affects considerably the final product. Waters low in alkalinity and comparatively high in calcium sulfate are desirable. Process water for canning and freezing of foods should be free of tastes, odors, color, iron, and manganese. Hardness causes toughening of certain vegetables such as peas and beans. Water used in the manufacture of ice should be free of iron, manganese, tastes, and odors, and should be low in dissolved solids. Process water used in the manufacture of textiles and fine paper should be practically free of suspended matter, color, iron, and manganese. Iron and manganese cause staining, while hardness interferes in washing operations, dyeing of fabrics and sizing of paper.

Water used in steam boilers for the production of power and heat must meet exacting standards, particularly under conditions of high temperature and pressure. The most objectionable quality of water used for such purposes is hardness. As mentioned above, hardness of water results in the deposition of scale on boiler surfaces. Scale is composed of compounds of calcium and magnesium with generally smaller amounts of iron and silica.

Treatment of public water supplies

Most public water supplies are treated in such a way as to make the water safe to drink, but not necessarily satisfactory for industrial uses. Additional treatment such as filtration, softening, and corrosion control may be required. The installation of municipal water-softening plants in areas of extremely hard water is becoming more prevalent. The softening treatment removes only part of the hardness, but makes the water more satisfactory for domestic use. The softening process involves the removal by chemical precipitation or cation exchange of those substances, chiefly calcium and magnesium, that cause hardness.

The more common methods of treating public water supplies to make them suitable for drinking are as follows:

1. Natural purification: Waters impounded in artificial lakes and reservoirs improve in quality from storage. Suspended matter settles out, while color and bacteria decrease. But because conditions are favorable for growth of algae and other micro-organisms, chlorine is regularly applied as a safety measure.

2. Filtration: Waters are cleared of suspended material by filtration through sand and gravel. Prior to filtration, the raw water is allowed to stand in reservoirs long enough for most of the suspended matter to settle out; then a coagulant, generally aluminum sulfate, is added to settle out the finer particles, colloidal material, and micro-organisms.

3. Disinfection: Chlorine is the chief reagent used in the disinfection of water supplies. Chlorination does not normally affect the industrial value of water except as it may affect the taste or odor.

4. Removal of tastes, odors, and colors: Tastes, odors, and colors seriously reduce the quality of drinking water and affect the industrial use of water in the food and beverage industries. These three characteristics are usually caused by either plant growth or by pollution from industrial plants. If treatment by aeration is not sufficient, then some method such as coagulation, chlorination, or ammoniation must be applied.

M.L.S.

****

NEW SCHEELITE PROSPECT

A new scheelite deposit has been discovered by Lester E. Thornton in the Greenhorn district, Grant County. Some development work has been done since its location last summer and application has been made for a DMEA exploration loan. The property is located near the southwest corner of sec. 15, T. 10 S., R. 34 E., near the head of Lemon Creek at an elevation of 5400 feet.

****

DEPARTMENT RECEIVES HENDRYX PAPERS

This Department is the recipient of a rare and unique assemblage of early-day mining records donated by Mrs. H. E. Hendryx of Baker, Oregon.

These records include a partial set of bound copies of the Sumpter News and its successor, the Blue Mountain American published between August 1897 and January 1914. Many of the older residents of eastern Oregon will recall these leading newspapers published weekly in Sumpter during much of the period when eastern Oregon lode mining activity was at its peak, especially in the Bourne, Cable Cove, Granite, and Greenhorn mining districts in the mountains above Sumpter.

Also included in the donation are several large scrapbooks containing approximately 7000 selected and itemized articles of mining interest clipped from a wide assortment of newspapers and early-day mining magazines. These clippings range in their coverage from February 1899 to and including a part of 1909. While the articles center for the most part on eastern Oregon mining subjects, many relate to mining activity in southwest Oregon and neighboring mining districts of Idaho.

The assembling of these scrapbooks reflects the efforts and interests of Mr. H. E. "Ed" Hendryx, pioneer newsman in northeastern Oregon and late member of the Governing Board of the State Department of Geology and Mineral Industries.

Mr. Hendryx' experience in publishing a newspaper about eastern Oregon mining began when he organized the Lawton Standard in 1900. Lawton is now merely a wide place on a desolate forest road but in 1900 the town was an important contender for the mining trade of the area. Publication of the Lawton Standard was followed by purchase of the Granite Gem at nearby Granite in 1902 and by purchase in 1908 of the Blue Mountain American at Sumpter. On Friday the 13th in August 1917 the publication of the Blue Mountain American was terminated when fire wiped out the heart of what then remained of the Sumpter business district. This accounts for the incomplete coverage of the bound newspaper file acquired by the Department, as the fire also destroyed the newspaper.

Subsequent years saw Ed still actively associated with the newspaper business with no diminution of his personal sideline interest in mining. One of his special ventures was the editing of the Oregon Mining Review, a monthly magazine dedicated to the best interests of the Oregon miner and aimed at carrying a maximum of news and a minimum of promotion. This magazine was published from December 1938 to March 1941. Two sets of the Oregon Mining Review, one complete and the other lacking one issue, were included with the records given us by Mrs. Hendryx.

Historical data about Oregon's older mining properties, even for the more noted mines, are often very meager if not entirely lacking in the Department's files. This is because there was no organized mining agency in Oregon engaged to keep orderly records of activity. Therefore the information represented by these early-day mining records in the Sumpter newspapers and in the Hendryx scrapbooks is invaluable. Some of the information that can be anticipated when the records have been carefully studied, will be the names of the early operators, the exact years during which they had active control of the property, something of the nature of the work done, size of the mills, and depths of workings. Possibly, also, Ore.-Bin readers can look forward to occasional anecdotes from the pages of the past as a result of the forethought and interest of this man with his scrapbooks and paste pot, and the generosity and thoughtfulness of Mrs. Hendryx in turning these records over for safekeeping to this Department.

N.S.W.

****

NEW DRILLING PERMIT ISSUED

The first drilling permit of the year was issued February 16, 1955, to Charles A. Stone & Associates. The application to drill stated that the well will be known as Shelley No. 3. The drilling site was given as sec. 20, T. 39 S., R. 19 E., Lake County. The new permit is the sixth to be issued since the gas and oil conservation law was passed.

****

BILLS AFFECTING THE MINERAL INDUSTRY IN THE STATE LEGISLATURE

The Forty-eighth Oregon State Legislature, now in its second month, has before it several bills which would affect the mineral industry if passed in their present form. Highlights of each bill are given below along with the bills' status as noted in the legislative calendars of February 21. If anyone wishes copies of the bills, he should write the mailing clerks of the House or Senate, State Capitol Building, Salem, Oregon. It should be mentioned that the Oregon Department of Geology and Mineral Industries is introducing no bills in this session.

Ed.

House Bill No. 158 - This is a new bill that would require all mining operations to take control measures on their waste water to prevent silting any body of water "to an extent that materially lessens its utility for agricultural or recreational purposes." Silting is designated as "pollution" and silt as "waste." Representative Charles Tom (Rufus) introduced the bill January 26, and after its second reading on January 27 it was referred to the Committee on Forestry and Mining. At the present time it is in Sub-Committee No. 3 and will be up for hearing soon. (Tabled Feb. 24)

House Bill No. 159 - This is a new bill that would require the owners and managers of any type of surface mining operation to "restore as far as is reasonably possible the pre-existing topography and surface soil conditions." Provisions detailing the restoration are to be inserted in all leases on State-owned land, and provisions are made for recovering the cost of making the restoration if the operator fails to do so. This bill was also introduced by Representative Tom and its status is the same as House Bill No. 158. (Tabled Feb.24)

House Bill No. 295 - This is a new bill that would impose a severance tax on all minerals, including oil, gas, coal, sand and gravel, and other nonmetallics obtained from the ground or waters of the State. The tax would be based on the market value of the product at the time and point of severance and, as presently written, will be 3 percent on oil and gas and 2 percent on all other products. Eighty percent of the net revenue will go to the State and 20 percent to the county in which the taxed product was obtained. Tax payments would be due the 20th of each month. Administration and enforcement of the act is to be placed in the State Tax Commission. This proposed tax would be in lieu of an ad valorem tax on minerals but would not affect the existing personal property or improvement taxes. The bill was introduced by the Committee on Taxation and read the first time February 3. After the second reading on February 4 it was sent to the Committee on Ways and Means. On February 16 the bill was taken from the Ways and Means Committee and re-referred to the Committee on Taxation. It is understood that hearings will be held soon.

****

OIL AND GAS PUBLICATION ISSUED

"Oil and Gas Exploration in Oregon" is the title of Miscellaneous Paper No. 6, just issued by the State Department of Geology and Mineral Industries. Its publication was prompted by the increasing demand for information about oil and gas prospecting in Oregon, particularly for records of drilling. The information for the report was compiled by R. E. Stewart, geologist with the Department.

Miscellaneous Paper No. 6 has 53 pages incorporating nearly 200 well records tabulated alphabetically by counties, 25 of which are represented. Included in the paper is a bibliography of 224 references. The location of each test drilling is shown on an index map of the State. Tests in Columbia and Malheur counties, where drilling was more concentrated, are shown on separate maps. Even though many of the records are incomplete and not wholly reliable, all recorded oil and gas prospect holes together with a few water wells that offer pertinent information are listed. The new pamphlet may be purchased from the offices of the Department at 1069 State Office Building, Portland, or the field offices at Grants Pass and Baker. The price is $1.00.

****

STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
Head Office: 1069 State Office Bldg., Portland 1, Oregon
Telephone: COlumbia 2161, Ext. 488

****

PROSPECTING FOR QUICKSILVER IN OREGON

By The Staff

Geology

Quicksilver occurrences are widely scattered over the State; however, mines which have shown significant production can be segregated into three large districts: the Western Cascades, Central Oregon, and Southeastern Oregon (see map). These districts are in regions of past widespread volcanic activity and, as in other quicksilver regions of the world, indicate a close association between volcanism and quicksilver deposition.

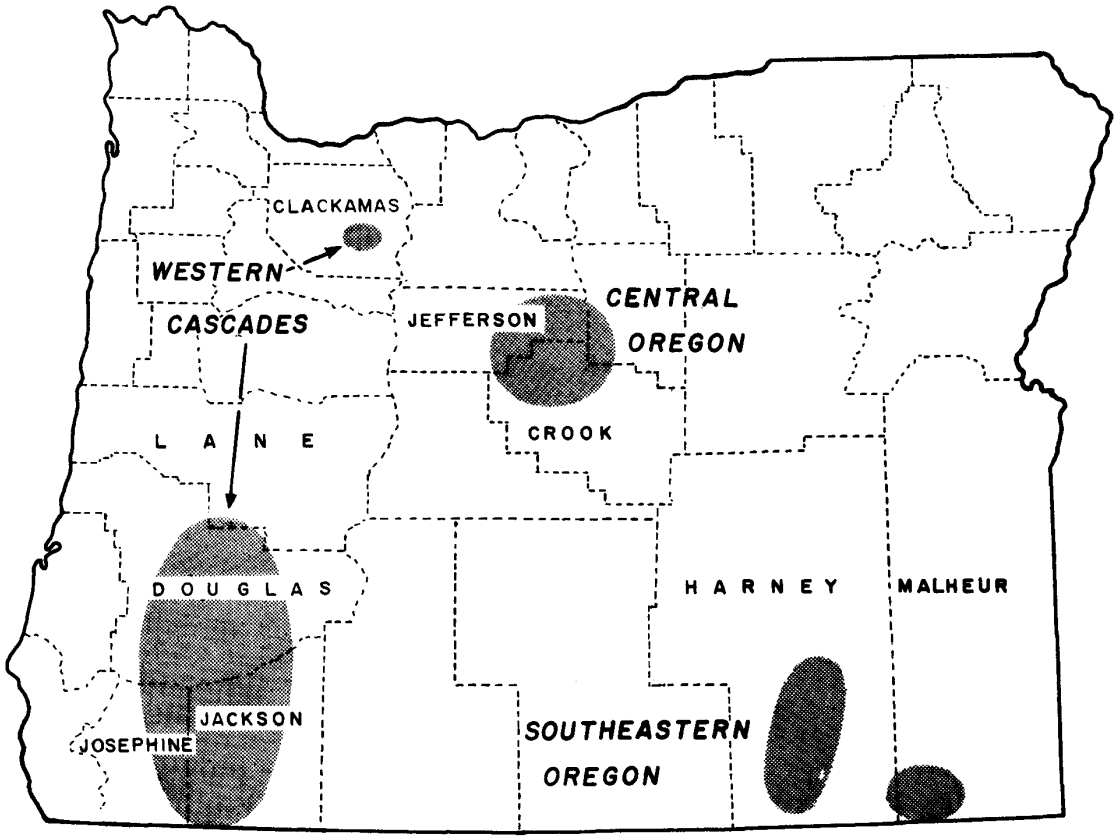
Quicksilver mineralization in Oregon occurred chiefly during the Tertiary period of the geologic time scale. It does not seem likely that the mineralization in all of the districts took place simultaneously; rather, mineralization was related to several periods of intrusion that occurred over many millions of years. Within limited portions of a district mineralization was somewhat contemporaneous as it resulted from a single intrusive episode.

Evidence obtained from study of quicksilver deposits (see bibliography) indicates that the deposits were formed at relatively shallow depths, from a few feet below the surface to about 4,000 feet. In some of the deposits downward percolating ground water may have been responsible for precipitation of the quicksilver contained in the rising mineralized hydrothermal solutions. It follows, then, that quicksilver deposits would be found in volcanic areas that have undergone relatively little erosion.

Ross (1942) has termed quicksilver a "lone wolf" among the metals as "No district that has been prominent in the quicksilver industry has had any large production of other metals and few are close to mining districts of other kinds." This holds true in Oregon, although some of the mines were located by prospectors following a gold "trace" in panning up a stream. Some gold has been found in the quicksilver mines of the Central Oregon district, but in no case has any quicksilver mine produced more than a very minor amount of metal other than quicksilver. The base metal mining area closest to any of the large quicksilver mines is the Bohemia mining district. It is approximately 15 miles east of the Black Butte quicksilver mine in Lane County.

If, as suggested above, quicksilver is deposited at shallow depths and is not associated with other metals, it may be inferred that the ascending mineralized hydrothermal solutions carrying the quicksilver are end-products resulting after any other metallic constituents have been precipitated. The solutions thus represent the last residues of a crystallizing magma beneath the area and are consequently of relatively low temperature and under low pressure. Transmission of the solutions from the magma surfaceward are necessarily through rather large pre-existing channelways (open faults, fissures and fractured zones) and precipitation is caused by any condition that halts the solutions or changes their pressure, temperature, or composition. At the Opalite mine in southeastern Oregon, Yates (1942) proposed transmission through open fault fissures and precipitation due to the downward movement of ground water. In the Horse Heaven area of central Oregon, Waters and others (1951) considered the control for transmission to be fractures in or near volcanic plugs and stated that ". . . individual ore shoots owe their position and richness to a complex combination of minor structural features." They stated that the most important factor for formation of a deposit was the presence of permeable rocks, which generally were the shattered portions of plugs and dikes and breccia zones along faults that cut the plugs or adjacent wall rocks. Locally rich ore was commonly found in breccias just beneath cappings of clay or other impermeable rock. In the Bonanza-Nonpareil area of the Western Cascades, Brown and Waters (1951) determined that the primary transmission of the ore solutions was upward along sheared zones. They stated that "Deposition of cinnabar was controlled to a large degree by the original

permeability of the beds (sandstones) and by the induced permeability brought about by shearing within certain well-defined zones." An additional controlling factor at the Bonanza mine was an impervious shale overlying the country rock of sandstone while at the Nonpareil, cross faults cutting the shear zones contributed to localizing the solutions. What role carbonaceous and bituminous substances play in the deposition of quicksilver is not clearly understood, but gilsonite and similar material are rather plentiful in the ores of the Central Oregon district and cinnabar in coal is found in the War Eagle mine of Jackson County in the Western Cascade district.



PRINCIPAL QUICKSILVER DISTRICTS

Principal Quicksilver Producers[1/]

	Mine	County		Mine	County
1.	Kiggins	Clackamas	13.	Bonanza	Douglas
2.	Nisbet	"	14.	Elkhead	"
3.	Blue Ridge	Crook	15.	Mother Lode	"
4.	Byram and Oscar	"	16.	Cinnabar Mountain	Jackson
5.	Champion	"	17.	Mountain King	"
6.	Johnson Creek	"	18.	War Eagle	"
7.	Maury Mountain	"	19.	Axe Handle	Jefferson
8.	Mother Lode	"	20.	Horse Heaven	"
9.	Number One	"	21.	Black Butte	Lane
10.	Staley	"	22.	Bretz	Malheur
11.	Taylor Ranch	"	23.	Opalite	"
12.	Towner	"			

[1/] Having total production in excess of 50 flasks. (Information from "Oregon Quicksilver Localities Map," 1945.)

As in most other quicksilver producing areas of the world, Oregon's principal ore of quicksilver is cinnabar, the monosulphide of the metal. It is easily identified because of its carmine red color and streak, its comparative high specific gravity (8.0 - 8.2) and its hardness (2 - 2.5). It will "hang back" in the pan but because it is soft and fairly brittle it usually will be found only as small fragments. In the "opalite" ore of southeastern Oregon the cinnabar blackens when exposed to sunlight and its characteristic red color is hidden. Freshly broken surfaces of the opalite ore will be red, however. It was this characteristic of the ore to blacken that probably delayed the discovery of the Opalite mine. In most deposits some native quicksilver and the black sulphide, metacinnabarite, are found but are not economically important.

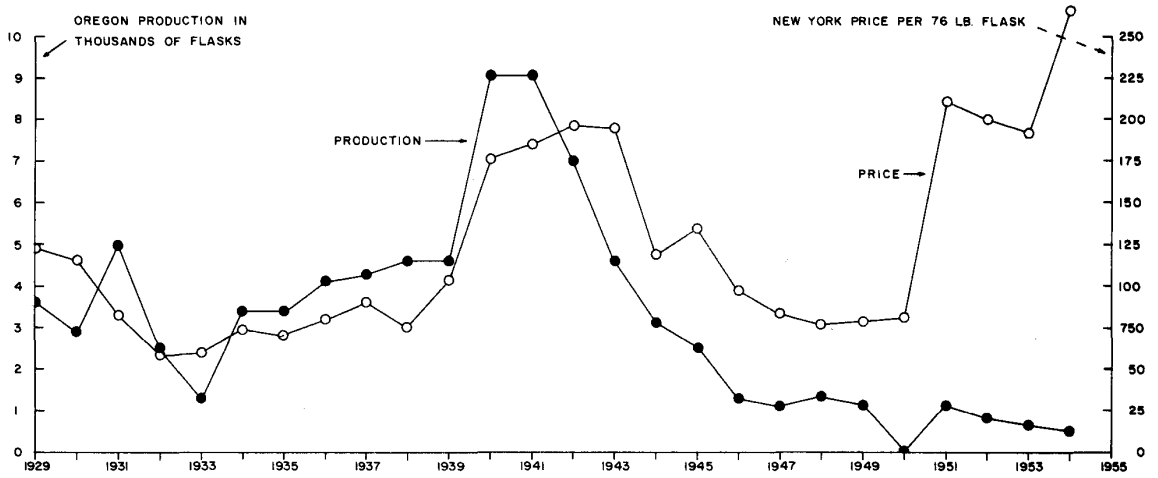
Prospecting guides

Certain generalizations can be made about the areas of the quicksilver deposits in Oregon that may be of help to those interested in prospecting. The broadest of these generalizations is that all deposits that have had any quantity of production are in or adjacent to areas of Tertiary volcanism. Generally, all sizeable deposits have been found within a fairly large (sometimes up to a mile in largest dimension) zone of alteration where the original appearance of the rocks has been almost entirely changed. Within the mineralized zones formed from the hydrothermal solutions, clay is the most common product of alteration. Carbonates (calcite, siderite, ankerite) and silica (quartz, chalcedony, opal) are frequently abundant and widespread. The sulphides of iron (pyrite and marcasite) may be plentiful and occasionally the red and orange sulphides of arsenic (realgar and orpiment) are found. Stibnite (antimony sulphide) is not uncommon and the hydrous sulphate of iron (melanterite) may be present.

In areas of "opalite" rocks, zones of silification, especially near faults, should be looked for carefully. The "opalite" rocks are dense, fine grained, brittle, and have a waxy lustre. These rocks may crop out as low knobs or they may be exposed in stream channels with lake beds or alluvium covering them. Within the silicified areas, zones of brecciation should be searched for. It must be remembered that in southeastern Oregon the cinnabar of such deposits is not bright red on the weathered surfaces so it is necessary to chip the outcrops when prospecting. Panning of unsilicified tuffs and lake beds that are contorted or have steep dips is also a good idea for the steep dips may reflect faulting at depth.

According to Waters and others (1951), all deposits of quicksilver ore thus far found in the Horse Heaven mine area of central Oregon lie within or adjacent to intrusive masses. Plugs of biotite rhyolite and augite andesite appear to be the most likely intrusions in which to prospect. Mineralizing solutions alter and soften the rocks making them more subject to weathering and erosion than the unaltered barren plugs. Therefore topographic lows or depressions should be investigated. Areas of fracturing in the plugs and permeable zones formed by faults in or adjacent to the plugs also offer good prospecting. Where plugs cut through red soil zones of early Tertiary age there is always the possibility that the impermeable clay soil has formed a trap for solutions carrying quicksilver.

In southwestern Oregon, Wells and Waters (1934) have noted that "In many places adjacent to the principal ore bodies the rocks over areas of more than a square mile have been bleached and softened. At most localities the altered rocks are intersected by numerous small, relatively hard silica-carbonate veinlets that stand out on the surface as prominent ribs and strengthen and support the mass. Owing to the fact that these veinlets commonly contain much siderite and in some places a little pyrite, oxidation at or near the surface has stained them a dark, rich brown, causing them to stand out conspicuously against the light-colored matrix. These brown resistant veinlets are known to the miners as 'iron ribs' and are perhaps the most reliable surface indication of an altered or mineralized zone. Because of their resistance to solution the ribs accumulate on the surface of the altered zone as a dark-brown rubble."



OREGON QUICKSILVER PRODUCTION COMPARED WITH NEW YORK PRICE, 1929–1954.

Retorts for prospects

At quicksilver prospects the retort is still being used as a reduction plant. Since the firing is indirect, more fuel per ton is needed than in a large scale furnace; and the small tonnage makes the labor cost per ton much higher than in furnace plants. Still, one or two men can cut their own fuel, tend their retort, mine their ore, and make a nice profit on sorted high-grade ore with only a small capital expenditure for plant.

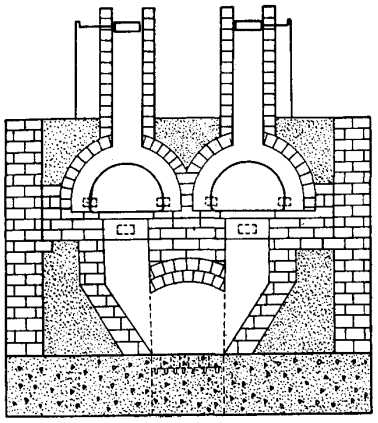
Retorts are generally round or D-shaped castings (see opposite page). Round pipes are usually about 1 foot in inside diameter and 6 to 7 feet long while D-retorts are 15 inches by 24 inches and 10 or 12 feet long. D-retorts are used singly or in sets of 2 and 3 with a common fire box. Pipe retorts are set up in benches of from 2 to 12 pipes.

Two things are important in setting up retorts. First, the bottom of the retort pipe must be protected from direct contact with the flames by one thickness of firebrick or tile. If this is not done the pipes burn out rapidly. Second, the condenser pipe which is fitted to the retort with cement must not be bricked in tight where it passes through the outer wall of the retort setting. The retort expands on being heated and if the condenser pipe is bricked in solidly the joint between them breaks and the quicksilver vapors leak out. Retorts should always be tested for tightness before being used by attaching a manometer to the plugged end of the condenser pipe or by covering this end with thin (toy balloon) rubber and then heating the closed retort to see if pressure is developed from the expanding air in it. If no pressure develops the retort leaks, and the leak must be found and repaired before being used.

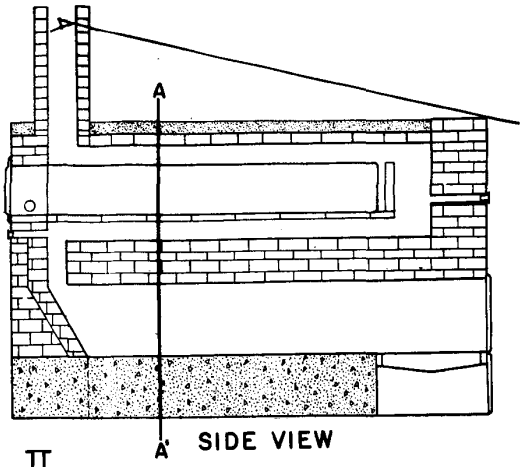
Lime should be used with the ore charged to the retort to prevent the iron of the retort from being attacked by the sulfur vapor.

Since the charging and discharging of a retort is accompanied by some danger to the operator of being poisoned by hot quicksilver vapors, the retort should be set up in such a position that the prevailing wind blows quarteringly across the front of it. Also, the ore should be charged in black iron pans so that charging and discharging can be done rapidly. An extra cover should be at hand already mudded and ready to be slapped on when the retort is opened for discharging and charging again.

Safety measures at retorts: Quicksilver poisoning is always a hazard when retorting and every precaution should be taken to guard against it. If a few rules for personal cleanliness are observed and if care is taken when charging and discharging the retort, the chances for poisoning will be practically eliminated. Washing up before meals, brushing of teeth before eating on the job, using an astringent mouthwash, and being careful not to roll cigarettes or

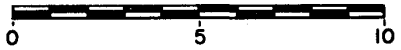


END VIEW

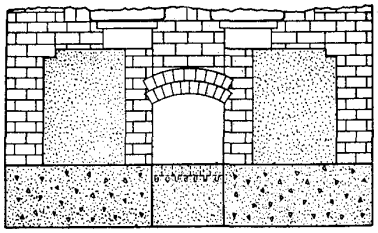


SIDE VIEW

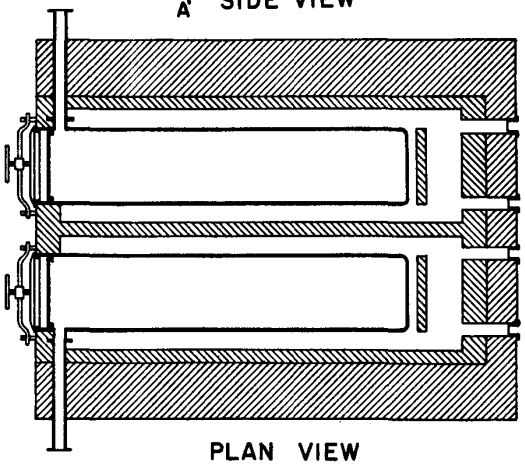
TYPICAL D RETORTS



SCALE, FT.

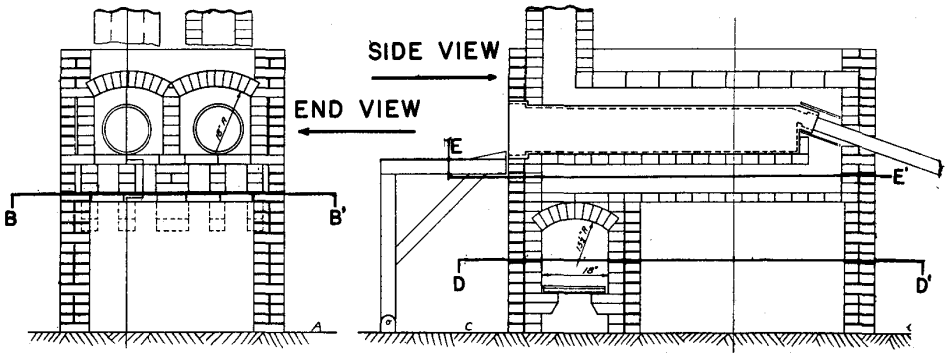


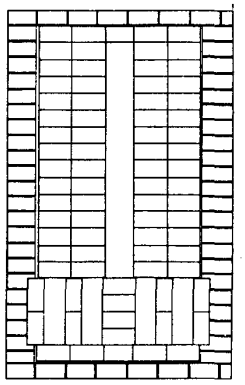
SECTION THRU A–A'



PLAN VIEW

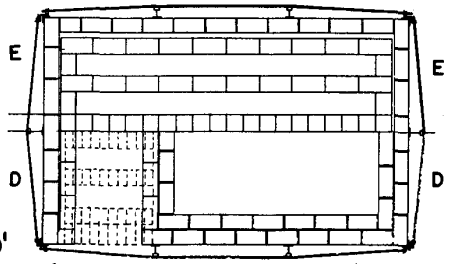
TYPICAL PIPE RETORTS





SECTION THRU B–B'

SECTION THRU E–E'



SECTION THRU D–D'

stuff pipes with fingers that are dirty with ore, soot, or metallic quicksilver, are some of the common sense habits that should be developed. Periodic medical examinations are always a good health inventory, no matter what the occupation.

Selected Bibliography

Brown, R. E., and Waters, A. C.
Quicksilver deposits of the Bonanza-Nonpareil district, Douglas County, Oregon: U.S. Geol. Survey Bull. 955-F, 1951. (For sale by Superintendent of Documents, Washington 25, D.C. $1.00)

Duschak, L. H., and Schuette, C. N.
*The metallurgy of quicksilver: U.S. Bur. Mines Bull. 222, 1925.

Ebner, M. J.
A selected bibliography on quicksilver, 1811-1953: U.S. Geol. Survey Bull. 1019-A, 1954. (For sale by Superintendent of Documents, Washington 25, D.C. 25 cents)

Frederick, Francis
State of Oregon map showing location of quicksilver deposits: Oreg. Dept. Geology and Mineral Indust., scale 1:1,000,000, 1945. (For sale by Department, 25 cents.)

Reed, G. C.
**Exploration of Glass Buttes mercury deposit, Lake County, Oregon: U.S. Bur. Mines Rept. Invest. 3926, 1946.

Ross, C. P.
Some concepts on the geology of quicksilver deposits in the United States: Econ. Geol., vol. 37, no. 6, p. 439-465, Sept.-Oct. 1942. (May be obtained from Economic Geology Publishing Company, Urbana, Illinois)

Schuette, C. N.
*Quicksilver in Oregon: Oreg. Dept. Geology and Mineral Indust. Bull. 4, 1938.

Von Bernewitz, M. W.
**Occurrence and treatment of mercury ore at small mines: U.S. Bur. Mines Inf. Circ. 6966, 1937.

Waters, A. C., and others
Quicksilver deposits of the Horse Heaven mining district, Oregon: U.S. Geol. Survey Bull. 969-E, 1951. (For sale by Superintendent of Documents, Washington 25, D.C. $1.75)

Wells, F. G., and Waters, A. C.
*Quicksilver deposits of southwestern Oregon: U.S. Geol. Survey Bull. 850, 1934.

Williams, Howel, and Compton, R. R.
Quicksilver deposits of Steens Mountain and Pueblo Mountains, southeast Oregon: U.S. Geol. Survey Bull. 995-B, 1953. (For sale by Superintendent of Documents, Washington 25, D.C. 65 cents)

Yates, R. G.
*Quicksilver deposits of the Opalite district, Malheur County, Oregon, and Humboldt County, Nevada: U.S. Geol. Survey Bull. 931-N, 1942.

---

* Out of print. May be consulted at Department library and public libraries.

** Free on application to Publications Distribution Section, U.S. Bureau of Mines, 4800 Forbes Street, Pittsburgh 13, Pennsylvania.

****

NEW DRILLING PERMIT ISSUED

Drilling permit no. 7 was issued February 21, 1955, to Oroco Oil and Gas Company, Ontario, Oregon. The application to drill stated that the test will be known as Bolles No. 1. The drilling site was given as the NW¼ sec. 15, T. 17 S., R. 47 E., Malheur County. Mr. H. K. Riddle is the President of Oroco Oil and Gas Company.

****

AUSTIN DUNN REAPPOINTED

Austin Dunn has been reappointed by Governor Paul L. Patterson as a member of the Governing Board of the State Department of Geology and Mineral Industries. The appointment has been confirmed by the State Senate. Mr. Dunn was originally appointed to this position in August 1, 1953, at which time he replaced Mr. H. E. Hendryx who resigned because of ill health. Mr. Dunn is an attorney in Baker and a former State Senator.

****

RADIOASSAYER INSTALLED AT BAKER OFFICE

A duplicate of the radioassayer which was installed by the Atomic Energy Commission in the Portland office of the Department has been placed on loan by the Commission in the Baker field office. The radioassayer is a type of geiger counter designed to be used in a laboratory and to handle crushed samples. The instrument does not record the amount of uranium in the sample; only a chemical analysis will do this. It does, however, measure the amount of radioactivity. This is registered on a dial in percent of U_3O_8 equivalent (the amount of uranium that would be present if no other radioactive materials were there and if the uranium were in equilibrium with its disintegration products). The instrument is calibrated to measure U_3O_8 equivalent in three ranges as follows: less than 0.05 percent; 0.05 to 0.10 percent; and 0.10 to 0.15 percent.

Radioassayers have been supplied by the Atomic Energy Commission to a number of assay offices and mills throughout the United States as a routine check on all incoming ores. The Department has been using one of these instruments in its Portland office for the past year.

****

NEW CHROME DEPOSIT

Bill J. Evitt, Jay C. Evitt, John F. Evitt, and P. G. Symens, owners of the Nickel Ridge Group claims on Rough and Ready Mountain, Josephine County, have started shipment of high-grade chromite from a small deposit on their Nickel Ridge No. 1 claim in sec. 31, T. 40 S., R. 9 W. The ore assays about 52 percent Cr_2O_3 with 2.4 to 1 chrome-iron ratio.

A minor amount of quartz boxwork and nickel laterite on the surface and some garnierite along fractures in the peridotite have been found in that area.

****

OREGON DRYING UP?

