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

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OREGON'S MINERAL INDUSTRY IN 1959

By

Ralph S. Mason*

Oregon's mineral industries chalked up a remarkable record of productive growth in the decade just ended, with an 84 percent increase in dollar value of raw mineral products produced. Oregon stood head-frame high over all the neighboring states in this respect. Washington increased 27 percent, California 36 percent, Nevada 36 percent, and Idaho declined 15 percent. Preliminary estimates by the U.S. Bureau of Mines for the State's value of minerals produced during 1959 show a total of $39,600,000, a decline of 12 percent from the previous year. The U.S. Bureau of Mines reports only on the raw minerals produced, and the values given are usually cost-of-production figures rather than value at point of sale. The difference between the two would amount to about 100 percent.

Not included in the above figures, but of large and rapidly growing importance to the stabilization of the State's economy are the 17 metallurgical plants shown on the accompanying index map. Seven of these plants were constructed during the past ten years and many of the others have substantially increased their capacity in this same period. Some of these plants beneficiate ores mined within the State (mercury, nickel, uranium); others treat raw or semi-refined ores imported from outside the State (zirconium, titanium, hafnium, columbium, tantalum, molybdenum, tungsten, vanadium, silicon, aluminum). The economic importance of this second group of plants is considerable. A recent article in Mining Congress Journal pointed out that in the nonferrous industry 3 percent of the eventual cost of fabricated metal products is expended in mining, 13 percent in the production of primary metal, and 84 percent in fabrication. The growth of the electro-process industry in Oregon will continue and should be encouraged. The State needs more year-around "unseasonal" industries employing large numbers of skilled workers.

During the past decade there was a 127 percent increase in steel-making capacity in the State, aluminum smelting capacity increased 59 percent, cement about 50 percent, and the production of sand and gravel 38 percent.

The year 1959 saw still more proposed withdrawals of public domain lands by Federal agencies. A total of 21,209 acres in 13 different counties is involved in 12 areas. The U.S. Forest Service requested 7 of the withdrawals.

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* Mining Engineer, State of Oregon Department of Geology and Mineral Industries.

Electro-Process Products

In ten short years, Oregon's industries based on the use of electric energy for melting and reducing metals have almost doubled in number and have increased many times in volume and variety of products. The reduction and semi-finishing of an array of metals unknown to industry a decade ago is standard practice today in the State. The metallurgical plants at Albany are good examples of this trend - and the positive benefits that can be derived from basic research. Thanks to the U.S. Bureau of Mines Electrodevelopment Station at Albany, two companies, Wah Chang and Oregon Metallurgical, have located nearby. Using imported raw materials, they produce ingots and castings of columbium, tantalum, molybdenum, tungsten, titanium, vanadium, zirconium, and hafnium. Wah Chang produced zirconium and titanium sponge under Government contract, and during the year completed the installation of two electron-beam high-vacuum melting furnaces (The Ore.-Bin, October 1959) for producing high-purity reactive and exotic metals. At year's end the company was also installing rolling mill equipment to provide fully integrated facilities capable of processing ores through to finished products. A research center to study the physical metallurgy of refractive metals is to be set up early in 1960, Wah Chang announced at year's end. Oregon Metallurgical Corporation began producing high-purity vanadium and installed a vertical vacuum-arc centrifugal casting furnace which produces titanium castings. Both Wah Chang and Oregon Metallurgical's operations are characterized by frequent changes and improvements in their procedures and equipment to keep pace with the fast-