In its Water Resources Review for February 1955, the U.S. Geological Survey reports that deficient runoff, which has been characteristic of the Southwest for several years, has now spread northward into Oregon. Flow of the Columbia River near The Dalles, Oregon, was only 84 percent of normal for February. Streamflow for the John Day River was the lowest in February since 1937, and on the Grande Ronde River near La Grande it was the lowest for February in 45 years. Water stored in major reservoirs increased seasonally but remained well below normal, the Survey reports. Water levels in all key wells declined and a record-low level for February was measured in the key well near Burns.

****

STATE MAPPING REQUESTED

A request to have 9000 square miles of the State mapped topographically has been submitted to the U.S. Geological Survey by the State Mapping Advisory Committee. The principal area covered by the request extends from the California line north to Crater Lake and from the vicinity of Klamath Falls to Hart Mountain, east of Lakeview. At present no topographic maps are available for this region.

The U.S. Geological Survey has been mapping the United States since 1882, but only 30 percent of Oregon has been mapped and progress is slow. It has been estimated that at the current rate it would take until the year 2008 to map the State completely.

In addition to relief of the surface by contour lines, topographic maps show roads, railroads, streams, section and township lines, cities, towns, and even individual buildings in rural areas. Maps of the type requested by the committee are published with a scale of one inch equals one mile on sheets measuring approximately 16 by 20 inches. Such maps are essential for nearly all types of engineering planning, geological mapping, forest and range management, soil conservation, highway planning, and taxation assessment purposes. Tourists and recreationalists are using topographic maps in steadily increasing numbers.

****

PROGRESS OF MINING INDUSTRY BILLS IN LEGISLATURE

House Bill No. 158, designed to prevent silting of streams and defining such silting as pollution, was taken off the table for public hearings before the House Committee on Forestry and Mining on March 16 and 17. House Bill No. 159, which would require restoration of the surface after surface mining operations, was also taken off the table at the March 17 hearing. Testimony by proponents of the bills was given at both hearings and by opponents at the March 17 hearing. Amendments to both bills were proposed by those favoring the measures which would seem to confine their application to mining of precious metals. No definite action on these bills has been reported (March 23) as a result of these hearings.

A hearing on House Bill No. 295, which would impose a severance tax on all mineral products including oil and gas, was held before the House Taxation Committee in Salem on March 8. Opponents of the measure presented testimony. No action by the Committee has been reported (March 23).

Senate Bill No. 151 would repeal the Rogue River Coordination Board law in toto. It passed the State Senate on February 3 and is now (March 23) in the House Committee on Judiciary. (Probably tabled in House Committee)

****

OREGON PORTLAND CEMENT COMPANY MAY ENLARGE FACILITIES

According to a news item in the Baker Record Courier of March 17, the directors of the Oregon Portland Cement Company have authorized study of a plan to add a kiln at its Lime, Oregon, plant in the event the proposed Snake River hydro-electric development is authorized. The news story indicated that such an addition would approximately double the capacity of the plant. The 1954 payroll at Lime and Oswego, where OPC also has a cement plant, was reported to be $1,642,346.

****

NOTICE TO SUBSCRIBERS OF THE ORE.-BIN

A number of complaints have been received by the Department from subscribers who have not been receiving the Ore.-Bin. The reason, in most instances, is that these people have moved and have not notified us of their change of address. The Ore.-Bin is sent by second-class mail which cannot be forwarded by the post office. Therefore, if you move, be sure to send us your new address so that you will not miss any issues.

****

STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
Head Office: 1069 State Office Bldg., Portland 1, Oregon
Telephone: COlumbia 2161, Ext. 488

Field Offices

2033 First Street
Baker

239 S.E. "H" Street
Grants Pass

****

INVESTIGATION OF SALEM HILLS BAUXITE DEPOSITS

Second Progress Report

By
R. E. Corcoran[1] and F. W. Libbey[2]

Introduction

Ferruginous bauxite together with associated bauxite nodules was discovered in the Salem Hills, Marion County, by the State Department of Geology and Mineral Industries during a reconnaissance of laterized basalt areas in the Willamette Valley in 1945. Results of this reconnaissance were included in Department Bulletin No. 29, Ferruginous Bauxite Deposits in Northwestern Oregon. This bulletin, however, dealt primarily with the deposits in Columbia and Washington counties where hand auger drilling by the Department indicated a fairly large tonnage of bauxitic material.

In the summer of 1953 field work in the Salem Hills was recommenced and a drilling program was begun in the more promising-looking areas. In September 1954 a progress report on this locality was made in the Department's monthly publication, The Ore.-Bin. The report included a brief description of the deposits and results of chemical analyses of the first 13 drill holes.

Location

The deposits are located in the southwestern portion of the Salem Hills in a strip approximately 3 miles wide, 6 miles long, and having a general northwesterly trend. The area lies approximately 7 miles south of Salem in Marion County and is easily accessible from U.S. Highway 99E via a network of graded secondary county roads. Topographic maps of the Salem and Stayton quadrangles cover the area of interest.

General geology

The ferruginous bauxite in the Salem Hills is developed on Miocene basalts and appears to be similar in age and origin to the deposits found in Washington and Columbia counties to the north. The basalts overlie Oligocene marine sediments of the Eugene formation. The processes of laterization and bauxitization of the basalt have been described by Libbey, Lowry, and Mason (1945) and Allen (1948). Later uplift and subsequent erosion of the bauxitized lavas in the Salem Hills resulted in a "patchwork" distribution of the deposits which now occur as topographic highs separated by stream channels.

The Miocene flows dip gently to the east and northeast with the strike changing from N. 45° W. in the south to N. 15° W. toward the northwest. The hills slope north and east approximately 150 to 200 feet per mile and reflect the dip slope of the underlying lavas.

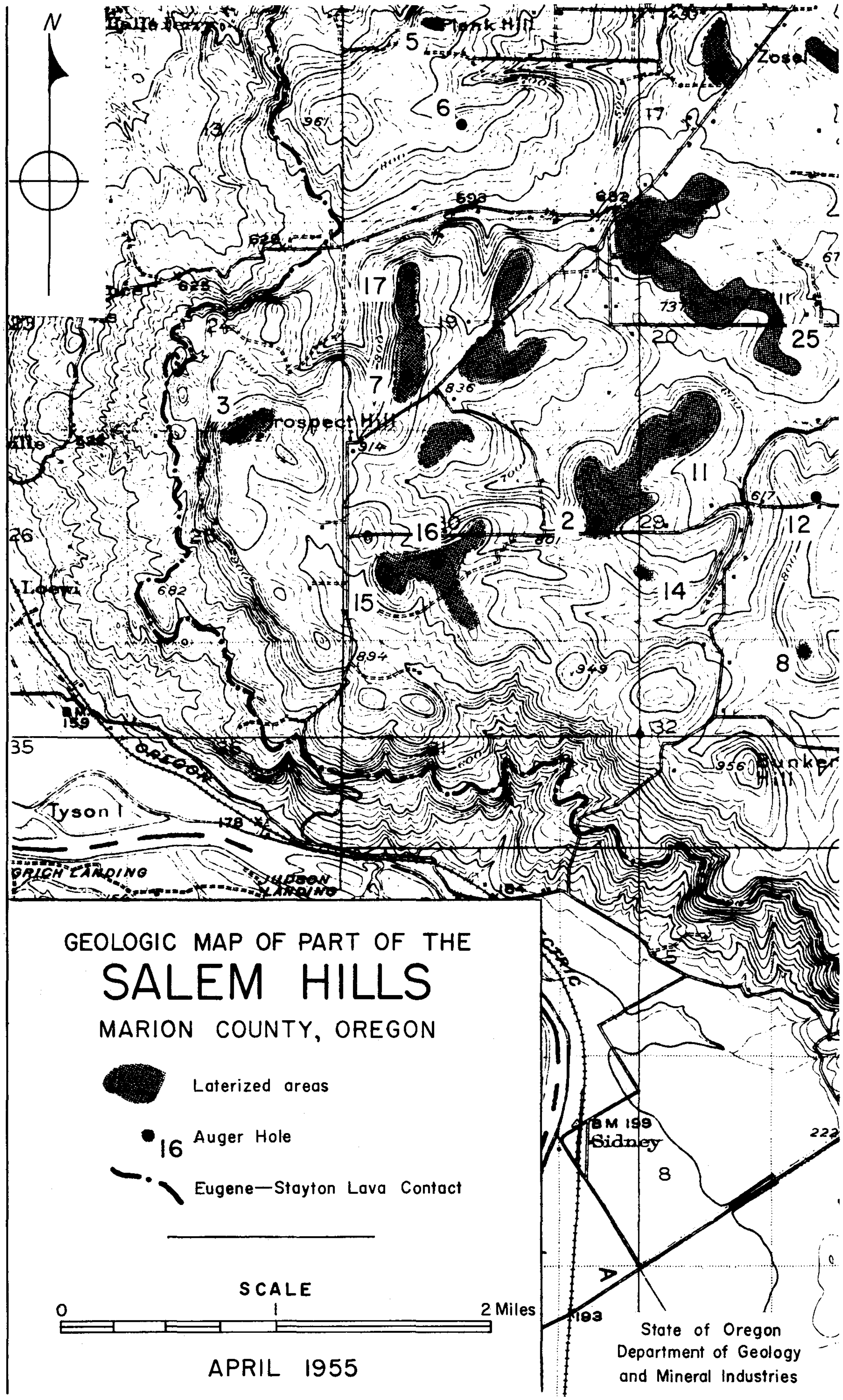
Analyses of samples

The accompanying map shows the location of all the holes drilled through December 1954. Assays for holes 24 through 27 have not been completed. Hole 15 was deepened to 85 feet

---

[1] Geologist, State Department of Geology and Mineral Industries.

[2] Formerly Director of State Department of Geology and Mineral Industries.



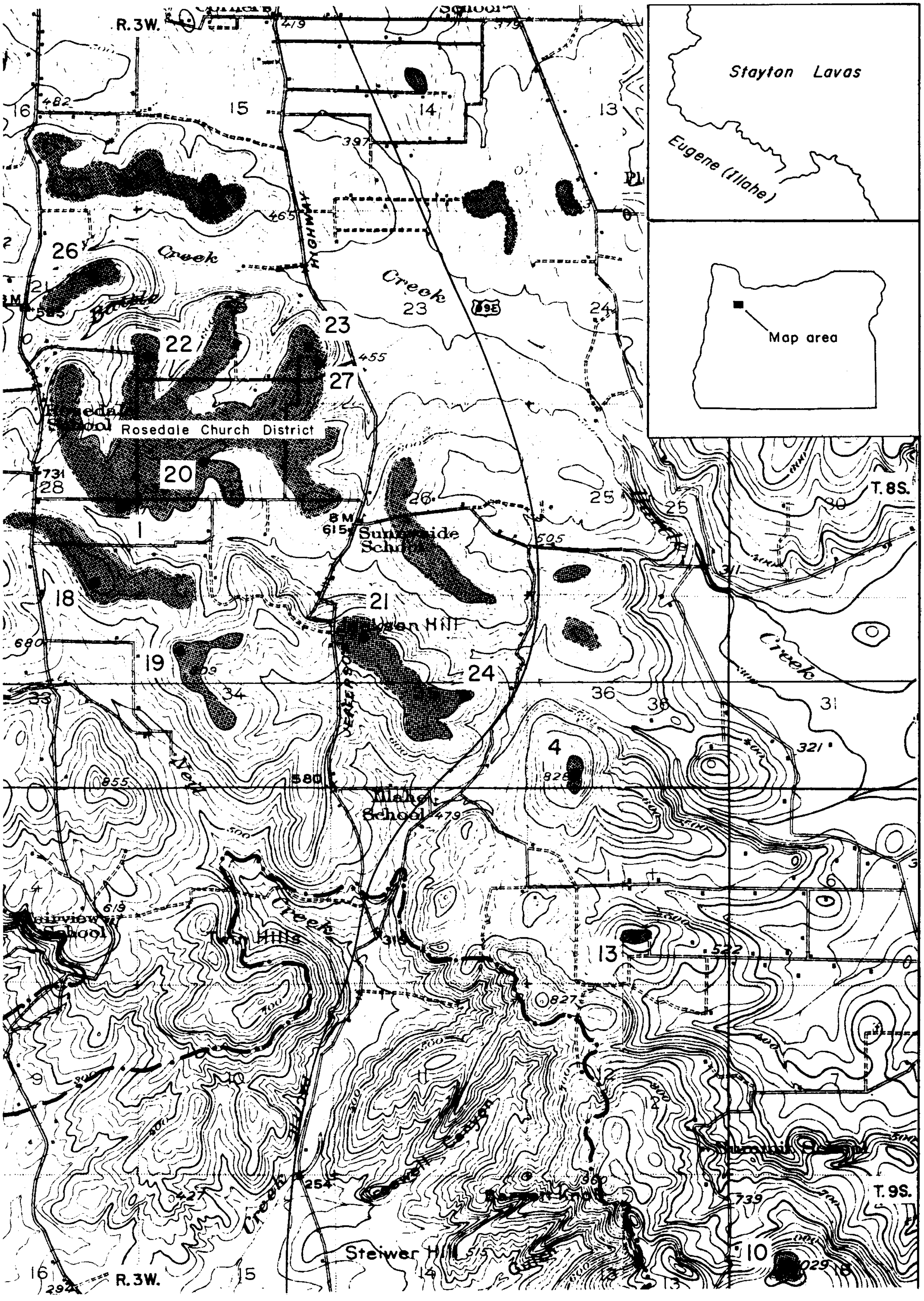
GEOLOGIC MAP OF PART OF THE

SALEM HILLS

MARION COUNTY, OREGON

APRIL 1955

State of Oregon
Department of Geology
and Mineral Industries


Stayton Lavas
Eugene (Illahe)
Map area
R.3W.
R.3W.
T.8S.
T.9S.
Rosedale Church District
Rosedale School
Sunnyside School
Illahe School
Fairview School
Steiwer Hill
HIGHWAY
Creek
Creek
Creek
Creek
20
21
22
23
24
26
27
18
19
34
4
13

and holes 24 and 25 were drilled to 45 feet and 35 feet respectively by a power auger operated by the State Highway Commission with sampling by the senior author. All three of these holes bottomed in varicolored kaolinitic clay (lithomarge) similar to that found beneath the bauxite zones in the other holes drilled in this area. Vibration of the steel against the wall during the drilling of the holes caused some of the side material to work downward and become mixed with the material being taken from the bottom of the hole. Accuracy of the samples below 20 to 25 feet was therefore believed to be questionable because of the increasing amount of contamination from this source. No chemical analyses have as yet been made on the power augered holes, but differential thermal analyses of some of the samples at 15 to 20 feet indicate that these may still be within the bauxite zone.

Hole 26 was drilled to explore further the Rosedale Church block after the analyses of holes 22 and 23 showed this to be the thickest section of bauxitic material so far encountered in the Salem area. Hole 26 unfortunately was drilled during the rainy season in December 1954 when the water table was near the surface. Excessive inflow of ground water at 18 feet resulted in contamination of samples forcing discontinuation of drilling at 20 feet. Differential thermal analysis of the 18-to 20-foot interval indicates that the material is still within the bauxite zone. It may be of interest to note that there is a 20- to 30-foot fluctuation of the ground-water table in these hills between the wet and dry seasons.

During the course of the field work a basement excavation was studied that showed gibbsitic material in place approximately 28 feet vertically below the top of the knoll on which hole 1 was drilled. Since the results of hole 1 indicated probably no more than 20 feet of bauxite on the top of the hill, the bauxite horizon appeared therefore to be "draped" over the topographic high at this locality. Hole 27 was later drilled on the hillside approximately 150 yards southeast and 35 to 37 feet vertically below hole 23 to test this possibility. Although chemical analyses are not yet available, a differential thermal analysis of the 14- to 16-foot interval (i.e., approximately 51 feet below the top of the hill at hole 23) indicates that the material is still within the bauxite section at that depth and that the "draping" idea may be valid generally.

Chemical analyses of holes 1, 11, 21, and 22 have been plotted (see graphs on p. 28) to show graphically the variation in chemical composition with depth at each 2-foot interval. These four holes were chosen because they show typical bauxite sections taken from various scattered localities in the area.

The accompanying tabulation gives average analyses of the drill holes obtained by arithmetical averages of samples from each hole over intervals of 2 feet. An ore thickness was arbitrarily selected as shown in the table by using a cutoff point of 10 percent SiO_2 except in holes 8 (cutoff of 10.63% SiO_2) and 21 (cutoff of 11.60% SiO_2).

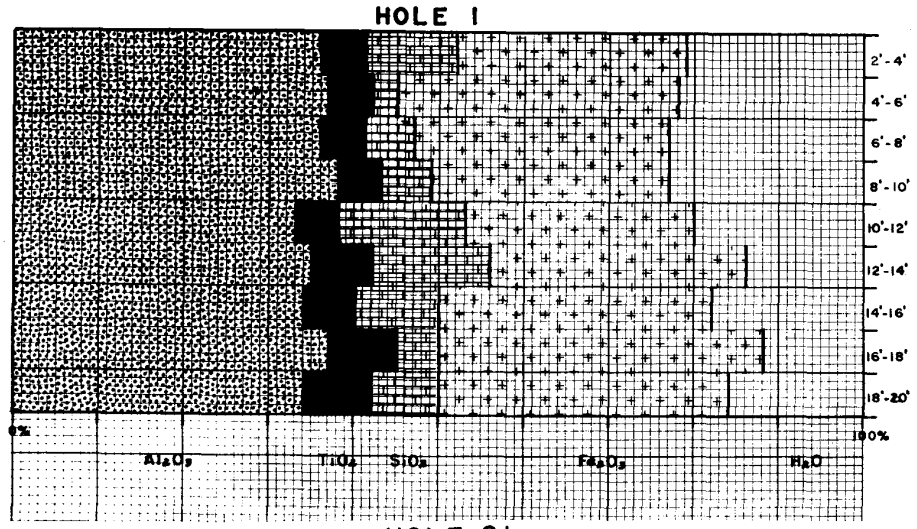
Final averages were obtained by weighting the averages of each hole against its ore thickness. It is realized that many more holes in the bauxite section would be necessary in order to obtain an accurate average of the value of the ore bodies but it is believed that these averages as given are indicative of results that may be obtained by close drilling.

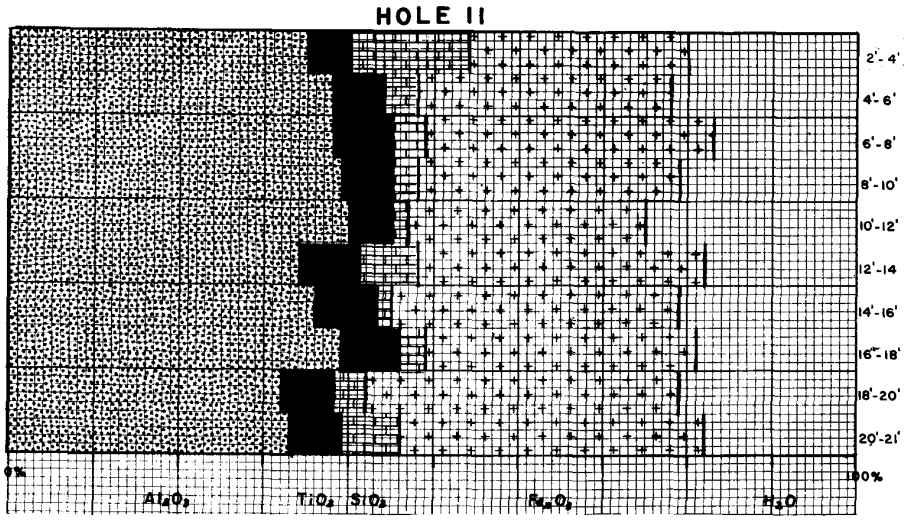
Conclusion

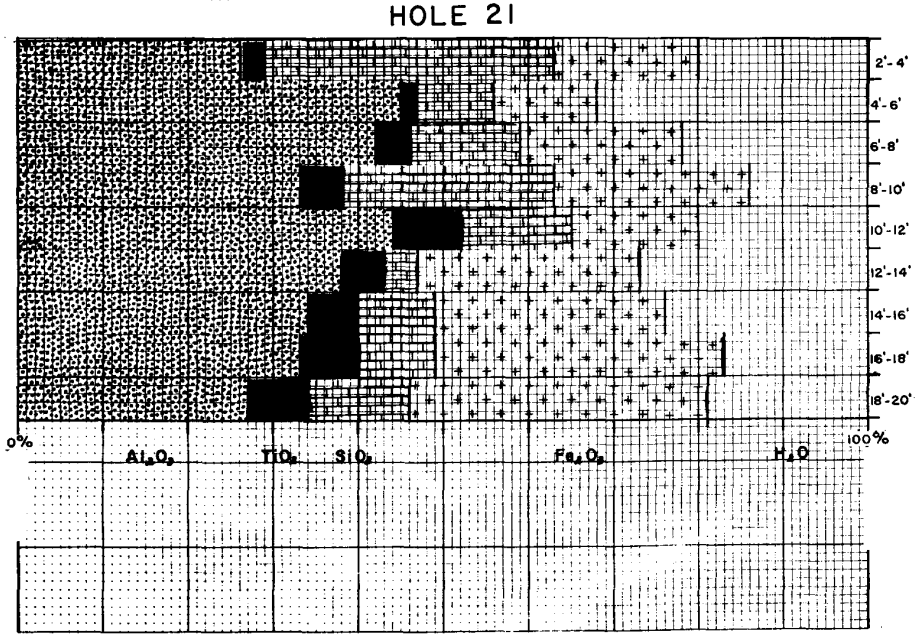
No estimate of ore reserves is given because of the small number of drill holes for such a large area. However, it is estimated that a total area in excess of 1500 acres is underlain with bauxitic laterite having an average thickness of about 14½ feet and with an overburden to be handled of about 3½ feet in thickness. As determined by the Department for the bauxitic section of bauxitic laterite in Washington County, the weight-volume factor is believed to be 17 cubic feet to the ton. The greatest tonnage of bauxite in the Salem Hills is thought to be concentrated in the northeastern part where seemingly the bauxitic section not only has the greatest areal extent but also contains the greatest thickness of ore. A plane table survey of the Rosedale Church district of this northeastern

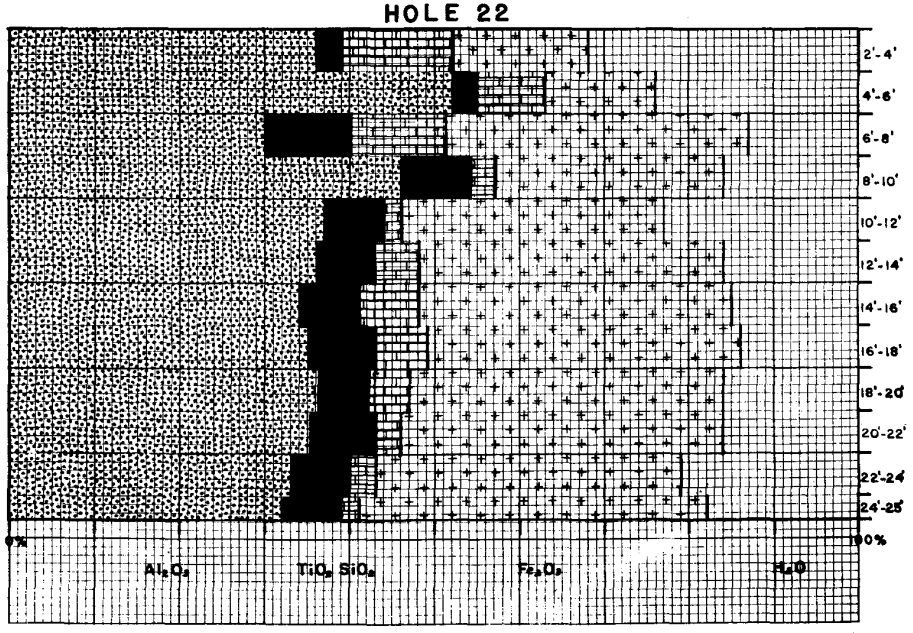
Average Analyses of Drill Hole Samples in Ore Section of Salem Hills Area

Hole	Depth	Over-burden	Ore Interval	Ore Thickness	Al_2O_3	SiO_2	Fe_2O_3	TiO_2	Loss on Ignition	Remarks
1	20'	2'	2' - 20'	18'	35.51%	8.75%	30.9%	6.20%	18.64%	At bottom SiO_2 = 7.66%
2	40'	2'	2' - 14'6"	12'6"	38.83	6.92	29.1	3.17	19.50	At 21' SiO_2 = 23.68%; at 14'6" SiO_2 = 4.9%
3	10'	---	none	---	---	---	---	---	---	Average SiO_2 = 21.31%
4	20'	---	none	---	---	---	---	---	---	Average SiO_2 = 17.14%
5	11'8"	2'	2' - 10'	8'	35.74	9.37	29.2	6.21	19.48	At bottom SiO_2 = 20.08%; at 10' SiO_2 = 14.22%
6	14'	---	none	---	---	---	---	---	---	Average SiO_2 = 25.41%
7	20'	2'	2' - 18'	16'	34.09	8.13	31.2	6.76	19.82	At bottom SiO_2 = 17.04%; at 18' SiO_2 = 5.8%
8	10'	2'	2' - 8'	6'	31.01	10.63	32.7	6.91	18.75	At bottom SiO_2 = 20.8%; at 8' SiO_2 = 10.5%
9	---	---	none	---	---	---	---	---	---	In weathered basalt below overburden
10	12'	---	none	---	---	---	---	---	---	Average SiO_2 = 23.94%
11	21'	2'	2' - 21'	19'	36.47	5.28	32.3	6.13	19.82	At bottom SiO_2 = 7.48%
12	20'	---	none	---	---	---	---	---	---	Average SiO_2 = 26.02%
13	20'	8'	8' - 20'	12'	35.87	6.23	29.3	6.99	21.61	At bottom SiO_2 = 5.96%
14	20'	2'	2' - 8'	6'	32.31	6.48	36.9	6.00	18.31	At bottom SiO_2 = 22.28%; at 8' SiO_2 = 10.50%
15	85'	2'	2' - 24'	22'	37.85	4.28	30.9	6.94	20.02	At 24' SiO_2 = 9.02%; below 24'no analyses
16	24'	2'	2' - 22'	20'	37.37	4.14	32.4	7.14	18.95	At bottom SiO_2 = 13.74%; at 22' SiO_2 = 10.40%
17	20'	2'	2' - 12'	10'	34.36	7.92	33.1	7.00	17.62	At bottom SiO_2 = 28.04%; at 12' SiO_2 = 13.44%
18	20'	4'	4' - 18'	14'	32.84	5.85	32.7	6.58	22.03	At bottom SiO_2 = 20.32%; at 18' SiO_2 = 11.28%
19	20'	8'	8' - 14'	6'	33.85	7.51	32.0	6.00	20.64	At bottom SiO_2 = 21.06%; at 14' SiO_2 = 7.68%
20	20'6"	8'	8' - 21'	13'	31.20	7.46	33.2	6.80	21.34	At bottom SiO_2 = 8.68%
21	20'	4'	4' - 18'	14'	38.02	11.60	22.3	5.34	22.74	At bottom SiO_2 = 12.24%; at 18' SiO_2 = 9.16%
22	25'	4'	4' - 25'	21'	36.84	5.12	32.8	6.84	18.40	At bottom SiO_2 = 2.40%
23	32'	4'	4' - 32'	28'	33.80	5.79	32.7	7.19	20.52	At bottom SiO_2 = 5.86%
Weighted Average		3.4'		14.4'	35.40%	6.67%	30.60%	6.56%	19.90%	


HOLE 1
2'-4'
4'-6'
6'-8'
8'-10'
10'-12'
12'-14'
14'-16'
16'-18'
18'-20'
0%
100%
Al_2O_3
TiO_2
SiO_2
Fe_2O_3
H_2O


HOLE 11
2'-4'
4'-6'
6'-8'
8'-10'
10'-12'
12'-14
14'-16'
16'-18'
18'-20'
20'-21'
0%
100%
Al_2O_3
TiO_2
SiO_2
Fe_2O_3
H_2O


HOLE 21
2'-4'
4'-6'
6'-8'
8'-10'
10'-12'
12'-14'
14'-16'
16'-18'
18'-20'
0%
100%
Al_2O_3
TiO_2
SiO_2
Fe_2O_3
H_2O


HOLE 22
2'-4'
4'-6'
6'-8'
8'-10'
10'-12'
12'-14'
14'-16'
16'-18'
18'-20'
20'-22'
22'-24'
24'-25'
0%
100%
Al_2O_3
TiO_2
SiO_2
Fe_2O_3
H_2O

part (see map) is being made in order to outline more closely the contained bauxite area which may be the largest in the field.

As was pointed out in the previous progress report (Corcoran, 1954) the soil cover over the bauxitic section in place contains gibbsite nodules in widely varying concentrations and ranging in size from less than an inch to as much as 30 inches or more in greatest dimension. It seems likely that the gibbsite in this overlying material could be recovered by coarse screening and hand sorting, possibly combined with washing.

Bibliography

Allen, V. T.
1948 Formation of bauxite from basaltic rocks in Oregon: Econ. Geology, vol. 43, no. 8, Dec. 1948.

Corcoran, R. E.
1954 Investigation of Salem Hills, Oregon, bauxite deposits: Oregon Dept. Geol. and Min. Ind. The Ore.-Bin, vol. 16, no. 9, Sept. 1954.

Libbey, F. W., Lowry, W. D., and Mason, R. S.
1945 Ferruginous bauxite deposits in northwestern Oregon: Oregon Dept. Geol. and Min. Ind. Bull. 29, 1945.

****

NEW DRILLING PERMITS

Drilling permit no. 8 was issued March 29, 1955, to Riddle Oil and Gas Producers, W. M. Parnell, Manager, Riddle, Oregon. The location of the test is given as SW¼ of SW¼ sec. 34, T. 30 S., R. 6 W., Douglas County. The lessor is Harry Dayton, Riddle, Oregon.

Drilling permit no. 9 was issued April 1, 1955, to Standard Oil Company of California. The location of the test is stated to be SW¼ of SE¼ sec. 11, T. 7 N., R. 10 W., Clatsop County. The lessors are William J. and Anna Hoagland, Astoria, Oregon.

****

MINING LAW REVISION

Congressman Harris Ellsworth has introduced H.R. 5577 to amend the mining laws. This bill is similar to the D'Ewart bill introduced in the last Congress. The Ellsworth bill has received the endorsement of both the Interior and Agriculture departments as well as the American Mining Congress Public Lands Committee and the American Forestry Association. The bill appears to contain provisions which will satisfy the various groups who sought to make much more drastic revisions of the law without taking into consideration the harm such changes would do to the mining industry. The Ellsworth bill removes sand, stone, gravel, pumice, pumicite, and cinders from entry and location under the mining laws unless these materials contain locatable minerals, and places such materials under the Materials Disposal Act. Up to the time of patenting, mining claims will be subject to federal government management of surface resources other than minerals. The miner would be guaranteed his full rights for prospecting and developing his claim and the use of such timber as would be required in such development. After patenting, title to the claim with all surface resources would be acquired by the claimant as under present law.

****

GRANTS PASS OFFICE OPEN ON SATURDAYS

Beginning on April 16, 1955, the field office of the State Department of Geology and Mineral Industries at 239 S.E."H" Street, Grants Pass, which has been closed on Saturdays during winter months, will be open on Saturdays until further notice.

****

DOMESTIC METAL PRICES

From E&MJ Metal and Mineral Markets

Copper - 35.7 cents per pound Connecticut Valley.
Lead - 15 cents per pound New York.
Zinc - 12 cents per pound East St. Louis.
Quicksilver - $317-320 per flask New York.
Silver - (foreign) 87 cents per ounce New York; (domestic) 90½ cents government price.
Aluminum - per pound f.o.b. shipping point (freight allowed) 30-pound ingot 99+ percent, 23.2 cents per pound; in pigs, 21½ cents.
Antimony - 99½ percent grade, domestic, bulk, Laredo, 28.5 cents per pound.
Bismuth - $2.25 per pound in ton lots.
Cadmium - delivered, $1.70 per pound.
Cobalt - per pound in 500- to 600-pound containers, $2.60.
Cobalt ore - per pound of cobalt contained f.o.b. Cobalt, Ontario, 9-percent grade, $1.30; 10 percent, $1.40.
Gallium - per gram in 1000-gram lots, $3.00.
Germanium - per pound $295.
Iridium - per ounce troy $90-100.
Lithium - per pound 98 percent $11-14.
Nickel - per pound electrolytic cathodes f.o.b. Port Colborne, Ontario, 64½ cents duty included.
Osmium - per ounce troy $80-100.
Palladium - per ounce troy $17-19.
Platinum - per ounce troy $76-80.
Selenium - per pound $6.
Titanium - per pound 99.3+ percent maximum .3 percent iron, $3.95.
Titanium ore - per long ton, ilmenite 59.5 percent TiO_2 f.o.b. Atlantic Seaboard $18-20; rutile per pound, minimum 94 percent, concentrate 8-8½ cents.
Tungsten - per pound 98.8 percent, $4.39.
Zirconium - per pound, sponge, $10.

****

RIDDLE NICKEL

According to the Wall Street Journal, the M. A. Hanna nickel smelter at Riddle, Oregon, is operating on a two-furnace basis and the company expects to produce between four and five million pounds of nickel this year. Last year when the smelter was started, production was about 300,000 pounds. As reported, company officials believe that the smelting process, not heretofore used in this country, has great promise.

****

BILL TO EXTEND GOVERNMENT PURCHASE PROGRAM

S. 922 by Senator Goldwater of Arizona seeks to extend to 1963 the government's purchase program for manganese, tungsten, chrome, mica, and asbestos. It is reported by Mining World that, except for manganese producers, strategic mineral people have not evidenced very much concern to their congressmen over the fate of this bill. There will be considerable opposition by the Budget Bureau and some other government agencies to extending this purchase program and, if individual producers do not show a great deal more interest to their congressmen in support of the bill, it will have hard sledding.

****

STRATEGIC MATERIALS TO BE EXCHANGED FOR SURPLUS FARM PRODUCTS

It is reported that the government's barter program under which surplus farm products will be exchanged for strategic materials such as manganese, cobalt, mercury, platinum, nickel, tin, lead, and zinc, will include a contract to exchange 100,000 tons of surplus wheat for Turkish chromite. It is not stated what value is to be placed on the wheat.

****

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
Head Office: 1069 State Office Bldg., Portland 1, Oregon
Telephone: COlumbia 2161, Ext. 488

Field Offices

2033 First Street — Baker
239 S.E. "H" Street — Grants Pass

****

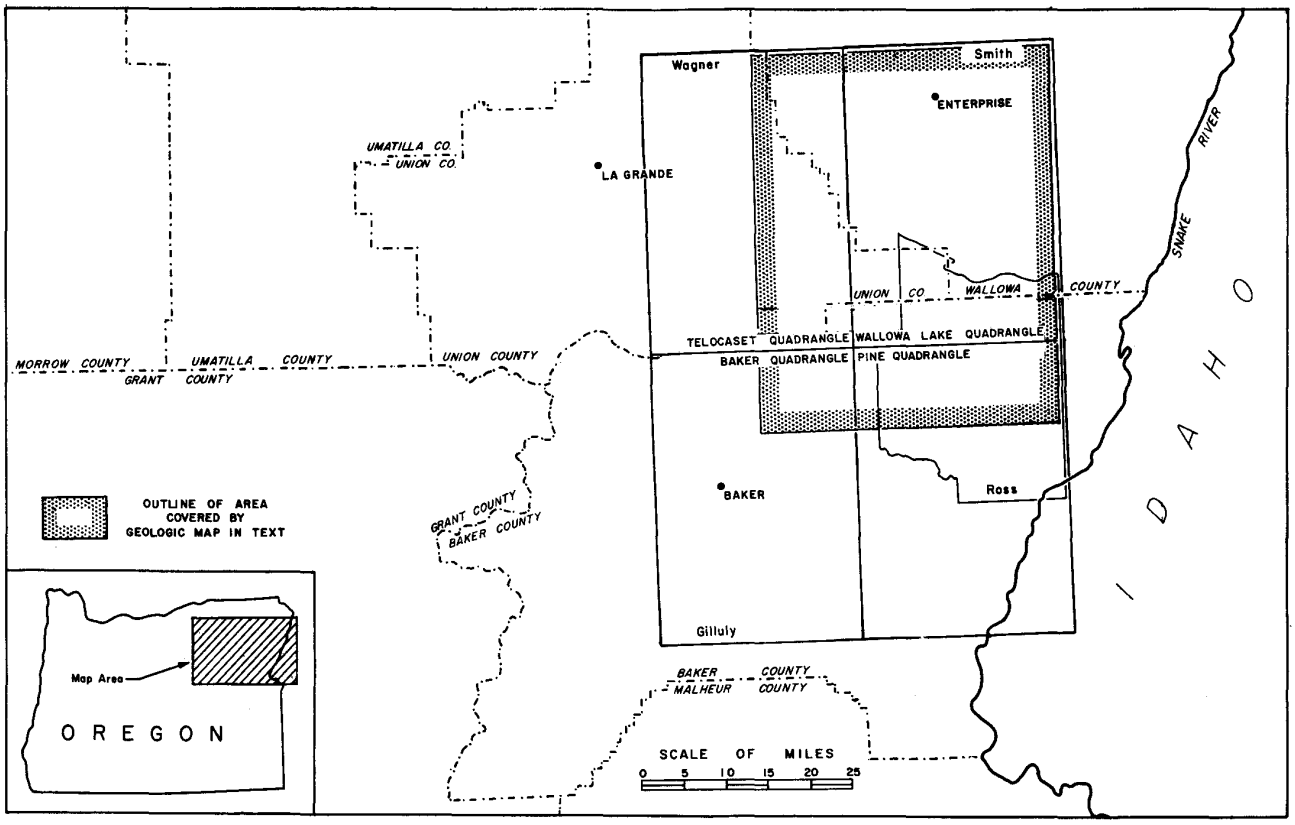
SUMMARY OF WALLOWA MOUNTAINS GEOLOGY

By
N. S. Wagner*

Introduction

The Wallowa Mountains in northeastern Oregon represent an area in which important geologic mapping has been done but for which only an incomplete map coverage is now available. This report and accompanying geologic map (p. 32) were prepared in order to make information on the geology of the Wallowas available to the public at a time when this information may be of assistance to uranium prospectors during this and succeeding field seasons.

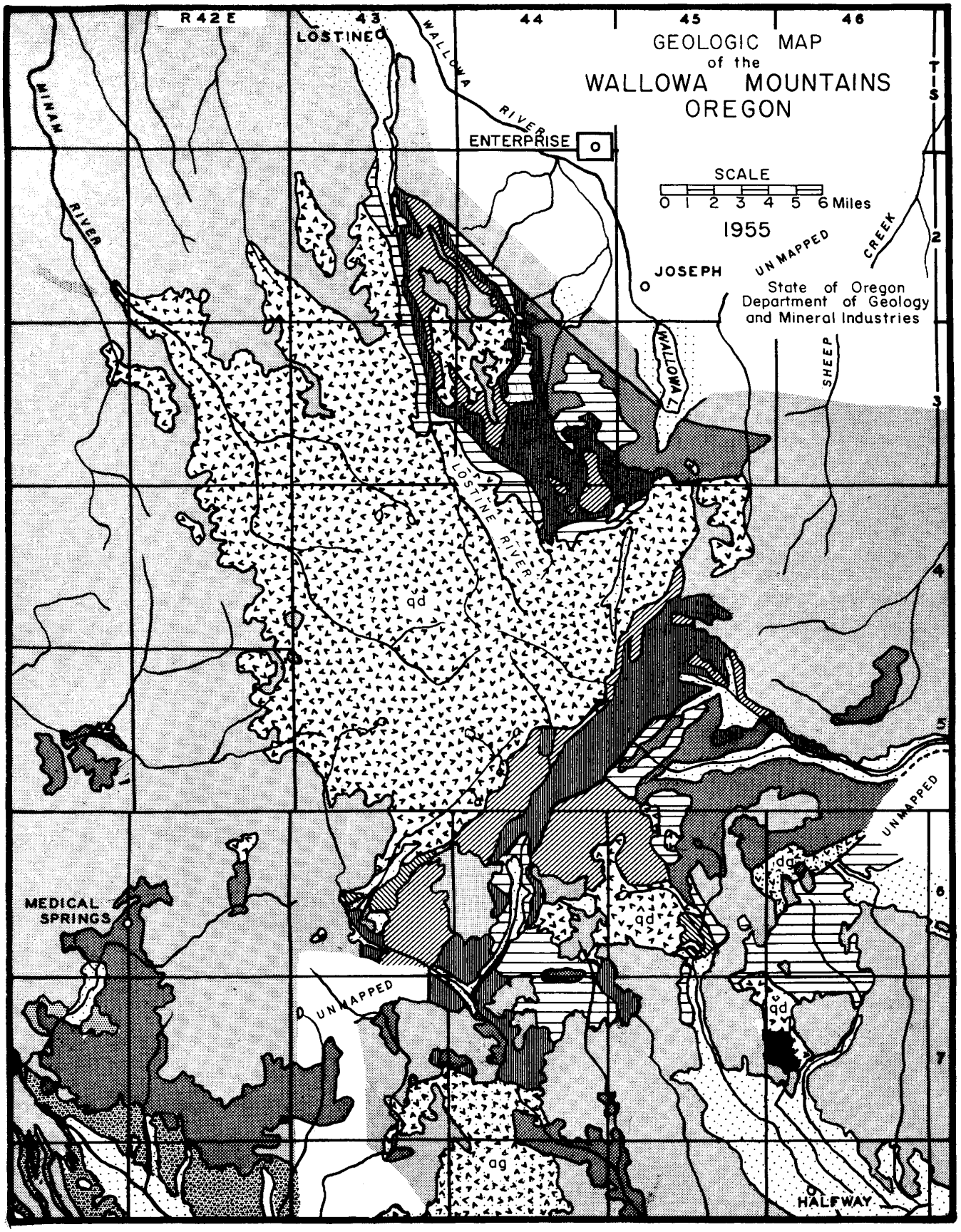
Four separate maps were used in compiling the one reproduced herewith. The area covered by these maps is shown on the index map below along with the identity of the authors. Since the original maps are each quite large, reduction to the present scale could not be made without some loss of detail. However, the reduction has not resulted in loss of important detail that would change the basic geology as shown on the original maps.



Index Map

---

*Geologist, State Department of Geology and Mineral Industries.


GEOLOGIC MAP
of the
WALLOWA MOUNTAINS
OREGON
1955
State of Oregon
Department of Geology
and Mineral Industries
SCALE
0 1 2 3 4 5 6 Miles
R42E
43
44
45
46
T1S
2
3
4
5
6
7
LOSTINE
WALLOWA RIVER
ENTERPRISE
MINAM RIVER
JOSEPH
WALLOWA L.
SHEEP CREEK
LOSTINE RIVER
UNMAPPED
MEDICAL SPRINGS
HALFWAY
qd
ag

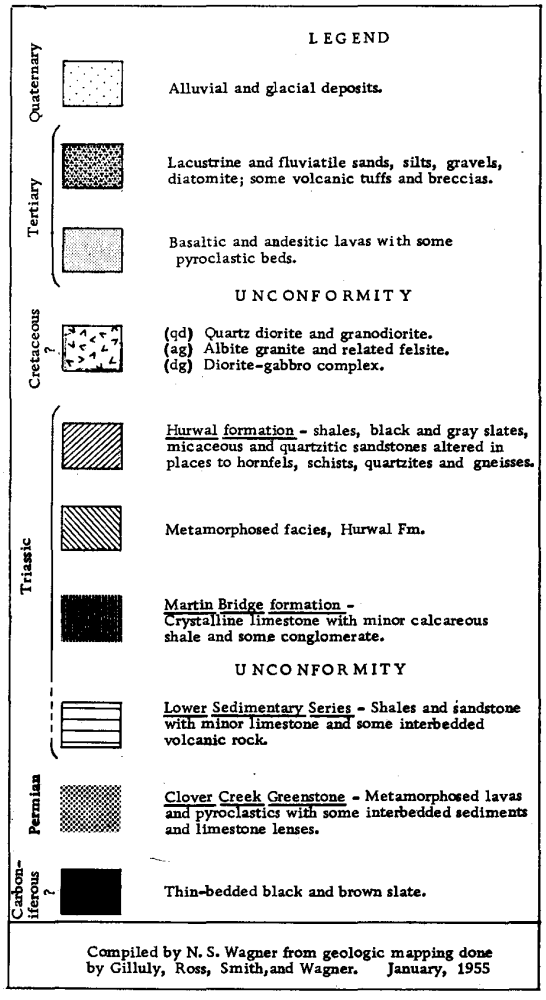
General geology

The Wallowa Mountains were lifted to their present heights by diastrophic processes in late Tertiary-Quaternary time and carved by subsequent erosion into their present picturesque condition. That the normal processes of stream erosion were supplemented by glaciation is manifest by the presence of numerous lakes, hanging valleys, and morainal deposits.

The rock types involved in this mountain building process include lavas of Tertiary age, a wide assortment of both crystalline and sedimentary rock types of Mesozoic age, and a highly metamorphosed series of interbedded volcanic and sedimentary rocks of late Paleozoic age. There are also some sedimentary rocks which may possibly represent an earlier Paleozoic age but there is some doubt as to how they should be correlated.

Description of map units

Alluvial and glacial deposits. These are unconsolidated products of contemporaneous and near contemporaneous sedimentary deposition. Although the alluvial deposition occurs at random elevations, most of the glacial deposition is found only in the higher elevations, generally about 4500 feet.



Lacustrine and fluviatile deposits. The rocks of this unit are extensively developed in the Baker quadrangle but they are shown only in the lower Powder Valley portion of the present map. Gilluly describes the formation as composed of sands, gravels, mud flows, diatomaceous earth, and much volcanic material which grades into tuffs and breccias. He also states that some of the water-laid tuffs occur both beneath the Columbia River lava and interbedded with it and that some even overlie it. From these relationships Gilluly concludes that this lacustrine and fluviatile series is generally contemporaneous with the associated lavas. Fossil evidence indicates that at least some of the sedimentary horizons are of Miocene age. The thickness ranges from a few inches to 1000 feet or more.

Tertiary lavas. These are chiefly basalts and basaltic andesites but appreciable and possibly significant differences in composition and texture occur between the flows found in various places. On the whole the series is thick and is characterized by a succession of flow upon flow with a lack of sedimentary interbeds excepting those just mentioned in the lower Powder Valley. Although exposures like those revealed in the canyon of the Minam River indicate a maximum thickness of between 3000 to 4000 feet of lava it is nevertheless not uncommon to find the formation represented by a single thin flow. This is due partly to the rugged pre-Tertiary relief which influenced emplacement of flows during the period of extravasation and partly to later erosion. In any event these lavas constitute the largest single rock type present in the area, and the main body of the flows is a part of the lava plateau which blankets much of north-central Oregon

and adjacent parts of Washington. The structural attitude of the formation as a whole is characterized by gentle regional dips and mild folds. Feeder dikes are occasionally exposed in the higher portions of the mountains. These dikes are often vertical, or near vertical, and they can frequently be seen and traced for several miles. Ross, Smith, and Gilluly designate the lavas in their areas as "Columbia River Basalt" of Miocene age but evidence within the Telocaset quadrangle indicates that lavas of a younger age may also be present.

Quartz diorite and related crystallines. These rocks make up the second largest rock unit present in the area. They are most extensively exposed in the central portion of the mountains but many outlying exposures occur in the lower foothills as "windows." Composition ranges from quartz diorite and granodiorite to albite granite and gabbro, and the various areas occupied by each are designated separately on the map. The rocks of this group are the youngest of all the pre-Tertiary rocks in the area. The age tentatively assigned by those who have worked in the Wallows is Cretaceous but evidence found in the area of the Idaho batholith, of which the Wallowa Mountains are possibly a part, indicates the age of intrusion may extend from the late Cretaceous into the early Tertiary.

Granitic masses of this type are usually thought to have originated from a molten melt which intruded and stoped its way into the rocks of the earth's crust. However, an increasing amount of evidence indicates that granitic rocks are sometimes formed from pre-existing sediments by a process known as "granitization." Professor Goodspeed of the University of Washington has published several reports outlining evidence which indicates that at least some of the Wallowa Mountain crystallines were formed in this manner.

Hurwal formation. The Hurwal formation is comprised chiefly of clastic sediments which have been metamorphosed to a varying degree in different places in the mountains. Argillaceous sediments are the most conspicuous rock type but coarser sandstone beds are not uncommon according to Smith. Limestone and limy horizons are notably lacking.

The formation is fossiliferous and is Upper Triassic in age. It rests conformably on the limestones of the underlying Martin Bridge formation. As shown on the geologic map, the formation includes Ross' "Younger Mesozoic" sediments and his "Triassic (?) volcanic rocks." Two of the larger areas in which this formation is metamorphosed to an advanced degree are shown separately on the map but it should be remembered that other similarly metamorphosed rocks may be encountered elsewhere in areas too restricted in size to map individually. Thickness is reported as ranging from 0 to 1500 feet.

Martin Bridge formation. This formation is made up almost exclusively of massive beds of limestone and marble. A gray to bluish-white variety is the most common. Other colors are also present among which is the dense black type locally known as "black marble." Many different states of recrystallization exist in accordance with the amount of metamorphism. Well-developed bedding is sometimes prominent but much flow banding of metamorphic origin is also present and is especially well developed near the contacts of more competent rocks. Fossils are fairly common and have served to establish the age of the formation as Upper Triassic. Reports on thickness vary widely. Ross gives a figure of 3000 feet for an exposure near the head of Eagle Creek but Smith states that the overall average is probably around 500 feet.

Lower sedimentary series. Smith describes this series as "Shales, sandstones, with minor amounts of limestone and conglomerate; mostly altered to slate, hornfels, schist, and crystalline limestone." Ross' description is essentially the same but includes mention of some interbedded cherts and lavas, and offers the added information that shades of red, green, and purple represent the typical colors of the sandstones and slates. Both men agree that this series includes a preponderance of sedimentary rocks stratigraphically older than the Martin Bridge formation and that it is separated from the Martin Bridge formation by a strong unconformity. Ross originally correlated the series as being of probable Carboniferous age but qualified this correlation by pointing out that at least some portions of the series were equivalent to, and even younger than, the Permian greenstones and that the series as a whole clearly comprises several formations which cannot

be separated on the basis of the available data. Smith reports that his observations serve to show that the formation is entirely conformable on the Clover Creek formation and that fossil evidence indicates an Upper Triassic age. Estimates of thickness are complicated by folding, faulting, and metamorphism. However, Smith gives a thickness of 2000 feet for the exposures in the Point Joseph area.

Clover Creek greenstone. This name was given by Gilluly to an assemblage of rocks found in the Baker quadrangle made up largely of "altered volcanics and pyroclastic rocks, with subordinate conglomerate, limestone, and chert." These rocks correlate with some of the horizons in the Seven Devils volcanics on the Snake River at Homestead, and fossil evidence has established fairly conclusively that the Clover Creek greenstone is of Permian age. Not all of the many component rock types described by Gilluly are found in the Wallowa Mountain exposures mapped by Ross and Smith, but there is no question concerning the general correlation between Gilluly's rocks and those mapped by Ross and Smith. Some question does exist, however, concerning the proper correlation of the nongranitic pre-Tertiary rocks in the Telocaset quadrangle in T. 5 S., R. 41 E., and in the east half of T. 6 S., R. 42 E. These rocks are shown here as Clover Creek greenstone for convenience, but in the Telocaset quadrangle report the writer has mapped these areas separately as a metasedimentary series because they seem to correlate better with the rocks contained in the Lower sedimentary series than with those belonging to the Clover Creek greenstone. Estimates of thickness of this formation vary but it is agreed that the thickness is in the order of several thousand feet.

Carboniferous (or older?) slates. These are thin-bedded black and brown slates which Ross regarded as the oldest sedimentary rocks in his area. This conclusion was based on structural considerations. Smith feels these slates should be considered as a part of his Lower sedimentary series. They are shown here separately for the reason that Ross mapped them as a separate unit and the occurrence lies outside the area covered by Smith's map. In any event these slates are very restricted in their extent. Ross describes them as having alternating hard and soft streaks and a poorly developed slaty cleavage.

Selected Bibliography

Gilluly, James

1937 Geology and mineral resources of the Baker quadrangle, Oregon: U.S. Geol. Survey Bull. 879, 1937.

Goodspeed, G. E.

1948 Origin of granites: Geol. Soc. Am. Mem. 28, p. 55-78, 1948.

1955 Relict dikes and relict pseudodikes: Am. Jour. Sci., vol. 253, p. 146-161, Mar. 1955.

Lindgren, Waldemar

1901 The gold belt of the Blue Mountains of Oregon: U.S. Geol. Survey 22nd Ann. Rpt., pt. 2, p. 551-776, 1901.

Pardee, J. T.

1941 Preliminary geologic map of the Sumpter quadrangle, Oregon: Oregon Dept. Geology and Mineral Indust. Map, 1941.

Ross, C. P.

1938 The geology of part of the Wallowa Mountains: Oregon Dept. Geol. and Mineral Indust. Bull. 3, 1938.

Smith, Warren D., and others

1941 Geology and physiography of the northern Wallowa Mountains, Oregon: Oregon Dept. Geol. and Mineral Indust. Bull. 12, 1941.

Wagner, Norman S.

1952 Geology of the Telocaset quadrangle: Oregon Dept. Geology and Mineral Indust. unpublished report, 1952.

****

NOW WE'RE GETTING SOMEWHERE*

Recent introduction in the House and Senate of measures designed to curb abuses of the mining laws without disturbing their basic principles has the support of the Departments of Interior and Agriculture, the Bureau of the Budget, and many users of the public domain....

For many years a continuous barrage of adverse publicity has been leveled at abuses of existing mining laws. The general mining laws have been called archaic and outmoded. Actually, where the mining laws have been abused, the fault has largely lain in lax administration and not in the laws themselves.

Myopic critics have completely overlooked the part our mining laws played and are continuing to play in the development of the West, and in assuring a supply of vital raw materials for our growing civilian economy and the defense needs of our nation, needs that are likely to continue high for the foreseeable future.

It is a basic principle of our mining laws that every American may enter on the public lands to search out mineral deposits. It is also a basic principle that every American having found evidence of mineralization has the right to locate a mining claim and furthermore, when he has invested time and money in the development of such claim to the point where it justifies the granting of a patent, he is entitled to a full "fee simple" title, with the security of tenure and the sound basis for future financing of mining operations which such a title provides.

Our nation depends on mining for its supply of metals, minerals and fuels. Mining, in turn, needs encouragement to explore for and develop mineral deposits. The principles upon which our mining laws were built supply the kind of incentive needed. The industry has never condoned the abuses that have provoked such floods of criticism. Instead it has sought means of curbing those abuses without abandoning the fundamental principles of existing law.

The proposed legislation is the product of intensive work by the Department of the Interior and the Department of Agriculture and conferences between representatives of those departments and of the mining industry. Its enactment would remove the primary causes of abuse of the mining laws and provide for multiple use of the surface of mining claims hereafter located, prior to patent. It would provide the Federal Government a means of clearing up title uncertainties resulting from the existence of abandoned, invalid, dormant or unidentifiable mining claims, while protecting the claim-holder's basic rights. It would guarantee to the miner full rights for prospecting, development and related activities and preserve his right, upon patent, to the same full title to his claim as under the existing mining law.

Enactment of the proposed legislation would solve a problem that has been before the Congress and the public for two decades. It should have the support of every mining man and every user of the public lands.

---

*Editorial, American Mining Congress Journal, May 1955.

* * * * *

NOTE

Readers of newspapers will recall the great hue and cry raised a few years back about the mass locations of placer claims in the Union Creek area of Jackson County. It was stated that the public was being robbed of valuable timber by people using the "archaic" mining laws as a vehicle for the outrageous act. Where did the blame lie? Why of course, according to the allegations, with the mining laws and they must be changed so that absolute control of the surface be given to the Federal Government. The Federal agencies concerned were represented as powerless to prevent such locations. A great many people were led to believe and were encouraged to believe by country-wide propaganda that a person could locate mining claims and acquire timber thereby irrespective of mineral values. What really happened? Mining people - those actually working in the industry - became aroused over the

Union Creek matter. They strongly urged that the Bureau of Land Management and Forest Service invoke the powers given them under the law to rectify abuses such as here alleged by immediately contesting the locations. Administrative machinery was finally set in motion, hearings were held, locations contested, and reports are that the ground located has been or soon will be returned to the public domain. These facts haven't been publicized as the original locations were publicized. One wonders why.

As stated in the A.M.C. editorial, the proposed changes in the mining laws are highly desirable, but the statutes enacted in 1872 together with the later additions to the laws and court interpretations built up over three-quarters of a century are not archaic or outmoded as the propaganda would have people believe. The basic law will not be changed by the amendments proposed, and private enterprise will still be encouraged to prospect for and develop minerals so greatly needed.

F.W.L.

****

MINING LAW REVISION

Hearings on seven mining-law revision bills were held by the Mines and Mining Subcommittee of the House Interior Committee on May 19 and 20. The bills were identical except that HR 5577 by Congressman Harris Ellsworth has a provision to assure handling of revenues from O&C Revested Lands as under existing law.

In response to a request for information on progress in the hearings Congressman Ellsworth wired the Department May 20th as follows:

H. M. DOLE. ACTING DIRECTOR OREGON STATE DEPT OF GEOLOGY

1069 STATE OFFICE BLDG PORTLAND ORG

RETEL HOUSE MINES AND MINING SUBCOMMITTEE IN EXECUTIVE SESSION TODAY ORDERED MINING LAW AMENDMENTS REPORTED FAVORABLY TO FULL COMMITTEE FOR EARLY ACTION. FINAL COMMITTEE ACTION EXPECTED TUESDAY. THE BILL APPROVED BY THE COMMITTEE IS HR 5891 BUT WILL CARRY LANGUAGE SIMILAR TO THAT IN MY BILL BRINGING O & C LANDS INTO HARMONY WITH OTHER LANDS AND PRESERVING DISTRIBUTION OF FUNDS FROM O & C LANDS IN ACCORDANCE WITH O & C LAWS. BELIEVE MEASURE WILL BE APPROVED BY SUBSTANTIAL VOTE IN THE HOUSE AT AN EARLY DATE. REGARDS

HARRIS ELLSWORTH MC

****

GOLD PLACER SUSPENDS

Wes Pieren and Antone J. Nilson of the Evergreen Mining Company have suspended hydraulic operations on the North Fork of Galice Creek in sec. 3, T. 35 S., R. 8 W., Josephine County. Pieren says that operations could have continued with plenty of water, but that the mine was closed because of the opening of the fishing season and regulations of the Rogue River Coordination Board.

The operation was in a part of a 5-mile line of old channel gravel occurrences trending southwest from just above the town of Galice. The gold-bearing ground is in poorly sorted gravels, sand, and clay with layers of gray to red soil.

Pieren says that the gravels were removed from a rough square of 150 feet. They averaged 5 feet in thickness and barren overburden averaged about 14 feet. A total of more than 100 ounces of gold was recovered by the sluice and by cleaning up with pans. One small nugget of platinum was found. The gold nuggets were flat disc-shaped or elongated, and several weighed more than an ounce and a half each.

****

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

In the matter of amending certain rules and regulations previously adopted for the conservation of oil and natural gas pursuant to Chapter 520, Oregon Revised Statutes, by the Governing Board of the State Department of Geology and Mineral Industries.) Proceeding No. 2) NOTICE OF HEARING

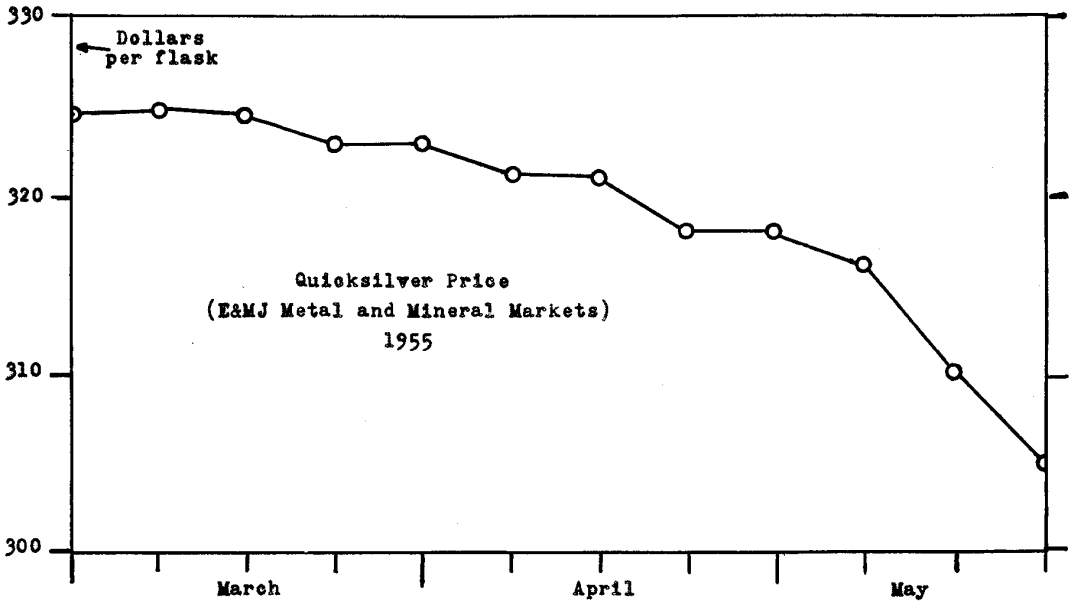
Hearing will be held in Room 36, State Office Building, Portland, Oregon, on June 6, 1955, beginning at 10:30 a.m. Copies of proposed amendments to the rules and regulations may be secured from the Department at 1069 State Office Building, Portland, Oregon, upon request.

/s/ Mason L. Bingham
Chairman

****

QUICKSILVER

During the past month the market price of quicksilver has been consistently weak as shown by the accompanying graph. According to E&MJ Metal and Mineral Markets, May 19, 1955, Mexican quicksilver sold at $295 for nearby delivery, and consumers are reported to be virtually out of the market because of the price weakness.



****

TRIMBLE RESUMES U.S. GEOLOGICAL SURVEY MAPPING

Don Trimble of the Engineering Geology Branch of the U.S. Geological Survey with headquarters in Denver has returned to Portland to resume quadrangle mapping in the lower Columbia River area. During several previous field seasons Mr. Trimble has mapped in this general area including the Portland, Hillsboro, Camas, and Oregon City quadrangles. During the 1955 field season the Boring quadrangle will be added to his mapping program.

The geologic map of the Portland quadrangle together with descriptive text will be published in the U.S. Geological Survey Geologic Map Series probably in 1956. Eventually all five quadrangles will be published in bulletin form.

****

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
Head Office: 1069 State Office Bldg., Portland 1, Oregon
Telephone: COlumbia 2161, Ext. 488

Field Offices

2033 First Street
Baker

239 S.E. "H" Street
Grants Pass

****

FOSSIL LOCALITIES IN THE COOS BAY AREA, OREGON

By
Margaret L. Steere*

Introduction

Fossil shells are abundant in the sedimentary rocks of the Coos Bay area. Good fossil specimens are most likely to be found where sedimentary rocks are freshly exposed, such as in recent, unweathered road cuts or at the base of cliffs along the coast and the bay where wave action is constantly uncovering new material. Ten easily accessible fossil localities are described in the following text and their location shown on the accompanying map. Localities along the water's edge can generally be reached only at low tide.

Geologic picture

The Coos Bay area is underlain by a very thick sequence of sediments, chiefly of Eocene age, laid down millions of years ago in the environment of a fluctuating sea where deposition was in part marine and in part continental.

The sediments were later folded into a large basinlike trough having lesser folds within its general structure. Even though these folded rocks have long since been beveled by erosion, the ancient structure is still apparent, especially along the coast between Cape Arago State Park and Yokam Point where the upturned edges of the harder strata crop out in parallel ridges.

Within the sequence of sediments in the Coos Bay area, a number of formations have been recognized and named, but the most extensive is the Coaledo formation of Eocene age, which is believed to be at least 6000 feet thick. It crops out in many places in the area and in some sections has an abundance of fossil marine shells. The Coaledo formation contains, also, plant remains in the wide-spread coal beds, but the identity of the plants has been largely lost and consequently the coal beds do not usually make good fossil hunting grounds.

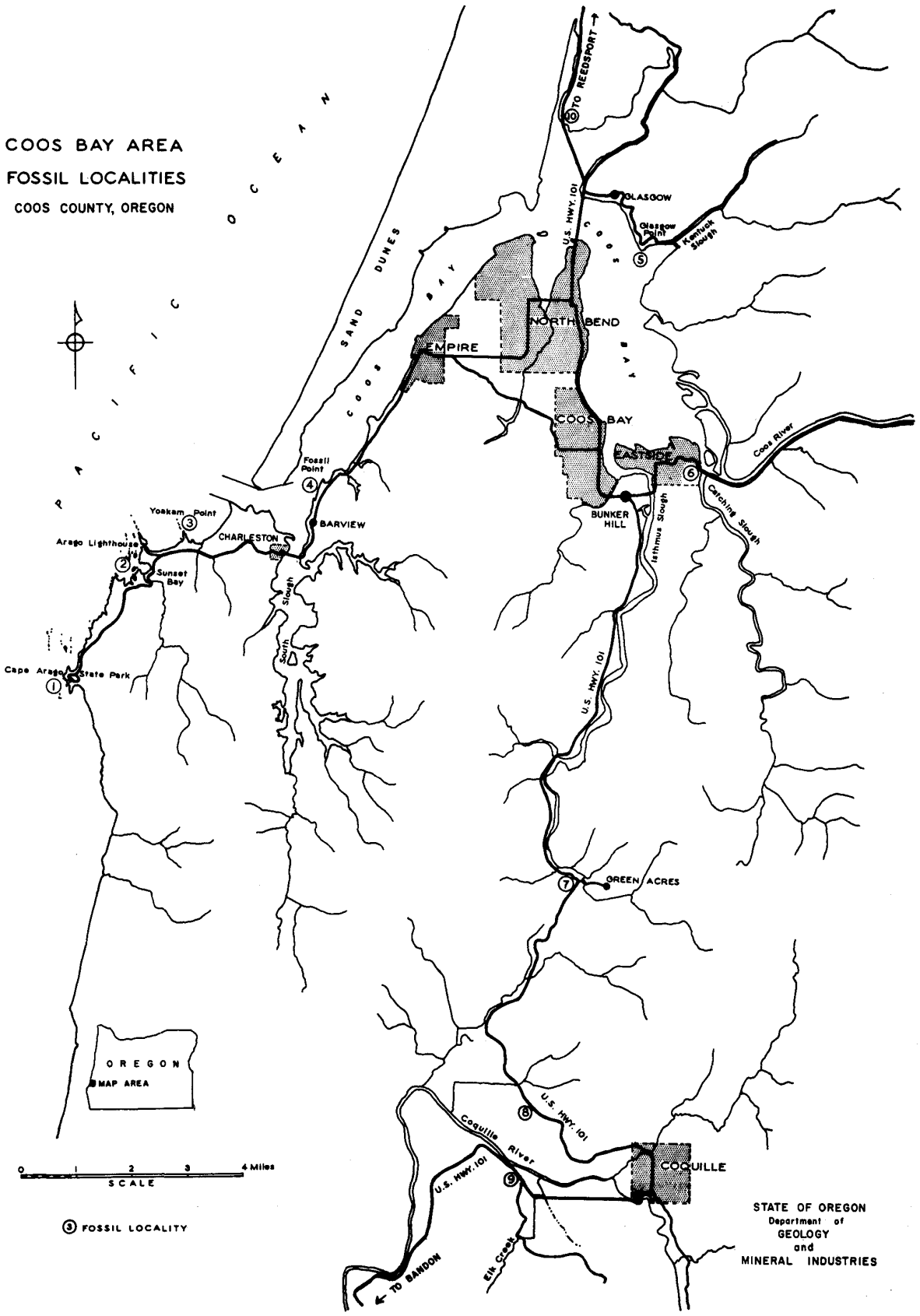
Overlying the truncated folds of the older strata is a deposit of thick-bedded, brown sandstone called the Empire formation. This formation is limited to the South Slough basin and represents a local inundation of the sea during Pliocene time. Within the Empire sandstone is a local lens of fossil conglomerate, called the Coos conglomerate, composed of myriads of shells cemented together. This very fossiliferous lens crops out at the water's edge near Fossil Point, about half way between Empire and Charleston. Besides a great variety of fossil shells, the Empire formation has yielded a number of bones of Pliocene marine mammals.

Descriptions of fossil localities**

1. Cape Arago State Park. Cape Arago State Park is on the coastal headland southwest of Coos Bay, about 15 miles from U.S. Highway 101, and is reached from either North Bend or Coos Bay via Empire and Charleston on a good surfaced road. At the Park, trails lead down the cliffs to the narrow beaches at the base of the three coves (South, Middle, and North). The bed rock which forms the cliffs is the Coaledo sandstone of Eocene age. At Middle Cove, large boulders filled with Eocene fossils lie along the beach. In these boulders and in the outcropping Coaledo sandstone and conglomerate exposed at low tide, one can find many

---

*Geologist, State Department of Geology and Mineral Industries.
**Numbers correspond to locality numbers on map.


COOS BAY AREA
FOSSIL LOCALITIES
COOS COUNTY, OREGON
PACIFIC OCEAN
SAND DUNES
COOS BAY
TO REEDSPORT
GLASGOW
Glasgow Point
Kentuck Slough
U.S. HWY. 101
NORTH BEND
EMPIRE
COOS BAY
EASTSIDE
Coos River
Fossil Point
BARVIEW
Yoakam Point
CHARLESTON
Arago Lighthouse
Sunset Bay
Cape Arago State Park
South Slough
BUNKER HILL
Isthmus Slough
Catching Slough
GREEN ACRES
Coquille River
COQUILLE
TO BANDON
Elk Creek
OREGON
MAP AREA
0 1 2 3 4 Miles
SCALE
③ FOSSIL LOCALITY
STATE OF OREGON
Department of
GEOLOGY
and
MINERAL INDUSTRIES

species of gastropods and pelecypods and, occasionally, fossilized crabs and sand dollars. Fossil crabs are generally inside hard, limy concretions.

2. Sunset Bay. Sunset Bay is 2½ miles by road northeast of Arago State Park, or 11 miles from Highway 101. The road skirts the landward end of the bay, and a parking area is situated close to the water's edge. At low tide fossil shells can be easily found in the steep Coaledo sandstone cliffs which form the north and south walls of the bay.

3. Yokam Point. Yokam Point, sometimes called Mussel Reef, is a promontory at the west end of Bassendorf Beach, about 1 mile east of Sunset Bay and 10 miles from Highway 101. At this locality, the Coaledo beds are almost vertical, and the more resistant sandstone layers jut out into the ocean as reefs containing highly fossiliferous lenses. The road passes close to the point, and at low tide the reefs can be reached from various trails leading down to the beach.

4. Fossil Point. Fossil Point, a well-known pioneer land mark, juts out from the east shore of Coos Bay, 1.6 miles by road north of the east end of the South Slough bridge, or 3.2 miles south of the right-angle turn in the highway at Empire.

Fossil Point is composed of massive, brown sandstone of the Empire formation. Many species of Pliocene mollusks occur in the sandstone, but of particular prominence are the large and well-preserved pectens. Skulls and other bones of Pliocene whales and sea lions are sometimes found here. The Empire sandstone forms a continuous ledge which may be followed at low tide along the shore for about half a mile to the south. The ledge terminates in a deep-water recess the south wall of which is formed by the Coos conglomerate that projects into the bay. Fossil shells in this conglomerate are so numerous and so firmly cemented together that extraction of single specimens is difficult.

The locality is not so easily accessible as in the past, for the narrow strip of land between the highway and the shore is now largely private property. The outcrop of Coos conglomerate may be reached at low tide by following the beach north from the east end of the South Slough bridge for a distance of about 1 mile. Fossil Point may be reached at low tide from the small bay at the north end of the point where the highway comes close to the water's edge, 3.1 miles south of the right-angle turn of the highway in Empire.

5. Glasgow Point. Glasgow Point is a headland across the bay from North Bend and southeast of the town of Glasgow. It is reached from the north end of the Coos Bay bridge by following a surfaced road east through Glasgow for 2.5 miles to the edge of Kentuck Slough. From here one can walk back along the shore for about ¼ mile to Glasgow Point and continue northwest for a short distance along the base of the high cliff. Large sandstone boulders of the Coaledo formation lie along the shore beneath the cliff from which they originally came. Many of the boulders contain layers packed with well-preserved fossils such as the corkscrew gastropod Turritella and numerous pelecypods.

6. Catching Slough. A fossiliferous zone in the Coaledo formation is exposed in the cliff beside the Coos River road near the west end of the bridge which crosses the mouth of Catching Slough. The locality is 1.0 mile east of the right-angle turn of the highway in Eastside. Small Eocene fossil shells occur in narrow bands in the bed rock of the cliff.

7. Green Acres. Locality 7 near Green Acres and Locality 8 near China Creek are only two of a number of fossiliferous exposures of the Coaledo formation in road cuts through hills along U.S. Highway 101 between Coos Bay and Coquille. Cuts through soft rock are weathered and slumped, but those through harder strata expose vertical sections of sandstone and shales, many of which are fossil bearing.

The Green Acres locality is on Highway 101 near the sign pointing east to Green Acres, 8 miles south of the junction in Bunker Hill of Highway 101 and the Coos River Road. A large road cut in the hillside beside the highway exposes several thick bands of fossil shells in gray Coaledo shale.

8. China Creek. The locality is a long road cut in a low hill just east of China Creek. It is 5.3 miles southeast of the Green Acres locality and 3.5 miles northwest of the junction in Coquille of highways 101 and 42. In the cut, shales and sandstones of the Coaledo formation dip at a low angle to the west. Eocene fossils occur in thin bands at several horizons.

9. Fat Elk Road. A thick section of dense gray shale in the Coaledo formation crops out on the south side of Highway 101, 0.1 mile west of the intersection of Fat Elk Road, and 2.5 miles west of the bridge which crosses the Coquille River at Coquille. Fossils are abundant but break easily. This rock was quarried and used to build up the shoulders of the highway between Fat Elk Creek and Coquille, and the large blocks of rock on either side of the highway in this section contain many fossils.

10. North End of Causeway. The Coaledo formation crops out in road cuts in the headland at the north end of the new causeway leading from Coos Bay bridge across Haynes Inlet. As this portion of the highway was not completed at the time the field investigations were made, this locality was not visited by the writer, but it is likely that fossils are present in the fresh exposures of shale at this locality.

Fossils to look for

Pelecypods (clam shells) and gastropods (snail shells) are the most abundant of the marine invertebrates in the Coos Bay area and occur in great variety; there are about 35 species of each in the Coaledo formation and about 50 species of each in the Empire formation. Other marine invertebrates, such as scaphopods (tooth shells), echinoids (sand dollars), and crustaceans (crabs), are not as common and are limited to one or two species each.

Vertebrate animals also lived in the Eocene and Pliocene seas. Fossilized fish vertebrae and shark teeth of Eocene age are sometimes found in the Coaledo beds. In the Empire formation, fossil bones of Pliocene marine mammals are not uncommon. The skull of an immense sea lion (Pontolis magnus True) was discovered many years ago near Fossil Point by a resident of Empire, and since that time a number of bones of unidentified species of sea lions and whales have been found in the Pliocene sandstone.

Names, descriptions, and illustrations of the fossils characteristic of the various sedimentary formations in the Coos Bay area are given by Dall, Howe, Turner, Weaver, and others (see bibliography).

Bibliography

Allen, John E., and Baldwin, Ewart M.
1944 Geology and coal resources of the Coos Bay quadrangle, Oregon: Oreg. Dept. Geol. and Mineral Indust. Bull. 27, 1944.

Cushman, Joseph A., and Schenck, Hubert G.
1928 Two foraminiferal faunules from the Oregon Tertiary: Calif. Univ. Dept. Geol. Sci. Bull., vol. 17, no. 9, 1928.

Cushman, J. A., Stewart, R. E., and Stewart, K. C.
1947 Upper Coaledo (upper Eocene) foraminifera from Yokam Point, Coos County, Oregon: Oregon Dept. Geol. and Mineral Indust. Bull. 36, part 3, 1947.

1947 Lower Coaledo (upper Eocene) foraminifera from Sunset Bay, Coos County, Oregon: Oregon Dept. Geol. and Mineral Indust. Bull. 36, part 4, 1947.

Dall, William H.
1909 The Miocene of Astoria and Coos Bay, Oregon: U.S. Geol. Survey Prof. Paper 59, 1909.

Detling, Mildred R.
1946 Foraminifera of the Coos Bay lower Tertiary, Coos County, Oregon: Jour. Paleontology, vol. 20, no. 4, July 1946.

Diller, Joseph S.
1901 Description of the Coos Bay quadrangle: U.S. Geol. Survey Geol. Atlas 73, Coos Bay Folio, 1901.

Duncan, Donald C.
1953 Geology and coal deposits in part of the Coos Bay coal field, Oregon: U.S. Geol. Survey Bull. 982-B, 1953.

Grosvenor, Edward R.
1934 Geological report on a section of Tertiary sediments at Coos Bay, Oregon: Wash. Univ. Bachelor's Thesis, 1934.

Howe, Henry V.
1922 Faunal and stratigraphic relationships of the Empire formation, Coos Bay, Oregon: Calif. Univ. Dept. Geol. Sci. Bull., vol. 14, no. 3, 1922.

James, Ellen L.
1950 A new Miocene marine invertebrate fauna from Coos Bay, Oregon: Oreg. Univ. Master's Thesis, 1950.

Schenck, Hubert G.
1927 Marine Oligocene of Oregon: Calif. Univ. Dept. Geol. Sci. Bull., vol. 16, no. 12, 1927.

1928 Stratigraphic relations of western Oregon Oligocene formations: Calif. Univ. Dept. Geol. Sci. Bull., vol. 18, no. 1, 1928.

Shotwell, J. Arnold
1951 A fossil sea lion from Fossil Point, Oregon (abstract): Oreg. Acad. Sci. Proc., vol. 2, p. 97, 1951.

Turner, F. E.
1938 Stratigraphy and mollusca of the Eocene of western Oregon: Geol. Soc. Am. Spec. Paper 10, 1938.

Vance, Albert D.
1938 Amateur geologist at Coos Bay: Geol. Soc. Oreg. Country News Letter, vol. 4, no. 20, p. 224-226, Oct. 1938.

Weaver, Charles E.
1942 Paleontology of the marine Tertiary formations of Oregon and Washington: Wash. Univ. Pub. in Geol., vol. 5, pts. 1, 2, and 3, 1942.

1945 Stratigraphy and paleontology of the Tertiary formations at Coos Bay, Oregon: Wash. Univ. Pub. in Geol., vol. 6, no. 2, 1945.

****

NEW DRILLING PERMITS

Drilling Permit No. 10 was issued June 6, 1955, to R. N. Ranger, 1007 Broadway Building, Portland, Oregon. The test is in SW¼ sec. 15, T. 16 S., R. 44 E., Malheur County, Oregon. The lessee is Sinclair Oil and Gas Company, Portland, Oregon. Lessor is Eastern Oregon Land Company, San Francisco, California.

Drilling Permit No. 11 was issued June 2, 1955, to Sinclair Oil and Gas Company, 1010 Broadway Building, Portland, Oregon. The test is in SE¼ of NE¼ of SE¼ sec. 12, T. 16 S., R. 10 W., Lane County. Lessor is U.S. Government.

****

ADMINISTRATIVE ORDER NO. G.M.I. 2

At a public hearing held June 6, 1955, at 10:30 a.m. in Room 36 of the State Office Building, Portland, Oregon, certain rules promulgated September 15, 1953, as Administrative Order No. G.M.I. 1 were amended and incorporated in Administrative Order No. G.M.I. 2 as follows:

Under Rule IV, the paragraph defining "Owner" was amended to read:

"Owner shall mean the person who has the right to drill into and produce from a field or pool, or to appropriate the production therefrom, or both, either for himself or for himself and others."

Rule V was amended as follows:

"Application and Permit to Drill

"Before any person shall spud in and begin the actual drilling of any well in search of oil or gas, such person shall file with the Board his application, in such form as the Board shall require, for a permit to drill said well. The application shall be accompanied by the sum of $25.00, which sum is fixed as a fee for granting of a permit. When satisfied that the application and the bond are in conformance with law, the Board shall issue a permit to the applicant, in such form as it may have established by its rules and regulations; and the number appearing upon such permit shall at all times be conspicuously displayed on the derrick used in drilling such well.

"As a further condition precedent to the granting of a permit for drilling any oil or gas well, the operator shall furnish a bond in the sum of $4,000, conditioned as provided by law and on a form supplied by the Board. The surety on the bond shall be a corporate surety authorized to do business in the State of Oregon."

Rule VI was amended as follows:

"Changes of Location or Ownership

"A. If, prior to the drilling of a well, the person to whom the permit was issued desires to change the location, he shall submit a letter so stating and another application properly filled out showing the new location. No additional fee is necessary, but drilling shall not be started until the transfer has been approved and the new permit posted at the new location.

"B. If, while a well is drilling or after it has been completed, the person to whom the permit was issued disposes of his interest in the well, he shall submit a written statement to the director setting forth the facts.

"C. Before the transfer of any well, the person who is to acquire it must obtain a permit and post a bond as required by Rule V."

Rule IX was amended as follows:

"Organization Reports

"Every person acting as principal or agent for another or independently engaged in drilling for oil or gas or in the production, storage, reclaiming, treating, or processing of crude oil or natural gas produced in Oregon shall immediately file with the Board in the form of an affidavit: the name under which such business is being conducted or operated; the name and postoffice address of such person, the business or businesses in which he is engaged; the plan of organization and, in case of a corporation, the law under which it is chartered and the name and postoffice address of any person acting as a trustee, together with the name of the manager, agent, attorney-in-fact, or principal executive thereof, and the name and postoffice address of each officer thereof. In each case where such business is conducted under an assumed name, such report shall show the names and postoffice

addresses of all owners in addition to the other information required and also the name of the county in which the certificate of assumed name is filed. Immediately after any change occurs as to the facts stated in the report filed, a supplementary report under oath shall be immediately filed with the Board with respect to such change."

Done at Portland, Oregon, June 6, 1955.

Hollis M. Dole, Secretary

Mason L. Bingham, Chairman (Seal)

Niel R. Allen (Seal)

Austin Dunn (Seal)

****

URANIUM BOOKLET PUBLISHED

"Radioactive Minerals the Prospector Should Know" has just been published in its third edition by the State of Oregon Department of Geology and Mineral Industries. The new edition has been entirely revised and enlarged in order to incorporate the new developments that have been so rapidly taking place in the field of uranium prospecting. Author of the revised edition is Mr. Max Schafer, geologist at the Department's field office in Grants Pass.

The 21-page booklet is designed to assist the prospector in searching for and recognizing uranium ores. It describes the economically important uranium minerals, the major occurrences of uranium outside Oregon, particularly those in adjacent states, and the likely areas for uranium prospecting in Oregon. Described also are radiation detection instruments, methods of prospecting for uranium, mining regulations, and the Atomic Energy Commission ore purchase schedule. Atomic Energy Commission field offices as well as distributors of Geiger and scintillator counters are listed, and a selected bibliography is appended.

The publication designated as Short Paper 18 may be obtained from the State Department of Geology and Mineral Industries at 1069 State Office Building in Portland or the field offices at Baker and Grants Pass. Price of booklet is 30 cents.

****

REMEMBER

Assessment work must be completed by noon of July 1, 1955, or if not completed must have been started and must be continued with reasonable diligence until completed. Within 30 days after completion an affidavit must be recorded in the mining records of the county in which the claim is situated setting forth (1) name of claim or claims and book and page where location notice is recorded, (2) number of days' work done and kind and value of improvements made together with their location, (3) dates of performing labor and making improvements, (4) work was done at whose instance or request, and (5) actual amount paid for labor and improvements, and by whom paid when same was not done by claim owner.

****

SURVEY GEOLOGISTS IN OREGON

Messrs. Allen Griggs and Dallas Peck, U.S. Geological Survey geologists, have started field work on the State Geologic Map which is a cooperative project with the State Department of Geology and Mineral Industries. Griggs and Peck both experienced in Oregon geology will map in the Western Cascades. Dr. Aaron Waters of Johns Hopkins University will continue geologic mapping for the U.S. Geological Survey on the same project. He will map in the Columbia Gorge. For the past several years, Dr. Waters has been mapping in central Oregon during summer field seasons.

****

THE SOLDIERS' AND SAILORS' CIVIL RELIEF ACT OF 1940

Citation No.
Title: 50 USCA
Appendix,
Paragraph 565

E-X-C-E-R-P-T

Section 505. (Mining Claims). (1) The provisions of section 2324 of the Revised Statutes of the United States, which require that on each mining claim located after May 10, 1872, and until patent has been issued thereof for not less than $100 worth of labor shall be performed or improvements made during each year, shall not apply during the period of his service, or until six months after the termination of such service, or during any period of hospitalization because of wounds or disability incurred in line of duty, to claims or interests in claims which are owned by a person in military service and which have been regularly located and recorded. No mining claim or any interest in a claim which is owned by such a person and which has been regularly located and recorded shall be subject to forfeiture by nonperformance of the annual assessments during the period of such military service, or until six months after the termination of such service or of such hospitalization.

(2) (Person Entering Service to File Notice). In order to obtain the benefits of this section, the claimant of any mining location shall, before the expiration of the assessment year during which he enters military service, file or cause to be filed in the office where the location notice or certificate is recorded a notice that he has entered such service and that he desires to hold his mining claim under this section.

(Note: Act extended 5 years in September 1954.)

****

DEPARTMENT GEOLOGIST TO MAP GRANT COUNTY QUADRANGLE

Mr. N. S. Wagner, Department field geologist stationed at Baker, has started field work on a geologic map of the Desolation Butte quadrangle, Grant County, Oregon, as a part of the State geologic mapping project.

****

EASTERN OREGON MINING NEWS

The Great Lakes Carbon Corporation is now test drilling extensive diatomite holdings in the Otis Basis District of Harney County. The work which is being supervised by Mr. R. McMillan was begun early in May and it is understood that the program may be continued throughout the summer. All test holes are being sunk 30 inches in diameter so that a man can be lowered for direct observation and sampling.

* * * * *

Mr. Anthony Brandenthaler, Baker, Oregon, is investigating a scheelite prospect on Lemon Creek, Grant County. The occurrence was discovered by Lester E. Thornton last year and developed by a 60-foot adit and surface pit. The Brandenthaler work will be directed by Mr. Beldon and will include bulldozer trenching to explore the lateral extension of the adit showing. Other work will also be done to determine if the Lemon Creek placer carries any significant amount of scheelite.

* * * * *

Mr. Neuman and associates of John Day have worked most of the winter getting the Ward chrome mine in shape for operation, and several loads of development ore have already been milled by the John Day Mining Company with which Mr. Neuman is also associated. The Ward is a Grant County property which is credited with a production of between 2000 and 2500 tons up to 1918. Current development has consisted largely of stripping designed to expose the lowest levels of the early workings on a clean quarry bench from which new workings can be extended.

The John Day Mining Company still holds a lease on the Dry Camp mine which it operated last year until closed by adverse weather conditions. It is reported that Mr. Neuman plans to resume work on the Dry Camp property later this summer after work on the Ward mine is finished.

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
Head Office: 1069 State Office Bldg., Portland 1, Oregon
Telephone: COlumbia 2161, Ext. 488

Field Offices

2033 First Street
Baker

239 S.E. "H" Street
Grants Pass

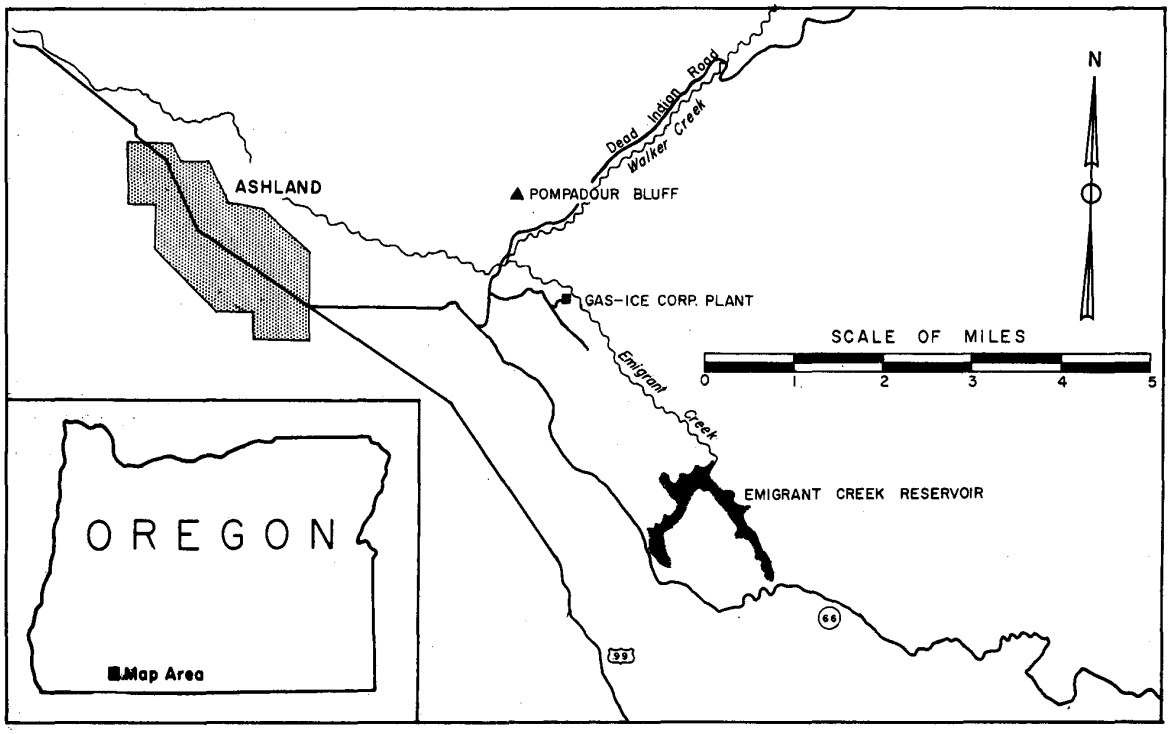
****

OCCURRENCE AND UTILIZATION OF CARBON-DIOXIDE-RICH WATER NEAR ASHLAND, OREGON

By
Max Schafer*

Introduction

Natural carbon-dioxide gas for the manufacture of solidified carbon dioxide (dry ice) is one of Oregon's lesser-known mineral products. Southeast of Ashland, Gas-Ice Corporation, whose headquarters are in Seattle, Washington, has an operation that obtains carbon dioxide from ground water in such quantities that in 1952 (latest U.S. Bureau of Mines figures) Oregon was the third-ranking state in the nation in the value of this product. The Ashland plant is the only one in the State that produces natural carbon dioxide. Portland Gas and Coke Company manufactures a liquid carbon dioxide scrubbed from flue gases.



Index Map

Reportedly the dry-ice industry came into being because of a British surgeon's liking for soda water with his Scotch whiskey. At his station in India, natural carbonated water, which came for the most part from Vichy, France, was often hard to come by. Through experimenting he was finally able to produce solidified carbon dioxide with which he could carbonate tap water, and he was happily assured of a steady supply of soda water. This use of dry ice for soda water is still important, although the refrigerating uses have since far surpassed it. Almost all "soda pop" and soda water is artificially carbonated with dry ice at the bottling plants.

The long-distance transportation of perishable foodstuffs and frozen foods accounts for the greater part of the dry-ice market today. Packing of ice cream containers with dry ice is a common practice. Fruits and vegetables can be transported for days with dry ice because of the slowness in loss of the ice and also because they seem to keep better in an atmosphere of carbon-dioxide gas. An advantage of dry ice is that it "sublimes" or goes directly from a solid to a gas, unlike regular ice which melts to water. Foodstuffs packed with dry ice can be sent through the mail because of this desirable characteristic. The future of refrigeration for the dry-ice industry is threatened because of the increasing use of ammonia- and freon-refrigerated railroad cars and trucks.

Operation of Gas-Ice Corporation's Ashland Plant

The Gas-Ice Corporation plant and wells are located about 3 miles southeast of Ashland on the west side of Emigrant Creek in the SW¼ sec. 7, T. 39 S., R. 2 E. (see index map).

The plant has ten wells from which carbon-dioxide-rich water is pumped. Most of the wells are from 200 to 300 feet deep and bottom in a shale layer of the Umpqua (?) formation. Total production of water from the wells is about 1000 gallons per hour. Water from the wells is pumped into a separator, a tank with a pipe at the top and an outlet at the bottom. The gas bubbles rise to the top and are drawn off to the plant. The water flows out through the bottom of the tank and is diverted to the stream.

The gas pumped from the separating tanks enters a cooler and dehumidifier where the moisture is removed. Formerly some sulphur was present, necessitating a charcoal filter but when the wells lowered the water table slightly, this contaminant disappeared. The cooled gas is then pumped to the "condenser" where it is put under 500 pounds per square inch pressure and cooled by ammonia refrigeration to -10° F. At these conditions most of the gas is liquefied. The very small amount (less than one-half of 1 percent) of nitrogen and argon gas that is present does not liquefy at this temperature and pressure and is sent back into the system with the unliquefied carbon dioxide. The unwanted gases are cleaned from the system at regular intervals.

The liquid carbon dioxide is pumped to the "receiver" under 150 pounds per square inch pressure and at about -40° F. From the receiver the liquid is suddenly released through a small opening into the "snow press." The press is at atmospheric pressure and this sudden release of pressure results in a drop in temperature of the liquid. The temperature drop is enough to solidify about half of the liquid carbon dioxide. The unsolidified liquid is returned to the system. The "snow" or solidified particles are pressed into 80-pound blocks by the hydraulic "snow press," and these are wrapped in cardboard cartons in preparation for shipment. The production of the plant is about 10 tons per day.

Source of Heat and Mineralization of the Ground Water

Ground water in the Ashland area shows an abnormally high temperature gradient. Normal temperature gradient is about 1° F. rise per 80 feet of depth. In the Ashland area the rise is about 1° F. per 25 to 30 feet of depth, or nearly three times the normal gradient. Possible sources of this extra heat are friction from faulting and volcanism. It is believed that in the Ashland area faulting merely provides the conduits for the heated water while a cooling magma is the source of the heat.

Some of the wells and springs in the Ashland area contain unusually high concentrations of lithium, carbonate, chlorine, and sulphur, and show a predominance of carbonate over calcium and a low calcium-magnesium ratio. According to studies that have been made by Winchell (1914), White and Brannock (1950), and Behre and Garrels (1943) these are characteristics of waters from a volcanic environment. Minerals in ground water can be derived from

solution of the rock penetrated by the water and from volcanism. Since no limestone or salt deposits are known to occur in the Ashland area from which the concentrations of minerals found in the waters could be derived, it seems likely that the minerals emanated along with fluids escaping from cooling magma. Only a small fraction of the water is likely to be of volcanic source. Most of it is probably deep meteoric water which has been returned to the surface.

Volcanism has taken place on a large scale and in relatively recent times in the Cascade Range, and this activity, although dormant at the present time in Oregon, is without doubt responsible for the heating and mineralization of the Ashland waters.

Geology of the Area

General

The region near the wells is hilly with a relief of about 600 feet. Emigrant and Walker creeks flow across the mapped area (see geologic map opposite page 51) and are tributary to Bear Creek. All are part of the Rogue River drainage system. Pompadour Bluff is the most prominent topographic feature near the wells. Briefly the regional geology is as follows: To the west, metasediments and metavolcanics of the Triassic Applegate formation are intruded by granodiorite of the Ashland stock. Marine sandstones of the Cretaceous Chico formation unconformably overlie the Triassic rocks and the granodiorite. Lying unconformably on the Chico formation is the Eocene Umpqua formation which in this area is a series of nonmarine sediments and volcanic rocks. To the northeast, Tertiary lavas and pyroclastics of the Western Cascades overlie the Umpqua rocks. The Umpqua formation and the Tertiary volcanics are intruded by basalt and diorite sills and dikes. Remnants of recent volcanic flows are present northwest of Medford.

Geologic units

Umpqua formation

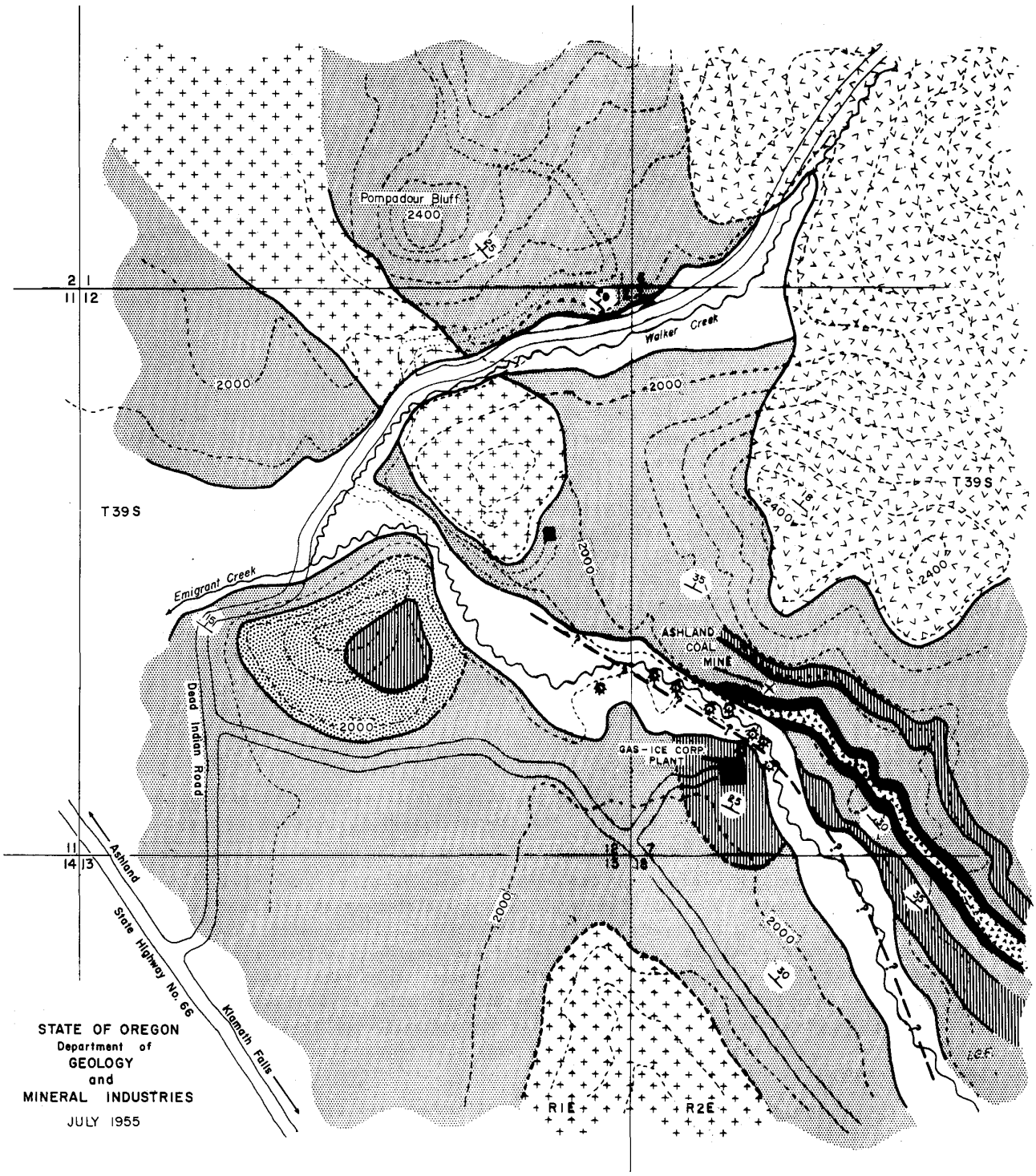
The oldest rocks that crop out in the mapped area are the nonmarine sediments and volcanics of the Eocene Umpqua formation. The Umpqua formation has been subdivided in this report as follows:

Undifferentiated sediments: Sandstone is the predominant material in the undifferentiated sediments. It ranges in color from greenish-gray to buff and contains varying amounts of quartz, feldspar, mica, and volcanic glass fragments. The sandstone usually does not form prominent outcrops except where conglomerate lenses are present, as in Pompadour Bluff. Beds range in thickness from 1 inch to 10 feet. Coal has been found in shale of the undifferentiated sediments. On the east side of Emigrant Creek across from the dry-ice plant is the abandoned shaft of the Ashland coal mine. Parks and Swartley (1916) reported a good grade of sub-bituminous coal that attained a width of 6 inches and contained coaly shale separations.

Shales and siltstones: The shales and siltstones are fine-grained equivalents of the coarser sediments except that mica is usually absent. These rocks are usually finely interbedded with sandstone and the layers are generally less than 6 inches thick.

Conglomerates: Boulders and cobbles as much as 6 inches in diameter are contained in a sandstone matrix that ranges from medium to coarse. The boulders are of quartzitic and metamorphic material and are usually present in soil developed on the Umpqua formation. The conglomerates thicken and thin noticeably within a very few feet.

Tuffs: Two layers of tuff, made up of quartz and volcanic glass, were found in the area mapped. One of the layers is a flaggy, white tuff that contains carbonized plant fragments, apparently the remains of stems or limbs.



Geology of Area Around Gas-Ice Corp. Plant Near Ashland, Oregon.

SCALE OF FEET

0 1000 2000 3000 4000 5000 6000

CONTOUR INTERVAL 80 FEET

Andesite flow: An andesite flow, conformable within the Umpqua formation, is present on the east side of Emigrant Creek near the dry ice plant. The flow is porphyritic, containing phenocrysts of feldspar, and ranges in color from gray to buff. A crude columnar jointing is developed.

Tertiary volcanics

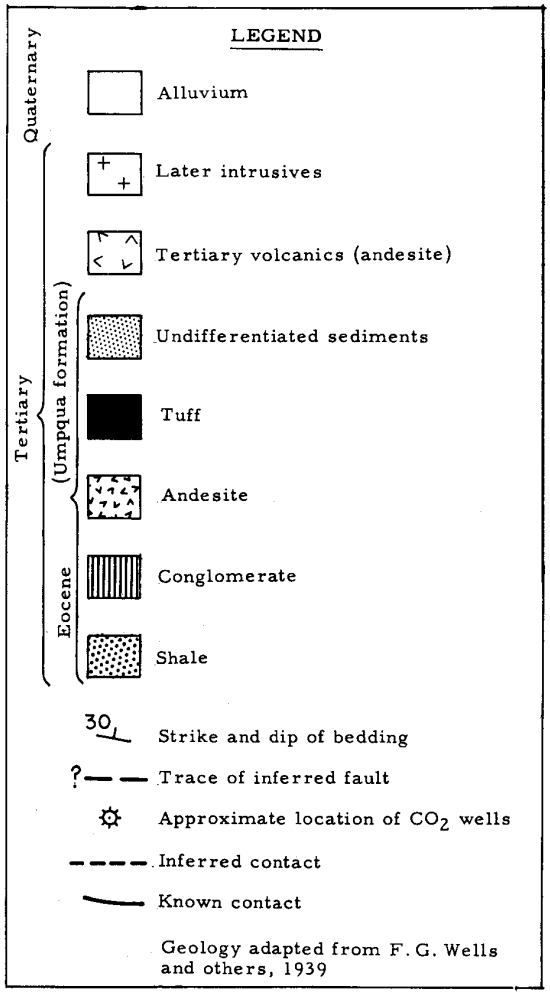
The northeast corner of the mapped area is underlain by flows of dark gray andesite. These flows often show a well-developed columnar jointing. The columns are 1 to 2 feet wide and are broken up approximately every 2 inches by fracturing parallel to the surfaces of the flow.

Later intrusives

Two exposures of diorite which may represent a single body are shown on the map. In the field the outcrops form knobs and the soil is a dark reddish-brown that is easily distinguished from the dull, dark gray of the soil developed on the Umpqua formation.

Alluvium

Stream deposits have been laid down in recent times by Walker and Emigrant creeks. These unconsolidated sediments are composed of sand, gravel, silt, and boulders. The larger material is well-rounded and includes many boulders from the Umpqua conglomerates.



Structure

The sediments and volcanics of the Umpqua formation and the Tertiary volcanics have a regional dip to the northeast. Folding and faulting occurred after the Tertiary flows were extruded. Later intrusives are probably younger than the faulting.

A fault has been plotted on the map along Emigrant Creek. Lack of continuity of beds across the creek, the occurrence of the hot water wells along the creek, and the drainage pattern are evidence for the fault. Young (1953) plotted a fault along Emigrant Creek southeast of the mapped area.

Acknowledgement

The author wishes to express his gratitude to Mr. C. E. Smith, manager of the Gas-Ice Corporation plant, for information and assistance given.

Bibliography

Behre, C. H., Jr., and Garrels, R. M.
1943 Ground water and hydrothermal deposits: Econ. Geol, vol. 38, no. 1, p. 65-69, Jan.-Feb. 1943.

Minerals Yearbook
1952 U.S. Bureau of Mines, 1952.

Parks, H. M., and Swartley, A. M.
1938 Handbook of the mining industry of Oregon: Oregon Bur. Mines and Geology, Mineral Res. of Oregon, vol. 2, no. 4, 1938.

Stevens, J. C.
1944 The dry ice industry in the Pacific Northwest: Ore.-Bin, vol. 6, no. 11, p. 71-74, Nov. 1944.

Van Orstand, C. E.
1939 Observed temperatures in the earth's crust. In Physics of the Earth, p. 147, 1939.

Wells, Francis G.
1939 Preliminary geologic map of the Medford quadrangle, Oregon: Oreg. Dept. Geol. and Mineral Indust. Map, 1939.

White, D. E., and Brannock, W. W.
1950 The sources of heat and water supply of thermal springs, with particular reference to Steamboat Springs, Nevada: Am. Geophy. Union Trans., vol. 31, no. 4, 1950.

Winchell, A. N.
1914 Petrology and mineral resources of Jackson and Josephine counties, Oregon: Oregon Bur. Mines and Geology, Mineral Res. of Oregon, vol. 1, no. 5, 1914.

Young, R. A.
1953 Ground-water resources of the Rogue River Basin, unpublished report in preparation by Ground-Water Division, U.S. Geol. Survey, 1953.

****

EASTERN OREGON MINING NEWS

The Comstock Uranium-Tungsten Company, Inc., of Elko, Nevada, assumed control April 1, 1955, of the lease on the Haggard and New mine, Grant County. The company bought out the Burt Hayes interest in the lease last fall. Mr. J. J. Kinsella will be in charge of the Comstock Company's work and the Oregon address of the company is Box 416, John Day. Mr. Kinsella reports that the company has started driving a low-level adit as the result of a drilling program which indicated extension of the ore body with depth. The company plans to examine other chromite properties in the area.

* * * * *

Work on the Mott, Spider, and Last Chance claims which are situated above the Haggard and New property on Dog Creek, Grant County, has been resumed by Earl Lyman, and two lots of development ore have been milled and concentrates shipped this season. The Lyman mill is located on Dog Creek about a mile south of State Highway 26, east of the town of John Day.

****

DOLE APPOINTED DEPARTMENT DIRECTOR

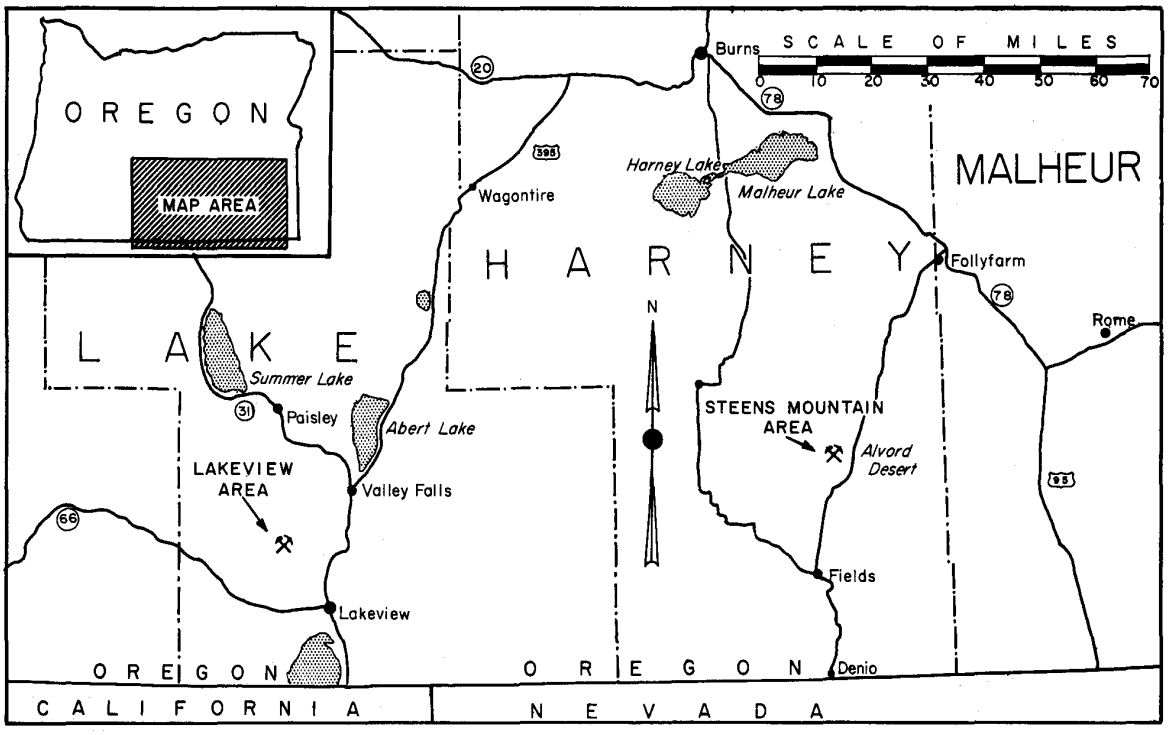
Hollis M. Dole was appointed Director of the Oregon Department of Geology and Mineral Industries at a meeting of the Department's Governing Board on July 9, 1955. In announcing the appointment, Mason L. Bingham, Chairman of the Board, pointed out that Mr. Dole's long residence and wide geological experience in the State of Oregon were considered by the Board as important factors in its choice.

Mr. Dole has been a resident of Oregon since 1917. He obtained his bachelor's and master's degrees from Oregon State College, and completed scholastic requirements for a doctorate degree at the University of Utah. Dole has been with the Department since 1946. In August 1954 he was made Assistant Director and in November of the same year, at the retirement of F. W. Libbey, was appointed Acting Director.

****

COMMERCIAL URANIUM DEPOSITS FOUND IN OREGON

Discovery of commercial-grade uranium deposits in two separate localities (see index map) in Oregon during June has recently been announced. Examinations of the prospects by geologists of the State of Oregon Department of Geology and Mineral Industries confirmed the presence of secondary uranium minerals and high radioactive anomalies in the areas of the prospects. Preliminary development indicates that both localities are capable of furnishing some tonnage of ore.



Index Map

Deposits near Lakeview are located on Augur Creek in sec. 30, T. 37 S., R. 19 E. and in sec. 25, T. 37 S., R. 18 E. The area is approximately 14 miles northwest of Lakeview in Lake County. The original discovery was made on claims of the White King group by John Roush and Don Tracy, Lakeview. The early development work on these claims shows that a fluorescent, yellowish-green mineral thought to be autunite and a bright green, nonfluorescent mineral which may be torbernite are the principal uranium minerals. Associated minerals are mercury sulphide (cinnabar) and arsenic sulphides (realgar and orpiment). The host rock is volcanic tuff that has been silicified and altered. In places it is banded and is similar to opalite, a rock consisting of a mixture of chalcedony, quartz, and opal. Flaky crystals and masses of autunite fill fractures in the brittle opalite, and irregular disseminations of torbernite and autunite are found in the clayey, altered tuff. Occasionally a bright-green mineral, torbernite (?), is found as bladed aggregates in the form of rosettes, which may be as much as half an inch in diameter, and as small rectangular crystals. The mercury and arsenic sulphides occur as small irregular streaks and crystals in the host rock. Northwest-trending fractures cut the rocks of the exploration pits and may possibly control the mineralization. The exploration to date indicates an outcrop width of about 100 feet, and high radioactive anomalies are found along what is thought to be the strike for at least 300 feet. No definite uranium mineral is found in the pits until a depth below the soil zone of a foot or more is reached.

Less than 1 mile northwest of the White King claims another occurrence of autunite-torbernite is being opened up by a group from Lakeview headed by Bob Adams, Jr. The prospect, known as the Lucky Lass, is in a weakly sheared zone in an altered lithic-lapilli tuff or agglomerate. The sheared zone as exposed in the only cut opened at the time of visit is approximately 8 feet wide and trends northwest. Length and depth of mineralization is unknown. The predominant mineral visible is powdery or flaky and when freshly exposed is grass-green in color. Under the ultraviolet lamp the claylike rock shows bright yellowish-green fluorescent spots scattered through it. A soil zone three to four feet thick blankets the deposit. The discovery was made in a small cut in a logging road.

The tuffs or agglomerates in which the prospects are located are Tertiary in age and, lying unconformably over the pyroclastic rocks, are black lava flows of probable late Tertiary age.

The Lake County Examiner, Lakeview, reports that the U.S. Bureau of Mines laboratory at Albany, Oregon, obtained an analysis of 1.3 percent uranium oxide on select samples taken from the White King claims and 0.66 percent uranium oxide on a "run-of-the-pit" sample. A pit-run sample from the Lucky Lass claims ran 0.7 percent uranium oxide. Chemical analyses by the Oregon Department of Geology and Mineral Industries on samples obtained by Department geologists from both groups have not been completed.

The discovery in the Steens Mountain area was made by Dewey M. Quier, Burns, Oregon, and is located on Pike Creek in secs. 17 and 20, T. 34 S., R. 34 E., Harney County. The prospects are about 3 miles south of the Alvord Ranch in the foothills of the eastern front of the mountain. The mineralization occurs in a fracture zone that has a strike of S. 30° W. and a dip of 60° E. The fracture zone parallels the eastern face of the mountain range and is apparently one of the normal faults common to the area. The mineralized rock is a silicified lapilli tuff in the late Tertiary Pike Creek volcanic series. Mineralization extends outward from fractures for several inches and where the radioactivity is the highest the matrix of the rock is a dull dark red. Although a minor amount of fluorescent autunite is present, the high radioactivity of the rock suggests that some other mineral, as yet unidentified, is responsible for most of the radioactivity. Results of chemical analyses on samples taken by the Department are not yet available but radiometric determinations on select pieces indicate a uranium oxide equivalent of about 0.5 percent. Insufficient development work on the claims does not allow an accurate estimate of the grade and tonnage of ore present but the high radioactive anomalies and float boulders found over a fairly wide area indicate a substantial quantity of ore may be present.

****

SALEM HILLS BAUXITE BEING EXPLORED

Aluminium Laboratories Limited, a Canadian organization, is exploring the bauxite of the Salem Hills in Marion County, Oregon. Exploration is being done by four drill rigs under the supervision of company geologists. Mr. H. R. Hose, Chief Geologist of Aluminium Laboratories Limited, is in charge of the exploration work and Salem Sand and Gravel Company is doing the drilling. Samples are being tested at the company's laboratories in Arvida, Canada. Description of the area under investigation was published in the September 1954 and April 1955 issues of The Ore.-Bin.

****

TWO NEW PERMITS TO DRILL ISSUED

Drilling Permit No. 12 was issued July 22, 1955, to Oroco Oil and Gas Company, 2 North 8th, Payette, Idaho, to drill in the SW¼ sec. 16, T. 18 S., R. 47 E., Malheur County. The lessor is J. D. Lane, Ontario, Oregon.

Drilling Permit No. 13 was issued July 26, 1955, to Sinclair Oil and Gas Company, 1010 Broadway Building, Portland, Oregon, for a test east of Jamieson, Malheur County. Drilling Permit No.13. takes the place of Permit No. 10 which was issued to R. N. Ranger, 1007 Broadway Building, Portland, Oregon. The test is in the SW¼ sec. 15, T. 16 S., R. 44 E. The lessor is Eastern Oregon Land Company, San Francisco, California.

****

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
Head Office: 1069 State Office Bldg., Portland 1, Oregon
Telephone: COlumbia 2161, Ext. 488

Field Offices

2033 First Street
Baker

239 S.E. "H" Street
Grants Pass

****

WANTED - A DOMESTIC MINERAL POLICY

A coordinated series of conferences that may help determine the mineral future of the West and the nation will be held this fall between western mining people and heads of their State governments and representatives. Various groups and committees throughout the western states are now exploring their particular areas of interest in order to present their problems and suggestions for remedial action to the October meeting of the Western Governors' Mining Advisory Council. The results of the Advisory Council meeting will form the basis for discussions at a Western Governors' Mineral Policies Conference in Sacramento, California, November 7 and 8. Following the conference the Advisory Council will meet again on November 9 and 10 to formulate the mineral policies acceptable to the western states for presentation to the governors.

Mineral policies arrived at through consultation between states and their mining people should go far in achieving a domestic mineral policy, something which is not now in existence. The President's Cabinet Committee on Minerals Policy long ago recommended that the Interior Department establish closer contact with the mineral industry to aid in government policy making. To that end the Office of Minerals Mobilization was organized in January of this year. So far nothing has been accomplished. The president's veto of the bill to enlarge the Domestic Minerals Program, reportedly because it was only stop-gap legislation, re-emphasizes the desire of the Administration for a feasible overall policy acceptable to industry and government. The conferences planned for October and November will be a big step in laying the groundwork for a workable domestic mineral policy.

The Western Governors' Mining Advisory Council was organized in 1953 to exchange information between the western states on common mineral resources problems and to recommend prudent and effective solutions for the problems to the governors. Membership on the Council is open to the eleven western states, Alaska, and to such other states as the Council shall determine. Delegates to the Council are appointed by the governors. Chairman of the Council for 1955 is S. H. Williston of Cordero Mining Company representing Governor Russell of Nevada.

The Western Governors' Mineral Policies Conference is sponsored by Governor Goodwin J. Knight of California. As presently outlined, the conference deliberations will be conducted primarily in a series of policy section meetings and mineral commodity subsection meetings. The policy sections are: Mineral Economics, Taxes, Lands and Water, Research, and Public Information. Mineral commodity subsections will be conducted on many of the mineral commodities. Possibly of greatest interest to the mining people of Oregon will be the sections dealing with chromite, quicksilver, tungsten, manganese, gold, and industrial minerals. Honorary Chairman of the Conference is Governor Knight; Conference Co-Chairmen are S. H. Williston and DeWitt Nelson, California State Director of Natural Resources.

Four major accomplishments can develop from the Conference and Advisory Council meetings:

(1) The western states, acting in unison, can present a strong and politically important case for consideration at the national level.

(2) The Conference, organized and sponsored by state governments, can present policy recommendations free from influence by special interests.

(3) The Conference can stimulate interest in the problems of the industry of not only

the representatives of the mining and mineral-consuming industries but also the presently disinterested and uninformed public.

(4) The Advisory Council, a permanent organization, can continuously press for acceptance of its recommendations, provide a ready means of organizing future conferences as new problems arise and old problems persist, and coordinate the policies of western governors with respect to their individual mining problems.

****

BASIC MINING LAW AMENDED

When President Eisenhower signed Congressional Bill H.R. 5891 in July, the basic mining law was amended to allow multiple use of the surface of mining claims prior to patent and to exclude certain nonmetallic minerals from mineral location. The bill, which became Public Law 167, included an amendment by Representative Harris Ellsworth that revenues from the revested O&C lands and reconveyed Coos Bay Wagon Road Grant lands be disposed of in accordance with present law.

The new law, which had endorsement from many mining organizations, contains the following changes to the mining laws:

(1) Precludes from location under the mining laws common varieties of sand, stone, gravel, pumice, pumicite, and cinders.

(2) Bars the use of a mining claim for any purpose other than prospecting, mining, or processing operations.

(3) Permits the United States to manage and dispose of timber and forage on mining claims but provides that if, after disposition, more timber is required for mining operations, the miner be supplied from the nearest timber administered by the disposing agency.

(4) Precludes a mining claimant from removing or using the timber or other non-mineral surface resources except as required in mining operations. Timber cutting, other than to provide clearance, must be done in accordance with sound principles of forest management.

(5) Permits the United States to have access to adjacent land across mining claims so long as it does not materially interfere with mining operations.

None of the above limitations would apply after patent, and the patentee will acquire the same title to the mining claim as if this law had not been enacted.

A procedure is provided that would enable the Government to resolve title uncertainties resulting from the existence of abandoned, invalid, dormant, or unidentifiable mining claims located prior to enactment. The procedure is in the nature of a quiet-title action, and follows generally the method applicable to securing mineral patents.

The Congressional Record of July 30, 1955, contains an "Extension of Remarks" by Representative Clifton Young, Nevada, which gives an explanation of the new law and how miners and prospectors may be affected by it. The part of his speech concerning questions and answers that may be raised is given below.

Question: Will the new law affect the owner of an unpatented mining claim heretofore located?

Answer: Mining claim holders could be affected by the new law in that all unpatented claims heretofore located will be subject to an in rem proceeding if one is filed which includes the lands covered by the mining claim. In this event, the mining claimant would be required to come forward and establish the validity of his mining claim if he desires to assert full possessory rights to the surface of the land. Determination of the validity of so asserted surface rights would be made by the Secretary of the Interior or his designated agent.

Question: Does the new law affect the rights of an individual to go on the national forests and other public domain to prospect for minerals and to locate mining claims?

Answer: No.

Question: May a mining claim be hereafter located on a deposit of a common variety of sand, stone, gravel, pumice, pumicite, or cinders?

Answer: No. However the term "common varieties" does not include deposits of such materials which are valuable because of some distinct or special value and does not include "block pumice" which occurs in nature in pieces having one dimension of 2 inches or more. The report of the Senate Interior Committee pointed out that materials, such as limestone suitable for use in production of cement, metallurgical or chemical grade limestone, gypsum, and the like, will still be locatable under the mining laws. The law is also specific in providing that a mining location may be based upon the discovery of a locatable mineral occurring in or in association with the common variety materials.

Question: What rights to the surface of a mining claim hereafter located will be controlled by the Federal Government?

Answer: The United States is authorized to manage and dispose of surface resources on claims hereafter located and to use the surface for access to adjacent lands, so long as and to the extent that these activities do not endanger or materially interfere with mining, or related operations or activities on the mining claim. In other words, the new law will in no way deprive a miner of any surface right which is reasonably related to prospecting, mining, or processing operations. The House Interior Committee report on the bill was very specific in pointing out that this legislation would not have the effect of modifying long-standing essential rights springing from location of a mining claim by stating that the dominant and primary use of lands hereafter located, would, as in the past, be vested in the mining locator of such claim.

Question: Do these reservations of surface rights to the United States continue after mineral patent has been granted?

Answer: No. The new law provides that no reservation, limitation, or restriction will be included in any mineral patent hereafter issued unless such reservation was otherwise authorized by law. In other words, the new law in no way affects the character and scope of title to a mining claim, including its surface resources, after patent is issued.

Question: Does the law impose any new restriction upon surface use of a mining claim validity located before the passage of the new law?

Answer: No.

Question: It has been charged that the new law gives a Government official the power to determine the validity of a mining claim. Is that true?

Answer: This has always been true under the general mining laws and this authority is not affected by the new law. The Secretary of Interior has always had authority to determine the validity of a mining claim. Under the in rem proceeding provided by the new law, the mining claimant without the filing of a specific contest against his location may be called upon to come forward and assert his claim and its validity. If he fails to do so, it does not invalidate his location, but simply gives it a surface-rights status like that of claims located after passage of the new law. He does not in such an in rem proceeding have to put the validity of his claim on the line. Of course, if he appears and asserts a validity of his claim predating passage of the new law, that question would be in issue. Determination might or might not completely condemn the location. For example, if it were found that the supporting discovery was not made until after passage of the new law, the effect of the decision would be to make the claim subject to the new law. But if it were found that the claim had no discovery, the effect would be a holding of complete invalidity.

Question: It has been charged that the new law discriminates against the small miner. Is this true?

Answer: The rights of every miner, small or large, are equally and fully protected under the new law. He is free to go on the public domain, including the national forests, and to prospect for minerals, to locate mining claims, and to patent mining claims, just as he has been able to do so since 1872.

Question: Why did the mining industry support this new law?

Answer: The mining industry recognized that there were occasional instances in which attempts were made to misuse the mining laws to obtain valuable timber, a desirable homesite, or property for commercial purposes. It recognized that although such attempted mining locations usually lacked good faith or other elements requisite to validity, they nonetheless presented problems to those administering public lands and cast an unfavorable aura of suspicion upon the mining law system. The mining industry in no way condoned such abuses. Bills have been introduced for the purpose of preventing abuses which would have changed the basic concept of the location - patent system, or which would have imposed burdensome requirements on the locator. The industry felt that it was of vital importance to maintain the location and patent concept of established mining law, that the real purpose of the mining laws was to permit mineral exploration and mining use, and that a prepatent preclusion of use of surface resources for other than legitimate mining purposes would not injure the good-faith miner or retard mining activity.

Question: Does the new law require recordation of mining claim location notices of heretofore or hereafter located mining claims with any Federal agency?

Answer: No.

Question: How will common varieties of sand, stone, gravel, pumice, pumicite, or cinders now be obtained from public lands?

Answer: Such materials may be obtained under the Materials Disposal Act from the Federal agency administering the lands involved - that is from the Department of Agriculture or Department of the Interior. The charge for such materials will be determined by the administering agency. In the case of a Federal, state, or municipal agency, or nonprofit association or corporation, the Secretary of Agriculture or Secretary of Interior as to lands administered under their respective Departments may permit the removal of such materials without charge. In the case of an individual or private company, such materials may be obtained from the Federal agency administering the lands involved - from the United States Forest Service or from the Bureau of Land Management. Payment for such materials will be determined by the administering agency. In the case of a Federal, state, or municipal agency or nonprofit association or corporation, the United States Forest Service or Bureau of Land Management may permit the removal of such materials without charge.

Question: Does the new law affect the validity of a previously located mining claim, based upon a discovery of common varieties of sand, stone, gravel, pumice, pumicite, or cinders?

Answer: No.

- - - - - - - - - - - - - - - - -

Example

Jones is the owner of a mining claim located prior to enactment of the new law. He is satisfied that he has a valid mining claim, properly posted and recorded, and has a valid discovery of tungsten on the property. He has performed the annual assessment-work requirements.

Question: What courses of action are available to Jones in the event the Secretary of Interior initiates action to determine the surface rights on lands embracing his claim?

Answer: First, if Jones desires to retain the full rights to the surface use of his mining claim which he presently enjoys, he must file - in the office specified by the Secretary of Interior in the published notice of the proceeding - within 150 days from the date of the first publication of such notice, a verified statement setting forth as to his unpatented mining claim (a) the date of location; (b) the book and page of recordation of the notice or the certificate of location; (c) the section or sections of the public land surveys which embrace

such mining claim; or if such lands are unsurveyed, either the section or sections which would probably embrace such mining claim when the public land surveys are extended to such lands or a tie by courses and distances to an approved United States mineral monument; (d) whether such claimant is a locator or purchaser under such location; and (e) the name and address of such claimant and names and addresses so far as known to the claimant of any other person or persons claiming any interest or interests in or under such unpatented mining claim. The Secretary of Interior will then fix a time and place for a hearing to determine the validity and effectiveness of any right or title to, or interest in or under such mining claim. The hearing must be in the county where the lands in question are located, unless the mining claimant agrees otherwise. Conduct of the hearing will follow the then established general procedures and rules of practice of the Department of Interior in respect to contest, or protests affecting public lands in the United States. If the final decisions rendered affirm the validity and effectiveness of the rights asserted by Jones under his mining claim, then no subsequent similar proceedings can affect his right or interest under such mining claim.

Second, if Jones does not desire to assert full rights to the surface use of his mining claim, prior to issuance of patent therefor and is satisfied to have his rights of surface use limited to the surface use required in his mining operations or related activities, he could either (a) refrain from filing any statement, in which event his failure to file would be deemed to constitute a waiver and relinquishment of full surface rights and would thereafter subject the claim to the limitations and restrictions which permit the Government to manage and dispose of surface resources; or (b) file a waiver and relinquishment of such exclusive surface rights in the office where the notice or the certificate of location of such mining claim is of record which would thereafter subject the claim to the rights of the United States to manage and dispose of surface resources.

****

STOCKPILE LEGISLATION TURNED DOWN

The crisis in domestic mining was brought still nearer this past month when the Congressionally approved bill, H.R. 6373 to increse the minerals purchase goals without change in scheduled termination dates, was vetoed by the President. Credit for killing the bill should probably go to General Services Administration which brought out a report in violent opposition to S. 922, the bill to extend the Domestic Mineral Purchase Program until 1968, but which was also applicable to H.R. 6373. Office of Defense Mobilization Director, Arthur Flemming, and the Department of the Interior had both strongly opposed S. 922 but had given H.R. 6373 their indirect blessing as a compromise move. This latest action by the Government makes it imperative that domestic mineral policies be established without delay as existing purchase programs will soon be completed or terminated.

General Services Administration recently announced fulfillment of the columbium-tantalum quota and closure of one manganese-buying depot. Other manganese depots are approaching closure as quotas near completion. Tungsten producers anticipate their quota being filled some time around the middle of 1956. The status of GSA purchases on other materials as of March 31, 1955, was 847 short tons of asbestos out of a 1500-short-ton quota; 626 short dry tons of a 1500-ton beryl quota; 82,402 long dry tons of a 200,000-ton chrome quota; and 5,503 short tons of mica out of a 25,000-ton quota.

As it looks now, the Grants Pass chrome purchase depot will continue to buy to the end of its program which terminates June 30, 1957.

H.M.D.

****

NEW TUNGSTEN OPERATION

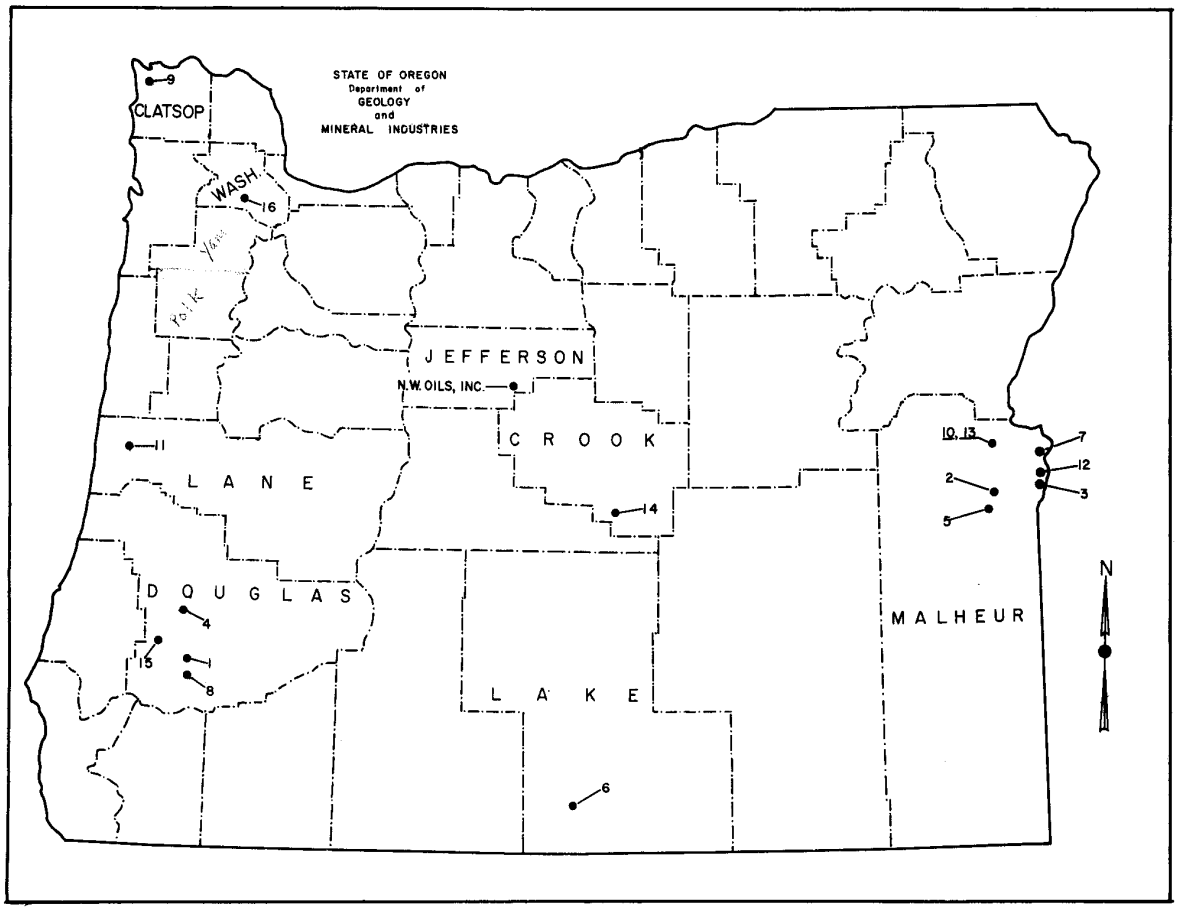
Mr. Charles R. Jackson reported that the Northwest Mining Company, consisting of Messrs. William D. Rhea, Ivan W. Lanham, Glenn W. Badley, and C. R. Jackson, are leasing the Laughlin Alloy Steel Company mill at Eagle Point to concentrate tungsten ore they are open-pit mining on Foots Creek, Jackson County. Six claims located in sec. 14, T. 37 S., R. 4 W., have been obtained by the company. They include the Blue Star and Lucky Strike prospects. Mining is being done with power shovel and trucks.

****

STATUS OF OIL AND GAS EXPLORATORY DRILLING IN OREGON

Sixteen drilling permits for exploratory drilling in Oregon were issued by the Department's Governing Board between December 1953 and August 22, 1955. Eleven of these permits were filed since February 1955. Because of the rapid increase in drilling activities and the widespread test drilling in the State, a summary showing the present status of the wells and their locations is presented. No oil or gas in commercial quantities has as yet been discovered in Oregon, but of possible significance are shows of gas in Malheur County and a minor show of crude oil in well cuttings from a test drilled in Douglas County.

As previously noted in the Ore.-Bin (January 1954), the Oregon Legislature passed an oil and gas conservation law to be administered by the Governing Board of the State Department of Geology and Mineral Industries. The Board was directed to set up rules and regulations for the guidance of oil and gas operators in the State. Any individual or company desiring to drill a well for oil and natural gas in Oregon must file with the Board a permit to drill such a well and, in addition, furnish a bond in the sum of $4,000 to insure that all abandoned wells will be plugged in a satisfactory manner.



LOCATION MAP
SHOWING DRILLING SITES COVERED BY PERMITS
January 1954 — August 1955

Permit No.	Date Issued	Company	Lease Name and County	Location	Status
No number. Drilling begun before oil & gas regulations were adopted.	Sept. 4, 1952	Northwest Oils, Inc. Prineville, Oregon	Morrow Bros. No. 1 (Jefferson County)	700' N. of S. line, 900' E. of W. line, SW¼ sec. 18, T. 12 S., R. 15 E.	Sporadic drilling since 1952. Suspended August 1955. Depth: 3000' ±.
1	March 22, 1954	W. F. Kernin Roseburg, Oregon	D. Coon No. 1 (Douglas County)	900' S. of N. line, 900' W. of E. line, SE¼ sec. 30, T. 28 S., R. 6 W.	Sporadic drilling.
2	March 26, 1954	R. A. Stamey Ontario, Oregon	G. B. Russell No. 1 (Malheur County)	330' S. of N. line, 330' E. of W. line, NW¼ sec. 14, T. 19 S., R. 44 E.	Suspended October 1954. Depth: 4367'.
3	Sept. 2, 1954	H. K. Riddle Ontario, Oregon	Kiesel Estate No. 1 (Malheur County)	1260' N. of S. line, 1370' E. of W. line, SW¼ sec. 8, T. 19 S., R. 47 E.	Suspended November 1954. Depth: 5411'.
4	Oct. 4, 1954	Oil Developers, Inc. Roseburg, Oregon	Scott No. 1 (Douglas County)	SW¼ SW¼ sec. 5 T. 27 S., R. 6 W.	Plugged and abandoned December 1954. Total depth: 3693'.
5	Nov. 15, 1954	El Paso Natural Gas Company. Salt Lake City, Utah	Federal No. 1 (Malheur County)	360' S. of N. line, 550' W. of E. line, NE¼ sec. 5, T. 20 S., R. 44 E.	Plugged and abandoned January 1955. Total depth: 7470'.
6	Feb. 16, 1955	C. A. Stone & Assoc. Lakeview, Oregon	W. A. Anderson No. 3 (Lake County)	2290' N. of S. line, 20' E. of W. line, SW¼ sec. 20, T. 39 S., R. 19 E.	Suspended April 1955. Depth: 727'.
7	Feb. 24, 1955	Oroco Oil and Gas Co. Payette, Idaho	Bolles No. 1 (Malheur County)	660' S. of N. line, 400' W. of E. line, NW¼ sec. 15, T. 17 S., R. 47 E.	Suspended April 1955. Depth: 1540'(?).
8	March 29, 1955	Riddle Oil and Gas Producers Riddle, Oregon	Dayton No. 1 (Douglas County)	960' N. of S. line, 1040' E. of W. line, SW¼ sec. 34, T. 30 S., R. 6 W.	Drilling ahead.
9	April 1, 1955	Standard Oil Company of California Seattle, Washington	Hoagland Unit No. 2 (Clatsop County)	311' N. and 499' E. of S¼ corner sec. 11, T. 7 N., R. 10 W.	Plugged and abandoned June 1955. Total depth: 7101'.
10 (See permit No. 13)	June 6, 1955	R. N. Ranger Portland, Oregon	Eastern Oreg. Land Co. No. 1 (Malheur County)	660' N. of S. line, 1320' E. of W. line, SW¼ sec. 15, T. 16 S., R. 44 E.	Used as water source for well being drilled under permit No. 13.
11	June 2, 1955	Sinclair Oil and Gas Company Portland, Oregon	Federal Mapleton No. 1 (Lane County)	1629' N. and 246' W. of SE corner sec. 12, T. 16 S., R. 10 W.	Drilling ahead.
12	July 22, 1955	Oroco Oil and Gas Co. Payette, Idaho	J. D. Lane No. 1 (Malheur County)	1320' N. of S. line, 2640' E. of W. line, SW¼ sec. 16, T. 18 S., R. 47 E.	Location graded.
13	July 26, 1955	Sinclair Oil and Gas Company Portland, Oregon	Eastern Oreg. Land Co. No. 1 (Malheur County)	660' N. of S. line, 1980' E. of W. line, SW¼ sec. 15, T. 16 S., R. 44 E.	Drilling ahead.
14	July 28, 1955	Standard Oil Company of California Seattle, Washington	Pexco No. 1 (Crook County)	3300' N. of S. line, 3300' E. of W. line, NE¼ sec. 36, T. 20 S., R. 20 E.	Surface casing set.
15	August 2, 1955	Uranium Oil and Gas Company Klamath Falls, Oregon	Ziedrich No. 1 (Douglas County)	1570' S. and 238' W. of N¼ corner NW¼ sec. 16, T. 29 S., R. 8 W.	Drilling ahead.
16	August 15, 1955	Oregon Explorations Hillsboro, Oregon	C. Wohler No. 1 (Washington County)	500' S. of N. line, 1650' W. of E. line, NE¼ sec. 11, T. 1 S., R. 3 W.	Preparing to set surface casing.

JOSEPHINE COUNTY CHROMITE NEWS

William Robertson, operator of the Oregon Chrome mine, Josephine County, has been sinking a winze to open an extensive chromite body explored by diamond drill methods. A 100-foot winze has been extended farther to open an offset (?) segment of the explored body discovered by the winze at a lower depth. The winze is at 115 feet (August 11) and is in ore. The workings will be extended to mine the lower body.

At the Lucky L&R mine, R. W. Radcliffe and Albert Lea have cut a 2-foot thick layer of high-grade chromite in a new tunnel 75 feet in from the portal, which is about 25 feet lower than the open cut workings. The mine was discovered by Radcliffe and Lea, November 1952. It is located in sec. 35, T. 35 S., R. 9 W., at the north end of Chrome Ridge. Ore runs about 52 percent chromic oxide.

Jack Wilson recently began bulldozing operations on the Buster mine in S½ sec. 11, T. 36 S., R. 9 W., on a milling-grade ore zone. He also began excavation at the Lower Violet, sec. 14, T. 36 S., R. 9 W., to open up a large milling-grade ore deposit. Ore is being milled at the Bowers chrome mill on Galice Creek.

M. B. Wood is working on another section of the Violet ore zone about 100 yards northwest of the Lower Violet and also hauling ore to the Bowers mill.

M. J. McShane, M. E. Adams, and Steve McShane began production again at the Sad Sack mine after putting in a 30-foot winze and about 80 feet of drift. The mine is located in the NE¼ sec. 23, T. 36 S., R. 9 W., near the south end of Chrome Ridge.

****

SHERIDAN AND McMINNVILLE QUADRANGLES MAPPED

A new geologic map in the Oil and Gas Investigations Series for northwest Oregon has been recently published by the U. S. Geological Survey in cooperation with the State of Oregon Department of Geology and Mineral Industries. The title of the map is "Geology of the Sheridan and McMinnville quadrangles, Oregon," and the authors are E. M. Baldwin, R. D. Brown, Jr., J. E. Gair, and M. H. Pease, Jr.

The map covers parts of Yamhill, Polk, and Marion counties and adjoins published geologic mapping on the north, west, and south sides. The area is underlain by more than 12,000 feet of Tertiary sedimentary and volcanic rocks, penetrated locally by igneous intrusives. The map is on the scale of 1:62,500 (1 inch equals approximately 1 mile). It is printed on one sheet 38 by 54 inches, together with geologic cross sections; a correlation chart comparing stratigraphic names in the Sheridan and McMinnville quadrangles with adjacent areas; check lists of fossils; and a text describing the geology and oil possibilities of the area.

"Geology of the Sheridan and McMinnville quadrangles, Oregon," has been issued as OM 155 and may be purchased for 50 cents from the Distribution Section, Geological Survey, Denver Federal Center, Denver, Colorado.

****

COAL RESOURCES OF OREGON PUBLISHED

"Coal Resources of Oregon," by Ralph S. Mason and Margaret I. Irwin, has just been published as Circular 362 by the U.S. Geological Survey in cooperation with the State of Oregon Department of Geology and Mineral Industries. The 7-page circular describes the major coal fields and discusses the geology, history, production, utilization, and reserves of coal in the State. Included are an index map of the Coos Bay coal field and a map of the State showing locations of 22 coal occurrences.

The circular is being distributed free-of-charge by the Geological Survey, Washington 25, D.C. Copies may also be obtained from the Department's office at 1069 State Office Building in Portland, or at the field offices in Baker and Grants Pass for as long as the supply lasts.

****

FAST TAX WRITE-OFFS SUSPENDED

According to the August 17 American Mining Congress Bulletin, ODM Director Arthur Flemming has ended fast tax write-off allowances for 19 categories of industrial expansion programs. In addition, 38 other categories have been suspended, leaving only 20 categories of production facilities open for rapid tax amortization.

Flemming declared this action was necessary in order to permit a review of the nation's overall industrial mobilization capacity. Following such a review each of the 38 suspended goals "will either be reopened or closed." Meanwhile, he said, there will be no further processing of pending applications for certificates of necessity nor of new applications which may be received.

Metals and minerals included in the 38 categories suspended are: primary aluminum, antimony, bauxite, chemical grade chromites, cobalt, iron ore, taconite, manganese ore, petroleum, rutile, and titanium metal.

Metals and minerals in the categories permanently closed are: asbestos, barite, beryl, two types of chromite, columbite and tantalum ore, fluorspar, lead, manganese ore, molybdenum, portland cement, rare earths, tungsten, and zinc.

Metals and minerals in the 20 categories which remain open for further fast tax write-offs are: copper, mercury, nickel, and selenium.

ODM has the authority to discontinue the entire program if it sees fit.

****

SURVEY PUBLISHES URANIUM BULLETIN

A new contribution to the geology of uranium has been published by the U.S. Geological Survey. The report is entitled "Search for Uranium in the United States." It reviews the more common uranium minerals and discusses the most promising methods of prospecting for the metal. Characteristics and distribution of the deposits in various types of rocks in the United States are described.

The publication is a 64-page, paper-covered pamphlet designated as Bulletin 1030-A. It contains 5 maps, an index, and references pertaining to uranium prospecting. Copies are available at 25 cents each from the Superintendent of Documents, Government Printing Office, Washington 25, D.C.

****

OREGON PORTLAND CEMENT TO EXPAND

A $3,180,000 construction project that will add 50 percent to the capacity of the Oregon Portland Cement Company plant at Oswego has been announced by Frank E. McCaslin, President of the company. The construction is expected to be completed by April 1, 1956, and will require an undetermined number of additional personnel. Improvements at the plant will include a dust-collection system, a 287-foot kiln, new machinery, and additional storage space. Included also in the program will be the re-equipping of the company's rock quarry in Polk County near Dallas with a new shovel, trucks, and conveyors.

****

QUICKSILVER PRICE

The rapid decline in the price of quicksilver came to at least a temporary halt the middle of August when a price of $253 a flask was reached. E&MJ Metal and Mineral Markets for August 18 reported that a fair quantity of metal was being absorbed and the market steadied at that price. Also reported was the arrival of about 400 flasks from Spain, the first shipment in some time.

****

RELEASE OF POWER SITES FOR PROSPECTING

According to E&MJ Metal and Mineral Markets of August 11, 1955, H.R. 100, introduced by Rep. Clair Engle in January 1955, was rewritten several times before the final bill was passed by both houses and cleared a Senate-House conference compromise version. That version is now awaiting the President's signature. As finally passed, the bill releases some 6½-million acres for mining development out of 7½-million acres withdrawn for federal power projects. These lands, to be released on availability to be determined by the FPC, will not include those under license or prospective license, and must be filed in the district land office.

****

TAX RULING ON EXPLORATION

Internal Revenue Bulletin No. 27, of July 5, contains the following ruling concerning tax treatment of "small quantities of ore" sold during the exploration period:

> "During 1954 the M mining company, while operating a mine which was in the exploration stage, discovered small quantities of ore which it extracted and sold to a smelter. In such year the company incurred exploration expenditures of $105,000 and received income of $5,000 from the sale of the ore. Held, the M company in computing taxable income for 1954 is entitled to deduct, or to treat as deferred expenses, subject to the provisions and limitations of section 615 of the Internal Revenue Code of 1954, the excess of such exploration expenditures over the net receipts derived from the sale of the ore in an amount not to exceed the statutory limitation of $100,000. Held further, the taxable income from the property under the circumstances stated would be zero and since percentage depletion is limited to 50 percent of taxable income from the property (computed without allowance for depletion), no percentage depletion is allowable to the company in 1954."

****

DEPARTMENT OF INTERIOR REVISES NOTIFICATION PROCEDURE

In the future the Bureau of Land Management will give more publicity to its notices of withdrawals or restoration of public lands. Regulations adopted recently give a notification procedure as follows:

(1) Notice of the application will be published in the Federal Register.

(2) Copy of the notice, together with a press release, will be sent to newspapers circulated in the vicinity of the lands and in areas of public interest in the lands.

(3) Copy of the notice will be sent to individuals and others who have demonstrated an active or potential interest.

(4) Copies of the notice will be posted in appropriate land and district offices of BLM.

(5) Copies will be sent to local county recorders, post offices, court houses or other places frequented by interested public, with a request they be posted.

(6) Whenever feasible, copies of the notice will be posted on land or along roads leading to the lands.

In the past, notice has been given only in the Federal Register.

****

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
Head Office: 1069 State Office Bldg., Portland 1, Oregon
Telephone: Capitol 6-2161, Ext. 488

Field Offices

2033 First Street, Baker
239 S.E. "H" Street, Grants Pass

****

VALUE OF OREGON'S MINERAL PRODUCTION FOR 1954*

Total value of Oregon's mineral production for 1954 was $32,223,000. This figure is given in an advanced summary just released by the U.S. Bureau of Mines in cooperation with the State of Oregon Department of Geology and Mineral Industries.

The 1954 total shows an increase of nearly 8 million dollars over the 1953 figures, but the rise can be credited largely to a better collection of data on sand and gravel. A regional canvass of sand and gravel producers brought to light many operations not previously accounted for and raised the production figure for that industry by 5½ million dollars.

With the exception of chromite, metals production declined in 1954, although values for quicksilver increased. Production of nickel from the deposit on Nickel Mountain in Douglas County became a reality in 1954. The Hanna Nickel Smelting Company reportedly produced about 300,000 pounds of nickel contained in ferronickel.

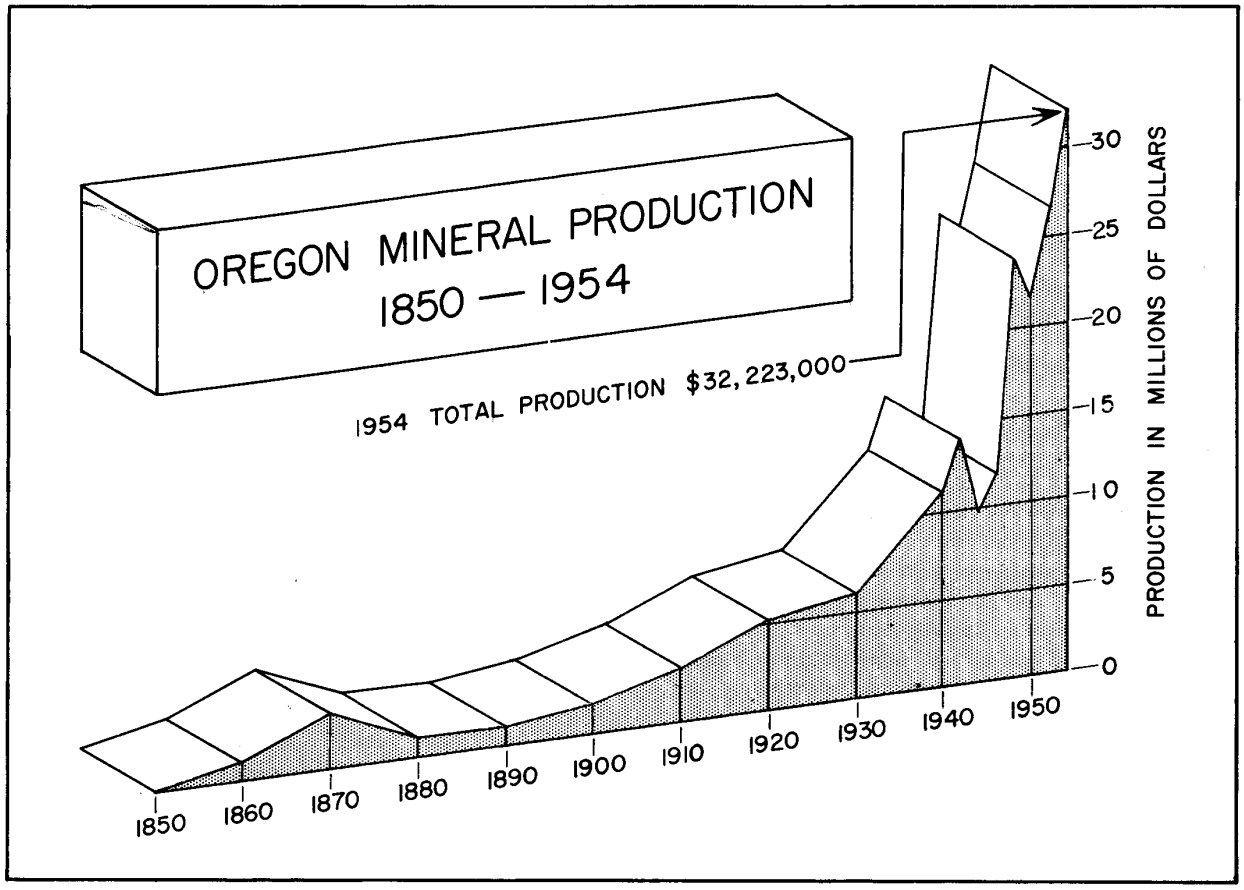
Production of nonmetallics continued at a high level in 1954, with an increase in output of cement, expanded shale, pumice, silica, and stone. The production breakdown follows:

Mineral	Quantity	Value
Chromite - short tons, gross weight	6,665	536,387
Clays (except for cement) - short tons	262,247	305,035
Coal - short tons	1/	1/
Copper (recoverable content of ores, etc.) - short tons	5	2,950
Gold (recoverable content of ores, etc.) - fine ounces	6,520	228,200
Lead (recoverable content of ores, etc.) - short tons	5	1,370
Mercury - 76-pound flasks	491	129,814
Nickel ore - short tons, nickel content	1,993	1/
Pumice and pumicite - short tons	67,852	177,515
Sand and gravel - short tons	13,229,781	14,183,024
Silver (recoverable content of ores, etc.) - fine oz.	14,335	12,974
Stone (except limestone for cement) - short tons	5,160,437	7,206,874
Undistributed: Carbon dioxide, cement, diatomite, gem stones, quartz, tungsten concentrates, and minerals whose value must be concealed for particular years (indicated in appropriate column by footnote 1).	---	9,439,205
Total Oregon	---	$32,223,000

1/ Value included with "Undistributed."

*Graph showing Oregon Mineral Production 1850-1954 on following page.

****



****

CHROMITE PRODUCTION IN 1954

Chromite production in Oregon in 1954 totaled 6,665 short tons valued at $536,387, an increase of 7 percent tonnage and 11 percent value over 1953 figures. Preliminary estimates released in December 1954 of 10,000 short tons valued at about $785,000 erroneously included production figures of California producers. Production statistics for Oregon chromite in 1954 are given in the table below:

County	Number of Operations Reported	Value		Short Tons, Gross Weight		
		1953	1954	45% Cr_2O_3 and over	Under 45% Cr_2O_3	Total
Coos	-	$ 1,528	$ ---	---	---	---
Curry	8	64,947	94,236	1,051	30	1,081
Douglas	5	15,576	20,581	209	64	273
Grant	3	91,510	1/	1/	1/	1/
Jackson	3	1/	6,134	36	32	68
Josephine	19	292,007	256,888	2,303	952	3,255
Unassigned 2/	5	18,885	158,548	1,936	52	1,988
Totals	43	$484,453	$536,387	5,535	1,130	6,665

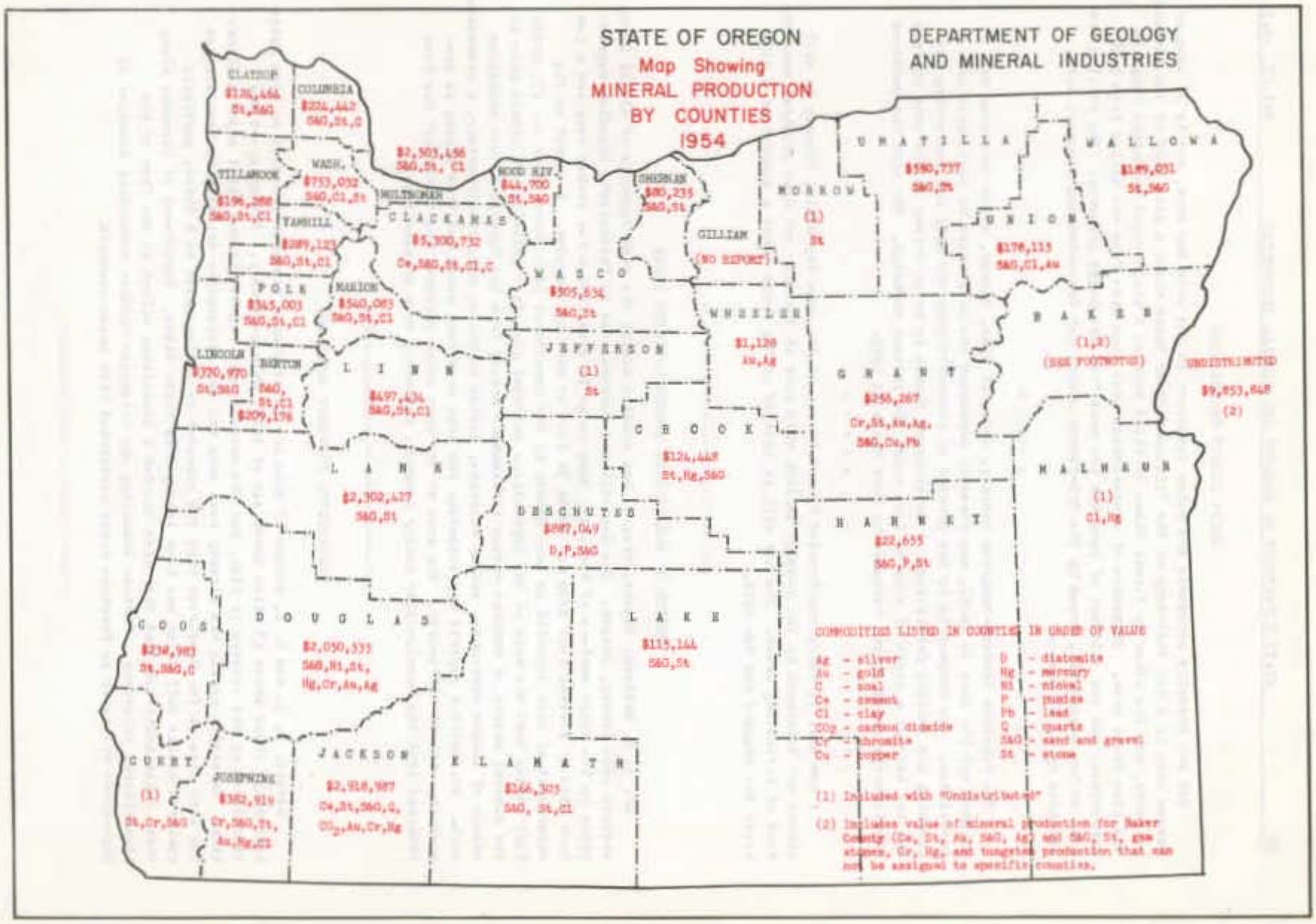
1/ Included with unassigned to avoid disclosure of individual operations.

2/ In addition to data under footnote 1/, includes value and production figures for operations for which county locations were not determined.

STATE OF OREGON

Map Showing MINERAL PRODUCTION BY COUNTIES 1954

DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES



COMMODITIES LISTED IN COUNTIES IN ORDER OF VALUE

Ag - silver	D - diatomite
Au - gold	Hg - mercury
C - coal	Ni - nickel
Ce - cement	P - pumice
Cl - clay	Pb - lead
CO_2 - carbon dioxide	Q - quartz
Cr - chromite	Sand - sand and gravel
Cu - copper	St - stone

(1) Included with "Undistributed"

(2) Includes value of mineral production for Baker County (Ce, St, Au, Sand, Ag) and Sand, St, gem stones, Cr, Hg, and tungsten production that can not be assigned to specific counties.

GRANT COUNTY CHROME NEWS

Two new chromite prospects are being developed in the John Day area, one by Al Dunn of Canyon City at a new discovery on the William Gardner Ranch about a mile west of the Kingsley property, and the other by Vernal Ulman of Pilot Rock on a claim owned by Ronald Beggs in the Pine Creek area. Shipments of concentrates have been made from ore milled from both properties, and one shipment of lump ore was made from the Beggs property. The milling was done in the custom mill owned by the Tri-County Mining and Concentrating Company, Inc., operated by J. A. Curzon.

* * * * *

The Comstock Uranium-Tungsten Company, Inc., of Elko, Nevada, which took over the Haggard and New mine in April, has recently purchased the mill built by Burt Hayes and associates. The Company is in the process of reconditioning the mill and increasing the crushing and tabling facilities. A development tunnel is being driven on the mine to open the ore body at a depth of some 40 feet below the present workings. The mine has produced consistently since it was reopened by Burt Hayes in 1953.

* * * * *

A new mill is being constructed by Art Newman of the John Day Mining Company to mill chrome ore developed by the company earlier this year at the old Ward mine situated near the head of Little Dog Creek. The new mill is located on Dog Creek about a quarter of a mile below the Haggard and New mill.

****

MINING OF ALKALI LAKE SODIUM DEPOSITS BEGUN

Mr. A. M. Matlock, Eugene, Oregon, has started mining the soda deposits of Alkali Lake, eastern Lake County, Oregon. The deposits are concentrated in "potholes", roundish depressions in the playa surface of the lake, that range in size from a few inches deep and a few feet wide to several feet deep and 20 to 30 feet or more in diameter. A report on the occurrence of soda deposits in Lake County by the Department (GMI Short Paper No. 17, price 15¢) states that the bulk of the crystalline material from the "potholes" of Alkali Lake is the mineral natron, a hydrous sodium carbonate. Brines from the "potholes" are solutions mainly of sodium carbonate, sodium chloride, sodium sulphate, and, subordinately, a potassium salt. Mr. Matlock reports approximately 100 tons have been mined and that mining is progressing without difficulty. The area of the lake which includes the "potholes" has been obtained from the Favell-Utley Realty Company, Lakeview, on a 10-year lease.

****

QUICKSILVER PROPERTY EXPLORED

Messrs. B. E. and R. L. Jordan of Vale are developing a cinnabar prospect on Hope Butte near Bully Creek about 13 miles northwest of Vale, Malheur County. The prospect was discovered by the Jordans in 1951, but the current work represents the first major exploration. Extensive dozing has already been done and two exploratory drifts have been started. The work done so far discloses that the cinnabar is disseminated in a thick, partially opalized acidic tuff which has been intruded by basic dikes. Enrichment of cinnabar along these dikes indicates that they have exerted a localizing effect on the flow of the mineralizing solutions. Further tunneling may determine whether commercial tonnages of high-grade ore occur in fracture zones associated with these contacts.

****

DOMESTIC METAL PRICES

From E&MJ Metal and Mineral Markets, September 15, 1955

Copper - 44.26 cents per pound, refinery (domestic average).
Lead - 15 cents per pound New York.
Zinc - 13 cents per pound East St. Louis.
Quicksilver - $260-265 per 76-pound flask New York.
Silver - (foreign) 90 3/4 cents per ounce New York; (domestic) 90 1/2 cents government price.
Aluminum - per pound f.o.b. shipping point (freight allowed) 30-pound ingot 99+ percent, 24.4 cents per pound; in pigs, 22.5 cents.
Antimony - 99½ percent grade, domestic, bulk, Laredo, 33 cents per pound.
Bismuth - $2.25 per pound in ton lots.
Cadmium - delivered, $1.70 per pound.
Cobalt - per pound in 500- to 600-pound containers, $2.60.
Cobalt ore - per pound of cobalt contained f.o.b. Cobalt, Ontario, 9-percent grade, $1.30; 10 percent $1.40.
Gallium - per gram in 1000-gram lots, $3.00.
Germanium - per pound $295.
Iridium - per ounce troy $100-110.
Lithium - per pound 98 percent $11-14.
Nickel - per pound electrolytic cathodes f.o.b. Port Colborne, Ontario, 64½ cents duty included.
Osmium - per ounce troy $80-100.
Palladium - per ounce troy $22-24.
Platinum - per ounce troy $91-94.
Selenium - per pound $9-10.
Titanium - per pound 99.3+ percent, maximum .3 percent iron, $3.95.
Titanium ore - per long ton, ilmenite 59.5 percent TiO_2 f.o.b. Atlantic Seaboard $20; rutile per pound, minimum 94 percent, concentrate 9-10 cents.
Tungsten - per pound 98.8 percent, minimum 1,000-pound lots, $4.50.
Zirconium - per pound, sponge, $10.

****

LAKE COUNTY URANIUM CLAIMS LEASED

Thornburg Bros. Mining Company, Grand Junction, Colorado, are leasing both the White King and Lucky Lass uranium claims, Lake County. The White King claim, Oregon's first commercial-appearing uranium prospect, was discovered by John Roush and Don Tracy of Lakeview early this summer. The Lucky Lass claim nearby was owned by Bob Adams, Jr., and associates, Lakeview.

The Company is exploring both mines and at present has a drill at the White King. Underground development work is planned for this winter. If sufficient reserves are proved, it is expected that a mill will be built.

****

SCHLICKER JOINS DEPARTMENT STAFF

Herbert G. Schlicker, formerly Assistant Soils Engineer for the State Highway Department, joined the Department as a geologist September 1. He graduated from Oregon State College in 1950 in Geology and obtained a Master's Degree in 1953. Subject for his thesis was "Columbia River basalt in relation to the stratigraphy of northwest Oregon." in addition to his experience with the State Highway Department, Mr. Schlicker worked in subsurface geology with the Texas Company in New Orleans.

****

A TYPICAL PROSPECTOR

At this time when there is considerable pressure from certain governmental agencies and outdoor organizations for change in the mining laws because, according to them, the laws promote "timber grabs", "acquisition of free summer home sites", "stoppage of access roads", etc., etc., the impression is sometimes left that all miners and prospectors are opportunists whose motives and ethics should be questioned. The few offenders of the basic mining law (and it is believed that even they can be controlled if the law were properly enforced) are publicised as representative of the mining industry. The real miner and the real prospector, for whom the law was written in 1872, seldom receive favorable publicity.

An editorial in the Oregon Statesman, Salem, came to the attention of the editor recently and is reproduced below. Although "Tex" Peel never located the mother lode, his quest for metals is typical of the prospector, even today. And changes in the mining law would curtail this type of individual enterprise!

Ed.

A story in the Grants Pass Courier is reminiscent of the Old West, the West of the gold miners, which was far more glamorous than the West of beef cattle and cowboys. Only this story wasn't glamorous at all. It told that an 80-year-old gold miner, George "Tex" Peel" had been found dead in his lonely cabin. Even the place names are suggestive. "Tex" had a mine on "Bybee Gulch, above Hansen Gulch some five miles west of Cave Junction." His cabin was "on a tributary of Canyon Creek on the divide between Illinois and Chetco Riversheds." (The late Ernest Haycox surely could have made something out of this).

For 41 years Peel had sought the "mother lode" in Josephine County. He had filed in 1945 on the claim he was lately working. His death wasn't discovered until a fellow miner bringing him some provisions found his body - he evidently had suffocated when his bedding caught afire. He left no relatives, so under the authority of a deputy coroner they "blasted a grave in the rocky hillside and buried the old miner on the claim he had worked so long."

Perhaps down in Texas, where Peel was born in 1874, a few may speak now and then of a chap who went west years ago to seek his fortune, whose letters long since had ceased to come. Another gold miner reached the end of his life trail. He didn't find much of the gold that lured him through life, but he did find rest in the mountains that were his familiar friends.

****

STOCKPILE ENDING?

Future stockpile programming may well be indefinite and shaky because of four factors: heavy industrial demands for hard-to-get materials going into the stockpile (aluminum, copper and nickel, for example); increasing desire by the Administration to balance the budget by election year; nearing completions on many materials on the stockpile schedule; and a rumored new concept in H-bomb wars, which would put a premium on immediate utilization of arms and equipment - opposed to the present stockpile program, which requires a longer conversion time of basic stockpiled materials into weapons and equipment.

(E&MJ Metal and Mineral Markets, September 15, 1955)

****

TELEPHONE NUMBER CHANGED

Telephone number of the Department's office at Portland has been changed. The new number is CApitol 6-2161, extension 488. Telephone numbers for the Baker and Grants Pass offices remain the same. The Baker office number is JAckson 3-3133, and the Grants Pass number is GReenwood 6-2496.

****

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
Head Office: 1069 State Office Bldg., Portland 1, Oregon
Telephone: Capitol 6-2161, Ext. 488

Field Offices
2033 First Street, Baker 239 S.E. "H" Street, Grants Pass

****

LIST OF ACTIVE MINES IN OREGON
1955

Interest in mining in Oregon is evidenced by the many requests the Department receives asking for names of active mining properties. The following is a revision of the list that appeared in the March 1953 Ore.-Bin. A list of clay plants is contained in GMI Short Paper No. 19 (20 cents), and sand gravel producers in a separate list (5 cents).

Ed.

METALS

Chrome Concentrating Plants

Bristol-Baker F. I. Bristol Grants Pass, Ore.	Curry County Sec. 36 T. 40 S., R. 11 W.
Bowers Mill Dana W. Bowers Medford, Ore.	Josephine County Sec. 3 T. 35 S., R. 8 W.
Comstock Uranium - Tungsten Co., Inc. J. J. Kinsella John Day, Ore.	Grant County John Day
Foster Mill Ernest Foster Grants Pass, Ore.	Josephine County Sec. 28 T. 37 S., R. 8 W.
Grants Pass Chrome Mill Frank Tubandt Grants Pass, Ore.	Josephine County NW "F" Street Grants Pass
John Day Mining Co. John Day, Ore.	Grant County Sec. 26 T. 13 S., R. 31 E.
Lucky Nine Mill Lucky Nine Chrome Corporation Riddle, Ore.	Douglas County Canyonville
Lyman and Findlay Mill E. Lyman and Glenn Findlay, John Day, Ore.	Grant County John Day
McCaleb Mill R. E. McCaleb Selma, Ore.	Curry County Sec. 24 T. 38 S., R. 10 W.
Newman Mill Art Newman John Day, Ore.	Grant County John Day
Sourdough Mill Howard Beasley O'Brien, Ore.	Curry County Sec. 36 T. 40 S., R. 11 W.
Triple L Mill Harry and Lester Shippen Myrtle Creek, Ore.	Douglas County Myrtle Creek

Chrome Concentrating Plants (cont.)

Waldo Milling Co. Takilma, Ore.	Josephine County Sec. 23 T. 40 S., R. 8 W.

Chrome Mines

Chetco Mining Co. F. I. Bristol, et al Grants Pass, Ore.	Curry County Secs. 2, 3, 10 T. 39 S., R. 10 W.
Chrome King Mine King and Hansen Mining Co. Selma, Ore.	Josephine County Sec. 36 T. 37 S., R. 10 W.
Deep Gorge Mine Grisson and Inman Selma, Ore.	Josephine County Sec. 32 T. 37 S., R. 9 W.
Gardner Chrome Fred Gardner Harbor, Ore.	Curry County Sec. 10 T. 39 S., R. 11 W.
Haggard and New Mine J. J. Kinsella John Day, Ore.	Grant County Sec. 21 T. 14 S., R. 32 E.
Langley Chrome Fred Langley Grants Pass, Ore.	Josephine County Sec. 35 T. 36 S., R. 8 W.
Lucky L. & R. Mine R. W. Radcliffe Merlin, Ore.	Josephine County Sec. 35 T. 35 S., R. 9 W.
Lucky Star E. K. McTimmonds Selma, Ore.	Josephine County Sec. 21 T. 37 S., R. 9 W.
Lucky Strike Chrome Glen Young Kerby, Ore.	Josephine County Sec. 18 T. 39 S., R. 8 W.
Mary Walker Claim Louis A. Robertson Galice, Ore.	Josephine County Sec. 22 T. 36 S., R. 9 W.
Wonder Mill Tulare Bros. Gold Hill, Ore.	Curry County Sec. 11 T. 30 S., R. 10 W.
McCaleb Chromite R. E. McCaleb Selma, Ore.	Curry County Secs. 11, 12 T. 38 S., R. 10 W.
Mockingbird Chrome Olsen and Scoffield Grants Pass, Ore.	Josephine County Sec. 28 T. 37 S., R. 9 W.
Mohawk Chrome Mine Carl Stevens Selma, Ore.	Josephine County Sec. 29 T. 38 S., R. 9 W.
Nigger Mine Louis A. Robertson Galice, Ore.	Josephine County Sec. 24 T. 36 S., R. 9 W.
Oregon Chrome Mine W. S. Robertson Grants Pass, Ore.	Josephine County Sec. 21 T. 37 S., R. 9 W.
Pearsoll Mine Ernest Foster Grants Pass, Ore.	Curry County Sec. 2 T. 38 S., R. 10 W.
Rainy Day Mine Glenn Shippen Canyonville, Ore.	Douglas County Sec. 15 T. 30 S., R. 4 W.
Saturday Anne Mine Craig and Weishaar Selma, Ore.	Josephine County Sec. 9 T. 37 S., R. 9 W.
Shade Mine Roy Hills and Pieren Bros. Grants Pass, Ore.	Josephine County Sec. 21 T. 37 S., R. 9 W.
Sordy Mine Tulare Bros. Gold Hill, Ore.	Josephine County Sec. 14 T. 36 S., R. 9 W.

Chrome Mines (cont.)

Sourdough Mine Ben Baker, et al Grants Pass, Ore.	Curry County Sec. 36 T. 40 S., R. 11 W.
Sowell Chrome R. G. Sowell Cave Junction, Ore.	Josephine County Sec. 30 T. 40 S., R. 8 W.
Tennessee Pass Chrome Murphy Young Kerby, Ore.	Josephine County Sec. 12 T. 39 S., R. 9 W.
Twin Cedars R. E. McCaleb Selma, Ore.	Josephine County Sec. 6 T. 38 S., R. 9 W.
Wonder Mine Tulare Bros. Gold Hill, Ore.	Curry County Secs. 11, 14 T. 38 S., R. 10 W.

Gold Lode Mines

Buffalo Mine J. P. Jackson, Jr. Granite, Ore.	Grant County Sec. 14 T. 8 S., R. 35½E.
East Eagle Mine Rawleigh Chadwell Baker, Ore.	Baker County Sec. 17, 18 T. 6 S., R. 44 E.
Old Crow Mine Wm. J. Wendt Baker, Ore.	Baker County Eagle Creek Dist.
Pyx Mine Greenhorn Mountain Development Co. Baker, Ore.	Grant County Sec. 2 T. 10 S., R. 35 E.
Rising Sun Mine Z. J. Collings Jacksonville, Ore.	Jackson County Upper Applegate Dist.
Round Top Mine Norman B. Gardner Wallace, Idaho	Baker County Virtue Dist.

Gold Placers
(Mostly seasonal operations)

Cal.-Ore. Placers Ed Carlson Galice, Ore.	Josephine County Secs. 2, 3 T. 35 S., R. 8 W.
China Bar John H. Wright Lime, Ore.	Baker County Lower Burnt River Dist.
Connor Creek Mine Placers, Inc. Ontario, Ore.	Baker County Connor Creek Dist.
Golden Bar Placer R. L. Pancost Merlin, Ore.	Josephine County Sec. 2 T. 35 S., R. 8 W.
Leipold Placer H. Brunswick Pieren Bros. Galice, Ore.	Josephine County Sec. 3 T. 35 S., R. 8 W.
Lewis Placer Bud Lewis Galice, Ore.	Josephine County Sec. 36 T. 34 S., R. 8 W.
Pankey Placer Bert Pankey Merlin, Ore.	Josephine County Sec. 10 T. 35 S., R. 8 W.
Sterling Placer Paul Pearce Jacksonville, Ore.	Jackson County Sec. 33 T. 38 S., R. 2 W.
Victory Placer Leo D. Baker Riddle, Ore.	Douglas County Riddle Dist.

Mercury

Bonanza Mine Bonanza Oil and Mine Corp. Sutherlin, Ore.	Douglas County Sec. 16 T. 25 S., R. 4 W.
Horseheaven Mine Cordero Mining Co. Ashwood, Ore.	Jefferson County Sec. 12 T. 10 S., R. 18 E.
Maury Mountain Mine F. D. and H. W. Eickemeyer Prineville, Ore.	Crook County Secs. 10. 15 T. 17 S., R. 19 E.
New Amity Mine New Amity Mining Co. Prineville, Ore.	Crook County Ochoco Dist.
Towner Quicksilver Mine Frank Towner Post, Ore.	Crook County Sec. 10 T. 17 S., R. 19 E.
Winter Creek Mine Winter Creek Mining Co. Prineville, Ore.	Crook County Ochoco Dist.

Miscellaneous Metals

Hanna Nickel Smelting Co. (Nickel) Riddle, Ore.	Douglas County Nickel Mountain T. 30 S. R. 6 W.
Mineral Sands Co. (Black sand) Bandon, Ore.	Coos County Sec. 21 T. 27 S., R. 14 W.
Northwest Mining Co. (Tungsten) Eagle Point, Ore.	Jackson County Sec. 14 T. 37 S., R. 4 W.
Standard Mine (Copper, cobalt) Ray Summers John Day, Ore.	Grant County Sec. 12 T. 12 S., R. 33 E.
Thornburg Bros. (Uranium) White King and Lucky Lass mines Lakeview, Ore.	Lake County T. 37 S., Rs. 18, 19 E.

Miscellaneous Processing Plants

Electro Metallurgical Co. (Carbide) Div. Union Carbide Co. Portland, Ore.	Multnomah County Plant in St. Johns
National Metallurgical Corp. (Aluminum silicon; silicon) Springfield, Ore.	Lane County Plant under construction at Springfield
Oregon Steel Mills (Steel) 5200 N.W. Front Portland, Ore.	Multnomah County
Orr Eng. & Chemical Co. (Limonite) James M. Orr Scappoose, Ore.	Columbia County. Plant in Scappose
Pacific Carbide and Alloys Co.(Carbide) N. Columbia Blvd. & Hurst, Portland, Ore.	Multnomah County Plant in North Portland
Reynolds Metals Co. (Aluminum) Portland, Ore.	Multnomah County Plant at Troutdale
Vermiculite-Northwest, Inc. (Vermiculite) 2303 N. Harding Portland, Ore.	Multnomah County

NONMETALLICS

Building Stone

Northwest Granite Co Haines, Ore.	Baker County Sec. 27 T. 7 S., R. 39 E.	Rocky Butte Quarry (Basalt) Joe Marsden Portland, Ore.	Multnomah County Quarry at Rocky Butte
Pacific Cut Stone Co. (Tuff) C/o Mutual Materials Seattle, Wash.	Jefferson County Sec. 9 T. 9 S., R. 15 E.	Tuff Stone Co. Sublimity, Ore.	Marion County Sec. 29 T. 8 S., R. 1 E.
Rainbow Rock Quarry (Tuff) D. A. Temple Brightwood, Ore.	Wasco County Sec. 11 T. 6 S., R. 11 E.		

Lightweight Aggregate Producers

Cascade Pumice Lloyd A. Williamson Bend, Oregon	Deschutes County Sec. 5 T. 18 S., R. 12 E. & Sec. 36 T. 16 S., R. 11 E.	Great Lakes Carbon Carp. (Diatomite) Dicalite Division Lower Bridge, Ore.	Deschutes County Sec. 16 T. 14, S., R. 12 E.
Central Oregon Pumice Co. W. E. Miller Bend, Oregon	Deschutes County Sec. 7 T. 17 S., R. 12 E. & Sec. 7 T. 18 S., R. 12 E.	Harney Concrete Tile Co. (Pumice) Don Robbins Burns, Ore.	Harney County Sec. 3 T. 24 S., R. 30 E.
Cinder Hill Quarry (Cinders) Leroy E. Grote Redmond, Oregon	Deschutes County Sec. 33 T. 14 S., R. 13 E.	Northwest Aggregates, Inc. (Expanded shale) Portland, Ore.	Washington County Sec. 24 T. 3 N., R. 5 W.
Deschutes Concrete Products Co. (Pumice) Chester T. Lackey Redmond, Oregon	Deschutes County Sec. 30 T. 16 S., R. 12 E. & Sec. 33 T. 14 S., R. 13 E.	Red Rock Cinders (Cinders) Portland, Ore.	Deschutes County Sec. 29 T. 14 S., R. 13 E.
		Smithwick Concrete Products Co. (Expanded shale) Portland, Ore.	Washington County. T. 3 N., R. 4 W.

Limestone

Dewitt's Polk County Lime Co. Dallas, Ore.	Polk County S.W. of Dallas	National Industrial Products Co. Durkee, Ore.	Baker County Sec. 10 T. 12 S., R. 43 E.
Greely Lime Co. (Quarry near Enterprise) Portland, Ore.	Wallowa County Sec. 19 T. 2 S., R. 44 E.	Oregon Portland Cement Co. (Quarries at Lime and Dallas; plant at Oswego) Portland, Ore.	Baker and Polk counties Secs. 26,27,34,35 T. 13 S., R. 44 E. & Sec. 12 T. 8 S., R. 6 W.
Ideal Cement Co. (Quarry at Marble Mt.) Gold Hill, Ore.	Josephine County Sec. 30 T. 37 S., R. 6 W.		

Miscellaneous Nonmetals

Alkali Lake Sodium (Salines) A. M. Matlock Eugene, Ore.	Lake County Alkali Lake	Gas-Ice Corp. (Dry ice) Portland, Ore.	Jackson County Sec. 7 T. 39 S., R. 2 E.
		Gibbs Coal Mine Leonard Gibbs Coquille, Ore.	Coos County Sec. 2 T. 27 S., R. 14 W.
Bristol Silica Co. (Crushed granite & quartz) F. I. Bristol Rogue River, Ore.	Jackson County Sec. 30 T. 36 S., R. 3 W.		
		Wilhoit Coal Mine T. G. Mandrones Portland, Ore.	Clackamas County Sec. 15 T. 6 S., R. 2 E.

R.S.M.

****

MAP OF SOUTHWESTERN OREGON PUBLISHED

Preliminary Geologic Map of Southwestern Oregon by Francis G. Wells has just been issued by the U.S. Geological Survey in cooperation with the State of Oregon Department of Geology and Mineral Industries. The map is one of the Geological Survey's Mineral Investigations Field Studies and is designated as MF 38. The scale of the map is 1:250,000 (1 inch= about 4 miles). The geology is indicated in patterns of black and white. No text accompanies this map, but a legend describes the formations, and an index map shows sources of data from which the map was compiled.

The area covered by this map is in the shape of a rectangle, running from the western edge of Klamath Lake to the Pacific Coast, and from the California boundary north through Township 30 South. It includes all of Curry, Josephine, and Jackson counties and a part of Klamath, Douglas, and Coos counties. Map MF 38 may be obtained from the U.S. Geological Survey, Federal Center, Denver, Colorado, for 50 cents.

****

ATOMIC ENERGY COMMISSION EXPLAINS ORE-BUYING PROGRAM FOR OREGON

September 19, 1955

Mr. Hollis M. Dole, Director
Department of Geology and Mineral Industries
1069 State Office Building
Portland 1, Oregon

Dear Mr. Dole:

This is in response to your letter of September 6, 1955, requesting something definite regarding the Atomic Energy Commission's policy in buying uranium ore that might be found in Oregon, general requirements for a uranium processing plant, and how purchases are made by the Commission from deposits some distance from uranium mills.

When the prospectors began to discover uranium ore away from the Colorado Plateau, they were faced with a high-cost transportation problem in addition to the normal high costs of exploration and development of a new property. The Commission, being sympathetic to this problem, gradually established the off-plateau procurement program by administrative decision. The off-plateau procurement program is not considered in the same category as the procurement of uranium ores from established uranium-producing areas. It is an exploration tool designed to aid uranium mine operators in new uranium provinces for the purpose of stimulating the exploration and development of the uranium area by private industry to the point where the developed ore reserves will support an ore-buying station and eventually a processing mill.

The big stumbling block to most mine operators who start mining operations in a new district is the high cost of transporting the ore from mine to buying station. If it appears that the mine operator cannot initially operate at a profit because of the high haulage costs, the Commission may, in effect, establish a temporary buying point at a nearby railroad siding.

The Commission is vitally concerned that the ore shipped from the new mine is of commercial grade and can be treated economically in a processing plant. Therefore, the commission will only reimburse the rail freight on each carload lot of ore that assays 0.20% U_3O_8 or better. However, where the ore assays 0.10% up to 0.20% U_3O_8, the Commission will accept and pay for the ore with no reimbursement for rail freight. The former provision is also of great importance because it encourages the miner to be extremely careful to ship only clean ore with a minimum of waste rock.

We wish to emphasize clearly that the Commission will buy ore under the off-plateau program only when it is produced from mine development. The objective is to assist the operator develop his ore body to a stage that will permit profitable operation under the existing guaranteed price schedules. The Commission does not intend to continue the program indefinitely for the benefit of any one mine owner.

To properly administer the off-plateau procurement program, the Mining Division of the Grand Junction Operations Office works closely with the Commission's Exploration Branches. Before an off-plateau contract is offered to any mine operator, a geologic evaluation report of

the mine and area is obtained from the Exploration Branch Offices. These offices employ geologists to assist prospectors and to make geologic examinations and to report on all potential uranium-producing areas. If the examination reveals that an area is a potential uranium producer and, if the geologist recommends the applicant's property, the Mining Division will work out a contract to fit the needs of the applicant.

Therefore, it would be in order for a prospector or property owner in Oregon who thinks he has a uranium mine to first contact the nearest Atomic Energy Commission Exploration Branch Office and request that they assign a geologist to examine the property. The geologist, being familiar with the off-plateau program, can advise the prospector the necessary steps to take to apply for a contract with the Mining Division, Grand Junction Operations Office, Grand Junction, Colorado. Oregon is in the district assigned to E. E. Thurlow, Chief, Salt Lake Exploration Branch, 222 SW Temple Street, Salt Lake City, Utah. He has sub-offices at several locations within his district.

In regard to the requirements for a uranium processing plant, the basic requirement is the existence of a known ore reserve adequate to supply ore to a proposed plant for a period of several years. Experience to date indicates that the minimum capacity for an economical plant is approximately 200 tons per day, which would require that approximately 400,000 tons of ore be available for any proposed processing facility during a normal contractual period of five years. Also, construction of a uranium processing plant is predicated on the development of a satisfactory metallurgical process to recover uranium from any known ore reserves.

Uranium processing facilities are constructed by private industry on the basis of negotiated contracts covering the sale of uranium concentrates to the Commission. Contracts are entered into on the basis of proposals submitted by qualified private companies and a mill location is selected by the private contractor who will build and own the plant. The contractor finances the construction and operation of the plant and usually controls a major portion of the ore supply that will be treated.

These are the general requirements which the Commission considers in the purchase of high cost ore and the establishment of ore buying stations and processing mills, and you are at liberty to use this material in an issue of the ORE.-BIN.

Very truly yours,

/S/ Elton A. Youngberg
Director Mining Division

****

CONDON LECTURE PUBLISHED

"The Life in the Sea," by Ralph Buchsbaum, has just been published by the Oregon State System of Higher Education. Dr. Buchsbaum delivered this paper as the 1954 Condon Lecture under the title of "Animals without Backbones." In "The Life in the Sea" he has presented the material in the same entertaining and informative way as in the lecture. The paper-covered booklet of 101 pages is abundantly illustrated. It sells for $1.50 and may be obtained from the University of Oregon Press, Eugene, Oregon.

****

RECEIPTS FROM OIL LEASING INCREASE

The State of Oregon has just received $65,001.52 from the U.S. Department of the Interior as its share of the more than $173,000 paid to the U.S. Government during the first half of 1955 by companies for permits to investigate for oil, gas, and coal on federal lands in Oregon. During the last six months of 1954, Oregon received $16,478.00 as its part of the federal lease and permit fees. During the first half of 1954 it received $26,458.72. State receipts from the Department of the Interior for grazing lands, timber sales (exclusive of O&C timber sales paid to counties), and others for fiscal 1955 (July 1, 1954 - June 30, 1955) were $56,674.17 and for fiscal 1954 (July 1, 1953 - June 30, 1954) $47, 231.47, according to the U.S. Bureau of Land Management regional office in Portland.

The $65,000 payment represents 37½ percent of total receipts paid the government for mineral leases and permits in Oregon. Of the remainder of the funds, 52½ percent of the total goes into the Federal Reclamation Fund and 10 percent into the U.S. Treasury.

If this money received for leasing is an indication of the growing interest in oil and gas exploration in Oregon, then the twelve permits to drill issued so far this year are just a good beginning to the exploration that will be done in the future. If exploration activities are not increased but are maintained at their present level, Oregon can still count the activities of the oil companies as good contributors to its economy, for the permit fees are only a fraction of the companies' total expenditures in the State.

Ed.

****

NEW PERMIT GRANTED

Permit No. 17 was granted October 24 to Miriam Oil Company, J. P. Thornhill, Secretary-Treasurer, McMinnville, Oregon. The permit is for a test drilling in the SW¼ sec. 9, T. 8 S., R. 5 W., Polk County. The lessors are Myrtle C., Kenneth W., and Evelyn C. Elliott, Dallas, Oregon.

****

OREGON ASTRONOMER DIES

James Hugh Pruett, well-known astronomer, died at his home in Eugene Sunday, September 25. He was 69 years old. Mr. Pruett was for many years astronomer with the General Extension Division of the State System of Higher Education. He was a member of a number of astronomical societies and Pacific Director of the American Meteor Society.

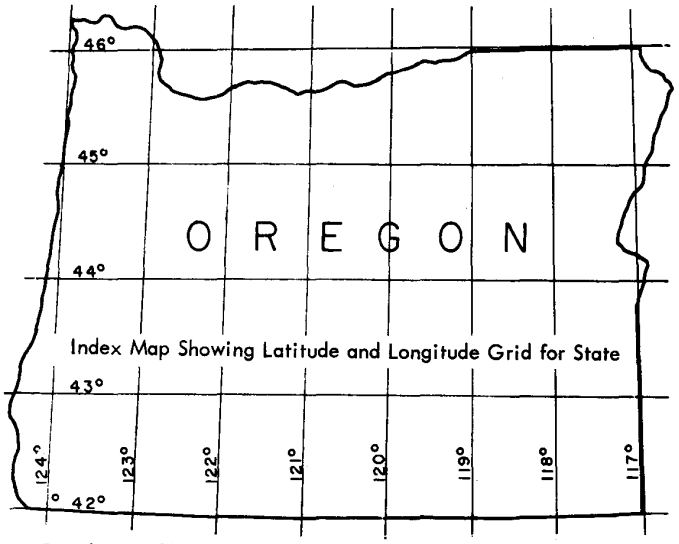
Mr. Pruett was a prolific writer. His syndicated column on astronomy was published weekly in newspapers. Many of his articles appeared in astronomical journals; at least 24 were published in the News Letter of the Geological Society of the Oregon Country. The April 1952 issue of the Ore.-Bin devoted to the subject of meteorites, reprinted Mr. Pruett's report on the Willamette Meteorite. Mr. Pruett's special interests in the field of astronomy were meteors and meteorites, and he contributed much to the knowledge of these phenomena.

****

OREGON TOPOGRAPHIC MAPS IN PROGRESS

A total of 119 quadrangles are currently being mapped in Oregon by the Topographic Branch of the U.S. Geological Survey. The quadrangles listed below are not yet published in final form but are blueline prints in various stages of completion. Some show only topography, while others show all of the information that will appear on the final map. These maps may be obtained from the U.S. Geological Survey at Box 197 (T&C), Sacramento, California, at a charge of 50 cents per sheet. Most of the map areas embrace 15 minutes of latitude and longitude and cover approximately 220 square miles, but a few quadrangles cover only 7½ minutes and have twice the scale of the 15-minute maps.

Published topographic quadrangles for Oregon may be obtained from the U.S. Geological Survey, Denver Federal Center, Denver, Colorado, at a cost of 20 cents each. The maps may also be obtained locally from some of the stationery and blueprint firms at a slightly higher cost.



Index Map Showing Latitude and Longitude Grid for State

Quadrangle	Series	Coordinates SE cor. Latitude	Longitude
Agness	15'	42 30	124 00
Anlauf	15'	43 30	123 00
Barlow	7½'	45 07½	122 37½
Bone Mt.	15'	42 45	123 45
Brush Prairie	7½'	45 37½	122 30
Butte Falls	15'	42 30	122 30
Camas Valley	15'	43 00	123 30
Canby	7½'	45 15	122 37½
Cape Blanco	15'	42 45	124 30
Cape Ferrelo	15'	42 00	124 15
Cathlamet	15'	46 00	123 15
Collier Butte	15'	42 15	124 00
Colton	7½	45 07½	122 22½
Corbett	7½'	45 30	122 15
Cornucopia	15'	45 00	117 00
Crescent City	15'	41 45	124 00
Damascus	7½'	45 22½	122 22½
Deer Island	7½	45 52½	122 45
Dixonville	15'	43 00	123 15
Drain	15'	43 30	123 15
Eagle Cap	15'	45 00	117 15
Elkton	15'	43 30	123 30
Enright	15'	45 30	123 30
Enterprise	15'	45 15	117 15
Estacada	7½'	45 15	122 15
Estacada 1	15'	45 15	122 00
Estacada 3	15'	45 00	122 15
Fairdale	15'	45 15	123 15
Fairview	7½	45 30	122 22½
Fairview Peak	15'	43 30	122 30
Fruita 2	15'	45 15	116 45
Fruita 3	15'	45 00	116 45
Gales Creek	15'	45 30	123 00
Ginger Peak	15'	45 15	123 30
Gold Beach	15'	42 15	124 15
Grants Pass 1	15'	42 15	123 00
Grants Pass 2	15'	42 15	123 15
Grants Pass 3	15'	42 00	123 15
Grants Pass 4	15'	42 00	123 00
Harding Butte	15'	43 15	122 30
He Devil	15'	45 15	116 30
Hillsboro	7½'	45 30	122 52½
Hillsboro N.W.	7½'	45 37½	122 52½
Imnaha	15'	45 30	116 45
Ivers Peak	15'	43 15	123 45
Jasper	15'	43 45	122 45
Joseph	15'	45 15	117 00
Kalama	7½'	46 00	122 45
Karnan Point	15'	45 30	116 30
Keasey	15'	45 45	123 15
Kerby 2	15'	42 15	123 45
Kerby 3	15'	42 00	123 45
Kerby 4	15'	42 00	123 30
Lake Creek	15'	42 15	122 30
Langlois	15'	42 45	124 15
Linnton	7½'	45 30	122 45
Lowell	15'	43 45	122 30
Marial	15'	42 30	123 45
Medford	15'	42 15	122 45
Medford 3	15'	42 00	122 45
Medford 4	15'	42 00	122 30
Mt. Emily	15'	42 00	124 00
Mt. McLoughlin 1	15'	42 15	122 00
Mt. McLoughlin 2	15'	42 15	122 15
Mt. McLoughlin 3	15'	42 00	122 15
Mt. McLoughlin 4	15'	42 00	122 00
Mulino	7½'	45 07½	122 30
Nehalem	15'	45 30	123 45
Nestucca Bay	15'	45 00	123 45
Newberg	7½'	45 15	122 52½
Olds Ferry	15'	44 15	117 00
Oregon City	7½'	45 15	122 30
Pine 1	15'	44 45	117 00
Pine 2	15'	44 45	117 15
Pine 3	15'	44 30	117 15
Pine 4	15'	44 30	117 00
Portland NE	7½'	45 30	122 30
Portland NW	7½'	45 30	122 37½
Portland SE	7½'	45 22½	122 30
Portland SW	7½'	45 22½	122 37½
Port Orford 1	15'	42 45	124 00
Port Orford 3	15'	42 30	124 15
Prospect 3	15'	42 30	122 15
Prospect 4	15'	42 30	122 00
Quartz Mtn.2	15'	43 15	122 45
Quartz Mtn.3	15'	43 00	122 45
Quartz Mtn.4	15'	43 00	122 30
Reedville	7½'	45 22½	122 52½
Redlands	7½'	45 15	122 22½
Richmond	15'	44 30	119 45
Riddle 1	15'	42 45	123 00
Riddle 2	15'	42 45	123 15
Riddle 3	15'	42 30	123 15
Riddle 4	15'	42 30	123 00
Roseburg 1	15'	43 15	123 00
Roseburg 2	15'	43 15	123 15
Saddle Mtn.	15'	45 45	123 30
Sandy	7½'	45 22½	122 15
Sauvie Island	7½'	45 37½	122 45
Scottsburg	15'	43 30	123 45
Scotts Mills	7½'	45 00	122 37½
Selma	15'	42 15	123 30
Sheridan	7½'	45 00	123 22½
Sherwood	7½'	45 15	122 45
Sitkum	15'	43 00	123 45
Skamokawa	15'	46 15	123 15
Spirit Mtn.	15'	45 00	123 30
Spray	15'	44 45	119 45
St. Helens	7½'	45 45	122 45
St. Helens	15'	45 45	122 45
Svensen	15'	46 00	123 30
Tillamook	15'	45 15	123 45
Timber	15'	45 30	123 15
Tyee	15'	43 15	123 30
Vancouver	7½'	45 37½	122 37½
Vernonia	15'	45 45	123 00
Wild Horse	15'	44 45	116 45
Wildwood	15'	43 30	122 45
Wilhoit	7½'	45 00	122 30

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
Head Office: 1069 State Office Bldg., Portland 1, Oregon
Telephone: CApitol 6-2161, Ext. 488

Field Offices

2033 First Street
Baker

239 S.E. "H" Street
Grants Pass

****

DOMESTIC MINERAL POLICIES PROPOSED

Spokesmen representing all phases of western mining met November 7 and 8 in Sacramento, California. Their purpose was to formulate mineral policy recommendations that would insure a domestic mining industry sufficient to meet the needs of the United States in the event foreign supplies of minerals were cut off. The conference, called by Governor Goodwin Knight of California after consulting with Governor Charles Russell of Nevada, had as its nucleus members of the Western Governors Mining Advisory Council.

After a general session the meeting was divided into sections on mineral economics, taxation, lands and water, research, and public information. The mineral economic section was further divided into the following committees: antimony, chrome, lead - zinc - silver, copper, gold, manganese, molybdenum, quicksilver, tungsten, uranium - vanadium, rare earths - thorium, aggregates - clay - talc, asbestos, cement, coal, phosphates, potash, and fluorspar. From the discussions in the committees the mining men worked out policy recommendations considered as the most likely to maintain the nation's mineral security.

Among the recommendations of the conference committee on mineral economics was 15- to 100-percent tariffs on most minerals imported to this country. An alternative to protective tariffs was modest increases with the tariff revenues to be turned over to domestic miners. The recommendation for gold was to the effect that legislation be passed to allow direct sale of gold from producer to consumer at a "free market" price.

In the report from the group on taxation were recommendations that new mines be exempt from income taxes for three years after commercial production begins and that costs of exploration and development be allowed as a deduction without present limitations.

The committee on lands and water expressed confidence in the general mining laws and opposed further Federal withdrawal of lands from the public domain.

The committee on research recommended the organization of permanent minerals research advisory boards at State and Federal levels and establishment of a definite Federal mineral policy so that private industry might carry on long-range research programs.

After a general session the committees' recommendations were turned over to the Western Governors Mining Advisory Council. The council members who met the following day were to consider the recommendations and to report to their governors. In this way it was hoped the western states would be in accord on mineral policy. With this backing a national mineral policy could be defined that might allow the nation some comfort, at least mineral-wise, in this time of continuing international stress.

The enthusiasm with which the Sacramento meeting was received by the western mining industry was attested by the nearly 700 people who attended. The importance with which the governors of the eleven western states, South Dakota, and Alaska considered it was shown by the 51 delegates and 38 technical advisers appointed by them to represent their states. The governors of California, Nevada, Utah, Idaho, Wyoming, and the Lieutenant Governor of Colorado attended the meetings and took active parts. Oregon's delegation appointed by Governor Paul Patterson was: Mason L. Bingham, Fay W. Libbey, and Hollis Dole, Portland; Niel Allen (Chairman of the Council delegation) and Fay I. Bristol, Grants Pass; Austin Dunn and Anthony Brandenthaler, Baker; Earl S. Mollard, Riddle; and D. Ford McCormick, Medford. Fay Bristol was Co-Chairman of the Chrome Committee. A. O. Bartell, Portland, was a technical adviser.

The ability of the group to resolve their many and oftentimes diverse approaches to the problems and to arrive at recommendations was due in large part to the excellent organization given the meetings by Co-Chairmen S. H. Williston of Cordero Mining Company, and Dewitt Nelson, Director of the California Department of Natural Resources.

H.M.D.

****

FALL CREEK COPPER MINE REOPENED

The Fall Creek Mining Company, Inc., has leased the United Copper Gold Mines Co. property from J. A. Phillips of Grants Pass. The new company was formed by Morris Herman, Max Frohwirth, and Leon Lutz, all of New York. Earl White of Grants Pass is the general manager.

The mine is located in sec. 4, T. 38 S., R. 9 W., on Fall Creek in Josephine County. Metavolcanics of the Galice formation of Upper Jurassic age and serpentine comprise the country rock. The ore is chalcopyrite and pyrrhotite with some silver and gold. Phillips reports assays as high as 24 percent copper and averaging about 15 to 20 percent. The earliest work reported at the property was in 1894 when a small smelter was built. Several years later, ore was hauled to Selma by mules, then shipped to Grants Pass and Tacoma.

The new company has built offices, a camp, 2¼ miles of road, and a low-water bridge across the Illinois River. Exploration and mining programs are now being carried on. To date, two drifts have been opened and one 20-ton lens of chalcopyrite extracted. The company expects to clean out about a thousand feet of old workings and begin a diamond drilling program soon. It also plans to build a mill on the mine property and ship concentrates to the Tacoma smelter.

****

SQUAW BASIN COAL EXPLORED

Roy Rannells, Jim Carrol, and A. A. Robins, all of Riddle, Oregon, are exploring a 7-foot coal seam in the south end of Eden Ridge, T. 33 S., R. 11 W., Coos County. This is the first significant exploration that has been carried out in the Eden Ridge and Squaw Basin fields since a period of active prospecting between 1907 and 1912.

According to Rannells, the coal is suitable for coking. The bed dips 5 to 8 degrees and is believed to be on a small synclinal structure. A 400-foot drift has been driven, and reserves appear to be fairly extensive.

****

EXPLORATION CONTINUING ON VALE QUICKSILVER PROSPECT

Mr. H. K. Riddle of Payette, Idaho, has made application to the defense Minerals exploration Administration for a loan to continue development work on the Jordan brothers' quicksilver prospect located near Vale, Oregon. DMEA geologists have already made preliminary investigation of the property. Mr. John Stringer of Nyssa, Oregon, holds the lease on the property and Mr. Riddle is financing the development work under a sub-lease agreement.

****

HARNEY COUNTY URANIUM NEWS

Development work has recently been done on the Pike Creek uranium prospect in the eastern foothills of Steens Mountain, Harney County, Oregon. The prospect was discovered early last summer by Dewey M. Quier and described in the July Ore.-Bin. The recent work was done by Peter Relos and associates of Portland. Results of their investigations indicate that the uranium may be in an intrusive rhyolite breccia that penetrates a series of bedded tuffaceous clays. Seams of autunite are reportedly more abundant in the new exposures than in the earlier discovery. Plans have been made to drive a tunnel along the contact between the breccia and the tuffaceous clays to explore the zone at depth.

* * * * *

A new uranium prospect known as the Alex-Ladd claims was discovered during this past summer high on the east flank of Steens Mountain about one mile south of the Pike Creek occurrence. This showing occurs in a strongly developed easterly trending fracture zone in rhyolite. Autunite is the only uranium mineral so far recognized. The claims are held jointly by Harry and Don Alexander of Andrews, Oregon, Fred and Nellie Ladd of Seattle, Washington, and the Miller Mining Company of Joseph, Oregon. An access road has been constructed to the property and plans have been made to do exploratory development work.

****

ADD TO ACTIVE MINE LIST

The Tri-County Mining and Milling Company of John Day was inadvertently omitted from the list of chrome mill operators in the October Ore.-Bin. The Tri-County mill is one of the oldest chrome mills currently operating in the John Day area. The mill has been leased to other operators, including Zanetti Brothers, and more recently the John Day Mining Company. J. A. Curzon, president of Tri-County, has been running the mill since about July on a custom milling basis.

****

VOLUME I OF MINERAL YEARBOOK PUBLISHED

Volume I of the 1952 Minerals Yearbook has been published by the U.S. Bureau of Mines and may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. The price is $4.00. This volume of the yearbook covers the metallic and nonmetallic commodities, and includes reviews of mineral industries, metallurgical technology, and production statistics. Information for the 1218-page volume was compiled by the staff of the Minerals Division of the Bureau of Mines assisted by cooperating state organizations.

Volume II, which is devoted to mineral fuels, was published earlier in the year. Publication date for Volume III, which will be made up of chapters on the mineral industry of each of the 48 states, has not been announced.

****

RECORD DEPTH REACHED IN TEST WELL

A new record depth for an oil test well in Oregon has been reached by Sinclair Oil & Gas Company in their Federal-Mapleton No. 1 well in Lane County. A depth of 9787 feet was reached on November 23 and the company is drilling ahead. The deepest test in eastern Oregon to date is the Sinclair farm-out to El Paso Natural Gas Company in Malheur County, whose Spurrier-Federal No. 1 was abandoned at 7470 feet early this year. In central Oregon, Standard Oil Company of California is drilling ahead on their Pexco No. 1 in Crook County. The well is reported to have passed the 6000-foot level recently. Standard abandoned a 7101-foot test in Clatsop County in June this year.

deep
Other tests drilled in the State in the last 10 years include the Richfield Oil Company 7885-foot Clayton L. Barbur No. 1, drilled in Multnomah County in 1946, the Texas Company Clark and Wilson No. 6-1 well, drilled in Clatsop County in 1947 to a total depth of 8501 feet, and the Texas Company Redding-Gasnor Cooper Mountain well in Washington County, with a total depth of 9263 feet in 1946.

****

MARYS PEAK AND ALSEA QUADRANGLES MAPPED

A geologic map of the Marys Peak and Alsea quadrangles has been published by the U.S. Geological Survey in cooperation with the State of Oregon Department of Geology and Mineral Industries. Author of the map and accompanying text is Ewart M. Baldwin. The map, entitled "Geology of the Marys Peak and Alsea quadrangles, Oregon," is OM 162 of the Oil and Gas Investigations series. It is printed on one sheet together with descriptive text, cross sections, and a correlation chart.

Marys Peak and Alsea quadrangles are in the Coast Range west of Corvallis where a thick sequence of volcanic rocks and Eocene sandstone are cut by numerous igneous intrusions. It is a newly mapped area and joins Oil and Gas Investigations maps 88 on the west and 150 on the east.

There are no over-the-counter sales of Map OM 162 in Oregon at the present time. Copies may be purchased for 50 cents from the Distribution Section, Denver Federal Center, Denver, Colo.

****

BUREAU OF MINES PUBLISHING PREPRINTS ON MINERAL COMMODITIES

The Bureau of Mines is issuing a series of 86 preprint chapters which will eventually be published as Bulletin 556 entitled "Mineral Facts and Problems." Each chapter covers a mineral commodity and reviews history, geology, mining, production, uses, and other pertinent information. The material is presented in easily understood language.

A few of the chapters which have come out in preprint form so far are as follows: Asbestos, Beryllium, Columbium and Tantalum, Chromite, Diatomite, Gem stones, Germanium, Gold, Mercury, Molybdenum, Perlite, Platinum-group metals, Rare-earth metals, Vanadium, and Zirconium and hafnium. The chapters are particularly useful as they make available for each of the metals and minerals covered essential facts that would otherwise require considerable hunting through the literature to assemble. Preprint chapters are priced from 5 to 20 cents, and may be obtained only from the Supt. of Doc., U.S. Govt. Printing Office, Washington 25, D.C.

****

AMERICAN MINING CONGRESS RESOLUTIONS

The American Mining Congress recently published a declaration of its policy adopted October 1955 at its convention in Las Vegas. The declaration includes policy statements on taxation, public land policy, labor relations, and other matters that affect mining. Parts of three of the resolutions (on tariffs, stockpiling, and gold) are reproduced below as they are thought to be of most widespread interest to the mining people of Oregon.

Ed.

TARIFFS

We again endorse the Government policy that a strong, vigorous and efficient domestic metal and mineral industry is essential to the long-term economic development of the United States and that an adequate mobilization base of metal and mineral production for our nation must look to domestic production and ore reserves for the major portion of our mineral and metal supply, despite progressive increase of imports of some of these materials.

Experience has shown that we cannot depend on foreign ore reserves as a source of supply in an emergency, however important it may be to import some metals and minerals to supplement domestic production and to fill our stockpile with materials in which we are deficient. World political conditions, as well as hazards of possible air and submarine warfare, support this conclusion.

We continue to recommend, therefore, that the Congress exercise its authority over tariffs, to be administered for the welfare of the American people and provide reasonable tariff protection. In this connection we endorse the recommendation of the U.S. Tariff Commission to the President on the industry's application for increased duties on lead and zinc.

We commend the members of the U.S. Congress who worked tirelessly to fulfill the Tariff Commission's recommendation. The President's alternative stockpiling program, while having certain desirable features which have been of material temporary benefit, is at best a stopgap solution and does not offer any real long-range cure to the problem of the American mining industry.

A reasonable and workable means of maintaining an adequate "mobilization base" in the production of critical and strategic metals and minerals must be worked out promptly. While each metal and mineral has different problems and each must be considered separately on its own merits, this mobilization base can be maintained in most minerals and metals by maintenance of a reasonable price. To accomplish this we favor enactment of excise taxes or flexible tariffs on imports, which may be suspended in whole or in part whenever prices are at an economic level that will permit the domestic mining industry to maintain such adequate mobilization base for national security. We oppose the use of direct subsidies, as leading to eventual government control or being impractical of equitable administration. The nature of mining requires that the industry make long-range plans, and revocable or stopgap measures by the Government contribute little to the real problem.

We recommend that Congress reject participation in any organization which places the power to regulate trade and foreign commerce of the United States in the hands of any international body.

The industrial strength of our nation has proved itself to be the unfailing mainspring of defense of the United States and the world's free nations. As a keystone to this industrial strength, we strongly urge governmental policies which will assure the maintenance and encouragement of the fullest possible domestic production capacity in strategic and critical metals and minerals.

STOCKPILING

We endorse a national policy of stockpiling of strategic and critical materials and the provision of adequate funds at all times for orderly purchases for possible emergency needs. As long as the security of the Free World is threatened, the nation's stockpiles must be filled. The vital necessity for adequate stockpiles remains unaffected by the recent lessening of international tension.

We believe the most efficient and economical procedure is to stockpile at times when output exceeds demand, and that it is in the national interest to reduce or suspend stockpile purchases during periods when shortage of metals causes dislocation of production in defense and essential industries.

In connection with minerals and metals in which we normally are not self-sufficient, a definitely stated long-term objective should be fixed and adequate domestic prices paid to encourage the development of domestic reserves and the expansion of domestic production.

We oppose the purchase or other acquisition of foreign metals and minerals for stockpile when adequate domestic supplies are available.

We believe continued operation of prospectors and small mining concerns is important because these smaller operations provide a pool of specialized knowledge and trained manpower available for the expansion of minerals production in the event of an emergency. Their activities also are the source of new mine discoveries of consequence.

GOLD

We deeply regret that no steps have been taken during the year to terminate the policies with regard to gold that are bringing about the extinction of the domestic gold-mining industry. The few surviving mines are faced with diminishing profits as costs expressed in depreciating paper dollars continued to rise while the producers must sell their gold at a price fixed over twenty years ago when the dollar had twice its present purchasing power. The right to own gold is still denied to the American citizen, and the gold miner is allowed no protection whatever against inflation.

Furthermore, with the Treasury acting as a middleman, gold in quantities greater than the entire annual production of the country is supplied to the so-called industrial consumers at $35 per ounce, thus providing them with an unneeded subsidy at the expense of the miners.

Correction of this gross inequity by restoring to the American citizen the right to own, to buy and to sell gold, accompanied by termination of the sales of gold by the Treasury to industrial users, would be a simple step, involving no change in monetary policies with regard to gold, that would go far toward relieving the increasingly difficult plight of the gold-mining industry.

****

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
Head Office: 1069 State Office Bldg., Portland 1, Oregon
Telephone: CApitol 6-2161, Ext. 488

Field Offices

2033 First Street
Baker

239 S.E. "H" Street
Grants Pass

OREGON RADIOACTIVE DISCOVERIES IN 1954 AND 1955

By
T. C. Matthews*

Many occurrences of radioactive minerals were located in the State during 1954 and 1955, but the only commercial production so far has been from the White King and Lucky Lass mines near Lakeview in Lake County. These two mines, about 1 mile apart, are under lease to the Lakeview Mining Company (Thornburg Bros.) who shipped three carloads of ore in 1955 to Salt Lake City, Utah. Development work is also being done on claims on the east flank of Steens Mountain in Harney County and in the Bear Creek area of Crook County. The occurrences in the Wallowa Mountains area shown on the index map represent only a few of the many reported.

Tables 1 and 2 present pertinent facts about the known radioactive discoveries in the State. Information for the tables was based on samples submitted to the offices of the Department or collected in the field by members of the Department staff. Additional information was furnished by the Atomic Energy Commission, Salt Lake City Exploration Branch, E. K. Thurlow, Chief. The index map shows the distribution of the occurrences. The numbers on the map correspond with those in the tables.

In Table 1, the name refers to either the owner or operator of the claim from which the sample was received or the person submitting the sample to the Department. The location is that which was furnished with the sample. The uranium minerals listed may represent only the dominant radioactive minerals present. "Radioactive blacks" include such minerals as betafite, brannerite, davidite, euxenite, fergusonite, and samarskite, which often occur in placer deposits. Host rocks and associated minerals are given if known. Unless otherwise indicated, the tests for U_3O_8 equivalent were made by members of the Department using either a radioassayer (AEC Type TM-6-B) or a scintillator (Precision Model 111-B). No samples have been included which read less than .02 percent U_3O_8 equivalent. Unless otherwise noted, chemical analyses for U_3O_8 were made by L. L. Hoagland, Assayer-Chemist with the Department. All available samples were tested with the short-wave ultraviolet lamp, and the color of the fluorescence, if any, is given. The presence of mercury was considered significant, as it may have bearing on the origin of the uranium mineralization. Mercury was determined by the Willemite screen - ultraviolet lamp method which can detect extremely small traces.

Table 2 gives the results of qualitative spectrographic analyses run on many of the samples. Since these analyses were made to assist in determining the radioactive minerals or rare earths present, many of the samples used were panned concentrates or hand-picked specimens.

---

* Spectroscopist, State of Oregon Department of Geology and Mineral Industries.

Table 1.

Radioactive Occurrences in Oregon, 1954 - 1955

Map No.	Name	Location	Uranium Minerals	Host Rock and Associated Minerals	U_3O_8 Equiv.	U_3O_8 Chem. Analysis	Fluorescence	Mercury
BAKER COUNTY:								
1	Ernest Rogers Robinette, Ore.	Homestead mining district	Unknown	Black sands. Monazite, zircon	.03		Orange (zircon)	None
2*	J. W. Vermeesch Alicel, Ore.	Sec. 19 T. 11 S., R. 46 E.	Unknown	Travertine	.035		None	None
3*	Nobel Knight Baker, Ore.	Sec. 10 T. 9 S., R. 42 E.	Unknown	Pumicite	#.07	#.13	None	None
4	Sam Thompson Gold Beach, Ore.	Sec. 32 T. 8 S., R. 38 E.	Unknown	Black sand concentrate	.3		None	None
CROOK COUNTY:								
1*	Harley Dosser Redmond, Ore.	T. 16 S., R. 14 E. Powell Butte dist.	Unknown	Porphyritic rhyolite. Radioactivity highest along fractures.	.09	.105	None	Trace
2*	Charles Williams Lakeview, Ore.	Sec. 13 T. 18 S., R. 16 E. Bear Creek dist.	Autunite Novacekite	Rhyolite and tuff	.1	.22	Yellow-green	Trace
CURRY COUNTY:								
1	Bert Squire Grants Pass, Ore.	Sec. 23 T. 39 S., R. 11 W.	Autunite (?)	Fine-grained tuff	.2		Yellow-green	Trace
2	John Wimer Roseburg, Ore.	Sec. 16 T. 41 S., R. 13 W.	Black radio-active minerals	Black sand. Zircon	.14		Orange (zircon)	None
GRANT COUNTY:								
1*	Ray Summers John Day, Ore.	Sec. 12 T. 12 S., R. 33 E. Standard mine	Unknown	Schist. Calcite, chalcopyrite, pyrite	.07	.05	None	None
1+	Burt Hayes and K. J. Murray John Day, Ore.	Standard mine	Unknown	Chalcopyrite, pyrite, cobaltite, glaucodot, arsenopyrite, galena, bismuthinite, sphalerite, gold reported, calcite, quartz gangue.	#.069			
2	Paul Remaley Prairie City, Ore.	Sec. 14 T. 12 S., R. 33 E.	Unknown	Metavolcanics. Chalcopyrite, pyrite in vein	.02		None	None
HARNEY COUNTY:								
1*	Dewey Quier Burns, Ore.	Sec. 17 T. 34 S., R. 34 E. Pike Creek carnotite claim	Unknown	Tuff and rhyolite breccia	.4 .3	.372 .186	None None	Trace Trace
1+	same	same	Unknown	Unknown	#.47	#.373		
2	John Langrell, Jr. Denio, Ore.	Sec. 18 T. 40 S., R. 35 E.	Unknown	Schist. Chalcocite, malachite, azurite, quartz gangue	.02		None	None
3*	Harry and Don Alexander, Andrews, Ore.; Fred & Nellie Ladd, Seattle, Wash.; Miller Mining Co., Joseph, Ore.	Sec. 20 T. 34 S., R. 34 E.	Autunite	Fracture zones in rhyolite		.34 (private lab.)	Yellow-green	

*Property examined by State of Oregon Department of Geology and Mineral Industries.

+Property examined by Atomic Energy Commission, Salt Lake Exploration Branch.

#Analysis by Atomic Energy Commission.

Note: All analyses by State of Oregon Department of Geology and Mineral Industries unless otherwise indicated.

Table 1 (cont.)

Map No.	Name	Location	Uranium Minerals	Host Rock and Associated Minerals	U_3O_8 Equiv.	U_3O_8 Chem. Analysis	Fluorescence	Mercury
JACKSON COUNTY:								
1	George DeGroote Portland, Ore.	Little Applegate River south of Jacksonville	Unknown	Calcareous graphite schist	.02		None	None
2	Ervine House Shady Cove, Ore.	Near Trail	Unknown	Rhyolite breccia and tuff	.045		Yellow-green	None
3*	Vernon Ritchie, Norman Nelson Medford, Ore.	Sec. 27 T. 40 S., R. 1 E.	Euxenite-polycrase	Pegmatite	.10		None	None
4	Carl Love Milwaukie, Ore.	Sec. 19 T. 33 S., R. 1 W. Dawn Marie claim	Unknown	Volcanic tuff. Fluorescence along fractures.	.055		Green	None
4	Same	Same	Unknown	Rhyolite. Quartz gangue	#.07	#.072		
JOSEPHINE COUNTY:								
1	Unknown	Greenback mining district	Unknown	Diorite	.25		None	None
LAKE COUNTY:								
1*	John Roush, Don Tracy, Walter Lehman, Lakeview, Ore.	Sec. 30 T. 37 S., R. 19 E. White King mine	Autunite Novacekite	Opalized tuff and rhyolite. Realgar, orpiment, cinnabar, pyrite, stibnite	.42 .34	.548 .458	Yellow-green Yellow-green	Trace Trace
1+	Thornburg Bros., lessee, (Lakeview Mining Co.) Lakeview, Ore.	White King mine	Autunite Novacekite Meta-torbernite	Opalite. Realgar	#.21	#.309		
2*	Don Lindsey, Robert Adams, Claire Smith, L. F. Shelton, Lakeview, Ore.	Sec. 25 T. 37 S., R. 18 E. Lucky Lass mine	Autunite Novacekite	Tuff and agglomerate	.42	.557	Yellow-green	Trace
2+	Thornburg Bros., lessee, (Lakeview Mining Co.) Lakeview, Ore.	Lucky Lass mine	Autunite Novacekite	Iron oxide	#.37 #.44	#.464 #.674		
3*	Sam Lookholder Elmo Angele, Lakeview, Ore.	Sec. 13 T. 37 S., R. 18 E. Marty K claim	Autunite	Volcanic tuff, fault gouge	.3 .2	.383 .305	Yellow-green Yellow-green	Trace None
3+	Elmo Angele Lakeview, Ore.	Marty K claim	Autunite	Opalite. Cinnabar (?)	#.16			
4	Lewis A. Kaehn, Denver H. Drake, Don Becker, Ralph Russell, Gilchrist, Ore.	Sec. 6 T. 35 S., R. 18 E. Bald Butte claim	Unknown	Silicified tuff	.035		None	None
5*	J. W. Stott Grants Pass, Ore.	Sec. 33 T. 37 S., R. 18 E. Big Enough claim	Unknown	Carbonaceous argillite Carbonized wood in tuff	.035 .03		None None	None None
MALHEUR COUNTY:								
1*	Louis Hall Ontario, Ore.	T. 21 S., R. 42 E. Blue Moon #1 claim	Unknown	Limonite-stained sandstone	.03		Yellow	None
1	Same	Same	Unknown	Unknown	#.04			
2*	Jack Flock Dayton, Ore.	T. 21 S., R. 42 E.	Unknown	Opalite concretion in diatomite	.04		Yellow	None
3	S. B. Rasmussen LaGrande, Ore.	Malheur County	Unknown	Claylike material	#.05	#.062		

Table 1 (cont.)

Map No.	Name	Location	Uranium Minerals	Host Rock and Associated Minerals	U_3O_8 Equiv.	U_3O_8 Chem. Analysis	Fluorescence	Mercury
UNION COUNTY:								
1	Art Fisk Baker, Ore.	T. 5 S., R. 43 E.	Unknown	Copper sulphides, quartz gangue	.09	.111	None	None
2	Art Fisk Baker, Ore.	T. 5 S., R. 43 E.	Unknown	Silicified fault breccia. Quartz, magnetite, chlorite, iron minerals	.08	.102	Yellow-white	None
3	Scott Corbett, Jr. Portland, Ore.	T. 5 S., R. 43 E.	Unknown	Granite pegmatite	.06		None	None
4	Harry Peeples Prineville, Ore.	Sec. 32 T. 5 S., R. 43 E.	Black radio-active minerals	Granite. Quartz gangue	.15		None	None
5+	Miller Mining Co. E. R. Wells Joseph, Ore.	Secs. 23, 26 T. 5 S., R. 43 E. Tungs Ore claim	Unknown	Malachite, chalco-pyrite, bornite, quartz gangue	#.21 #.97	#.197 #.830		
WALLOWA COUNTY:								
1 *	William McCrady Portland, Ore.	Sec. 23 T. 4 S., R. 43 E. Lostine River dist.	Unknown	Bornite, malachite, azurite, quartz gangue	.02		None	None
2 *	H. R. Ahalt Lostine, Ore.	Sec. 21 T. 4 S., R. 43 E.	Black radio-active minerals	Pegmatite. Gold, silver, copper	.2		None	None
3	Edward Groh Portland, Ore.	Sec. 6 T. 4 S., R. 45 E.	Unknown	Mica schist	.08		None	None
4	Marvin Murray Enterprise, Ore	T. 4 S., R. 43 E.	Black radio-active minerals	Pegmatite	.15		None	None
WHEELER COUNTY:								
1	James Nelson Condon, Ore.	Near Spray	Unknown	Tuff	.02			
2	Edward Groh Portland, Ore.	Sec. 16 T. 11 S., R. 21 E. Near Sargent Butte	Unknown,	Rhyolite tuff	.02		None	None

Symbols for Elements in Table 2

Ag	Silver	Hf	Hafnium	Sb	Antimony
Al	Aluminum	K	Potassium	Si	Silicon
As	Arsenic	La	Lanthanum	Sn	Tin
B	Boron	Li	Lithium	Sr	Strontium
Ba	Barium	Mg	Magnesium	Th	Thorium
Be	Beryllium	Mn	Manganese	Ti	Titanium
Bi	Bismuth	Mo	Molybdenum	U	Uranium
Ca	Calcium	Na	Sodium	V	Vanadium
Ce	Cerium	Nb	(columbium) Niobium	W	(wolfram) Tungsten
Co	Cobalt	Nd	Neodymium	Y	Yttrium
Cr	Chromium	Ni	Nickel	Yb	Ytterbium
Cu	Copper	Pb	Lead	Zn	Zinc
Fe	Iron	Pr	Praseodymium	Zr	Zirconium

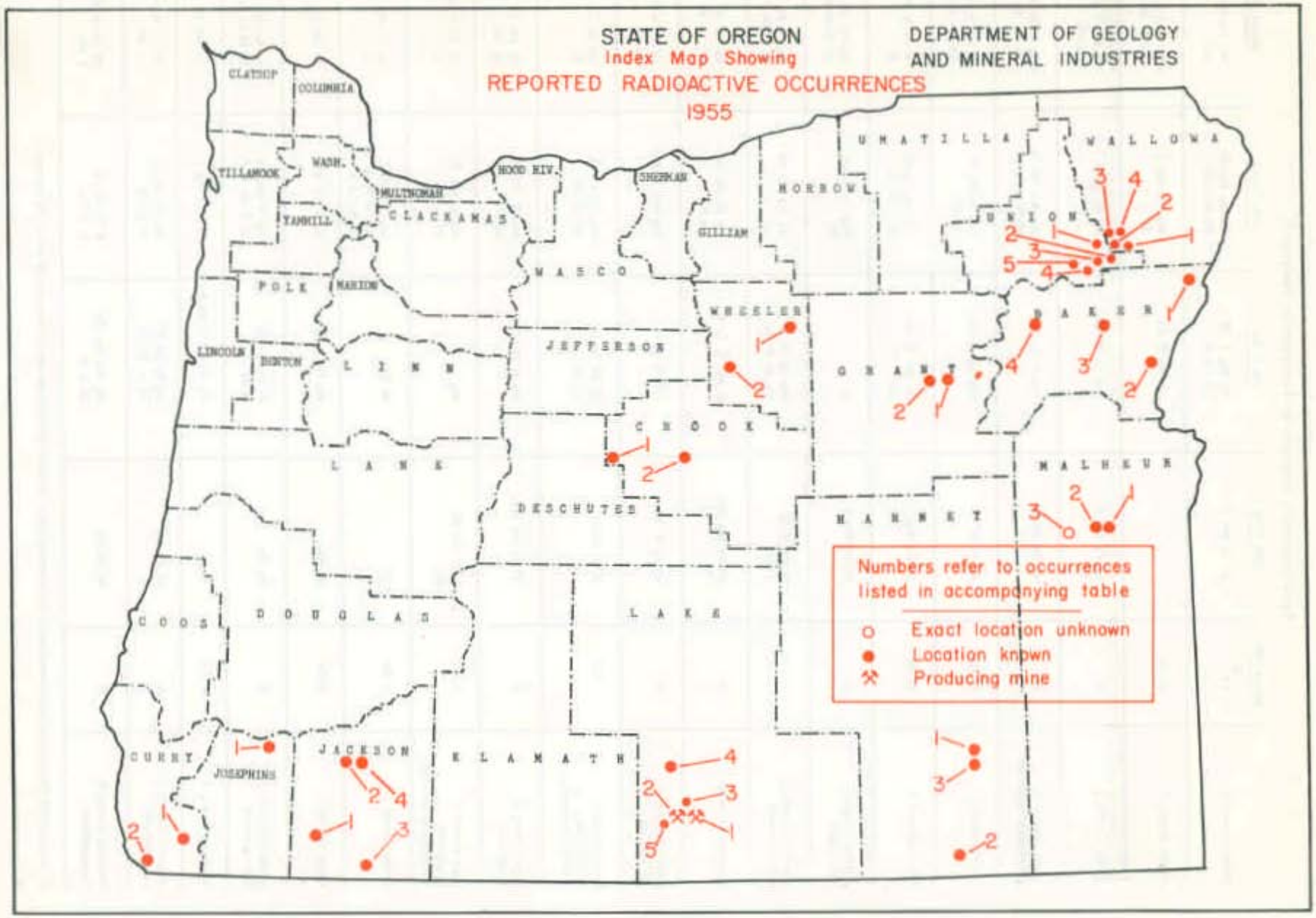
Table 2.

Spectrographic Analysis of Radioactive Samples [1/]

	Above 10%	10% - 1%	1% - .1%	.1% - .01%	Below .01%
Baker County 1	Fe [2/]	Zr Si Mn Ti	Al Mg K Hf Cb Ce Pr	La Ca Na Th Pb Sn Cr W V	Ni Cu Ba Sr Co
Crook County 1	Si Fe	- - - - -	Al Na K Zr	Mg Ca Mn Ti Pb U V	Cr Mo Cu Sr Ni Ba Be
Crook County 2	Si	Al Fe Na K Zr	Mg Ca Ti Mo U	Hf Pb Ba Sr	B Mn V Cu Co Ni
Curry County 1 (Fluorescent material)	Si	Al Fe Ca Zr	Na K Ti Zn	Mg Mn Hf Th Pb W U Cu Y	Cr V Ba Sr Co Ni Be Ag
Curry County 2	Si Fe	Al Ti Zr	Mg Ca K Mn	Na Hf Pb Th Sn Cr	V Cu Ba Sr Co Ni Ag
Grant County 1	Si Fe	Al Ca Mg	As Mn Ti Co Ce Y Pr	Yb Na La Pb K U Cr Cu	V Ba Sr Ni Zr
Harney County 1 Pike Creek	Si	Al Fe Na K	U	Mg Ca Ti Zr Pb	Mn Cr Mo V Cu Sr Ni Ba Be
Jackson County 3 (Concentrate)	- - -	Si Fe Ti Zr Y Nb	Mn Th Pb U Ce As Pr Ta	Al Ca Na Hf Sn	Mg V Be Co Bi Cr Ba Ni Cu
Josephine County 1	Si	Al Fe Mg Na	K Mn Ti Zr U	Ca Th Pb Cr Ce Y	Mo Ba W V Sr Ni Cu Be
Lake County 1 White King	Si	Al Fe K Na	Ca Pb Ba U	Mg Mn Ti Mo Sr	Zr Cr V Ni Cu Be
Lake County 1 White King (Yellow material)	- - -	Si Al Fe U	Th Pb Sn Zn Co As	Mg Ca Na K Mn Ti Bi	Ag Ba Cr V Cu
Lake County 2 Lucky Lass	Si	Al Fe Ca Na	Mg K Ti U	Mn Zr Pb V Ba Sr	Cr Mo Cu Ag Be Ni
Lake County 2 Lucky Lass (Fluorescent material)	- - -	Si U Ca Al Fe	Mg	Na K Mn Ti Ba Sr Co	Zr Cr V Cu Ni
Union County 1	Si Fe	Cu	Al Mo	Mg Ca Na K Mn Ti Pb V Ni U Bi Ce Y	Sn Cr Ag Ba Co
Union County 2	Si Fe	Al Mo	Mg Na K Mn Ti Cu	Ca Th V Ba U	Sr Ni Cr
Union County 4 (Concentrate)	Si	Fe Ca	Al Na Ti Th Pb U	Mg K Mn Zr Sn B Ce Y Pr	Hf Co Bi V Cu Ba Be Li Sr Ni
Wallowa County 1	Si Cu	Al Fe	Mg Ca Na K Mn Bi	Ti Pb V Ag	Cr Mo Ba Ni
Wallowa County 2 (Concentrate)	Si	Al Fe Ca	Mg K Mn Ti Ce La Pr Zr	Na Th Pb U W V Nd	Hf Cr Ba Sr Cu Ni
Wallowa County 4 (Concentrate)	Si	Al Fe Ca	Mg Na Mn Th Ce Y Pr	K Ti Zr Pb U V Cu	Hf Ba Sr Bi B Ni

1/ Mercury and fluorine are not determined by the spectrograph. Uranium and thorium are not determined below .05 percent.

2/ See bottom of opposite page for explanation of symbols.


STATE OF OREGON
Index Map Showing
REPORTED RADIOACTIVE OCCURRENCES
1955
DEPARTMENT OF GEOLOGY
AND MINERAL INDUSTRIES
CLATSOP
COLUMBIA
TILLAMOOK
WASH.
MULTNOMAH
HOOD RIV.
SHERMAN
UMATILLA
WALLOWA
YAMHILL
CLACKAMAS
GILLIAM
MORROW
UNION
POLK
MARION
MASCO
WHEELER
BAKER
LINCOLN
BENTON
LINN
JEFFERSON
GRANT
CROOK
LANE
MALHEUR
DESCHUTES
HARNEY
Numbers refer to occurrences listed in accompanying table
Exact location unknown
Location known
Producing mine
COOS
DOUGLAS
LAKE
CURRY
JOSEPHINE
JACKSON
KLAMATH

PRELIMINARY REPORT ON THE LAKEVIEW URANIUM OCCURRENCES LAKE COUNTY, OREGON

By
Max Schafer*

Introduction

Oregon's first commercial uranium deposit, the White King mine, was found in June 1955 by Don Tracy and John Roush, Lakeview, Oregon. The initial discovery was made in sec. 30, T. 37 S., R. 19 E., approximately 14 miles northwest of Lakeview on the headwaters of Augur Creek. Shortly after public announcement of the discovery, the Lucky Lass uranium mine was located about 5000 feet northwest of the White King in sec. 25, T. 37S., R. 18E. In October both the White King and the Lucky Lass properties were leased by Lakeview Mining Company, an organization formed by Thornburg Bros. of Gunnison, Colorado. Three cars of ore from the two properties have been shipped to Salt Lake City, Utah, and extensive exploration has been done by the Lakeview Mining Company.

After announcement of the White King and Lucky Lass discoveries, intensive prospecting was done over much of Lake County. Although other areas of high radioactivity were found, to date no other commercial deposits are known to have been discovered.

General geology of mines area

The lowermost rock exposed in the area of the two mines is an opalized tuff of probable early Tertiary age. In general this rock is gray, brittle, and highly fractured. In places it is faintly banded. Presumably it was a siliceous tuff prior to alteration. The opalized tuff is exposed in the White King mine and crops out on Thomas Creek about 3 miles to the south. A white clayey tuff disconformably overlies the opalized tuff in the White King workings.

Above the opalized tuff and clayey tuff is a series of tuffs, basalt flows, and lake sediments. Basalt flows are prominent in this series mainly because they are more resistant to erosion than the loosely consolidated tuffs and sediments. The basalts are commonly black and vesicular with elongated vesicles as much as 1½ inches in length. Some flows are dense. The tuffs are intermediate to acidic in composition. The lake sediments are tuffaceous, medium to coarse grained, and locally stratified.

A thick sequence of volcanic rocks ranging from welded tuffs to rhyolites and dacites overlies the series of tuffs, basalts, and sediments. These rocks are light in color and often show flow banding. Extensive areas are covered by their float. Trauger (1950) has mapped this upper volcanic sequence as Oligocene (?) - Miocene age.

Structure

Faulting, especially block faulting, is a prominent feature throughout all of Lake County. Abert Rim approximately 20 miles to the northeast is one of the larger fault scarps of the region and testifies to the severity of the deformation. Faults of unknown displacement are common in the area. They influence stream drainage patterns and other topographic features. Folding could not definitely be determined near the area of the mines. Although some of the lake beds dip as much as 35°, tilting of fault blocks is thought to have been the cause.

* Geologist, State of Oregon Department of Geology and Mineral Industries.

Ore deposits

The areas showing the highest mineralization at the White King mine are confined to an opalized tuff and a weathered clayey tuff, which are the lowermost rocks exposed. Thickness of these beds has not been determined. Secondary uranium minerals coat fractures in the opalized tuff and are disseminated throughout the overlying unconsolidated clayey tuff. The chief uranium minerals have been tentatively identified as novacekite-saléeite, a group of hydrous uranium-magnesium arsenates and phosphates. Associated minerals are cinnabar, pyrite, stibnite, orpiment, and realgar. The mineral assemblage indicates a hydrothermal origin and formation at relatively low temperatures and pressures.

The White King deposit is located at the intersection of several major faults, one of which continues northwest through the Lucky Lass mine. It is believed that the faults were the main control for the mineralization.

The Lucky Lass deposit occurs in vesicular lavas stratigraphically above the mineralized tuffs found at the White King mine. The lavas are cut by many steeply dipping faults which constitute a shear zone. Intersection of the faults has cut up the deposit into blocks of ore having sharp boundaries with unmineralized rock. The country rock is dominantly a bleached vesicular lava. The uranium minerals are similar to those found at the White King property and they occur as fracture coatings, vesicle fillings, and disseminated in the clayey gouge. The only associated metal determined was a trace of mercury.

References

Waring, G. A., Geology and water resources of a portion of south-central Oregon: U.S. Geol. Survey Water-Supply Paper 220, 1908.

Trauger, F. D., Basic ground-water data in Lake County, Oregon; U.S. Geol. Survey Unpublished Records, 1950.

Weeks, A. D., and Thompson, M. E., Identification and occurrence of uranium and vanadium minerals from the Colorado Plateaus: U.S. Geol. Survey Bull. 1009-B, 1954.

****

AIME ELECTS OFFICERS FOR 1956

At its December meeting the Oregon Section of the American Institute of Mining and Metallurgical Engineers elected the following officers for 1956: W. W. Wiltschko, Chairman; A. L. McGuinness, Vice Chairman; Lloyd Banning, Secretary-Treasurer; and Don Johnson and Earl T. Hayes, Directors. Chairman-elect Wiltschko is a metallurgist with the Vancouver plant of the Aluminum Company of America.

****

COMMERCIAL URANIUM IN NEVADA DESCRIBED

"Uranium occurrence at the Moonlight mine, Humboldt County, Nevada," by Byron J. Sharp, published by the Atomic Energy Commission as RME-2032, pt. 1, describes a commercial uranium source in Kings River valley, 15 miles south of the Oregon border. Uranium minerals are autunite and torbernite occurring in a fault in rhyolite. Ore shipped assayed from 0.07 to 0.22 percent U_3O_8. The publication is available from Office of Technical Services, Dept. of Commerce, Washington 25, D. C. Price is 20 cents.

INDEX TO ORE.-BIN, Volume 17, 1955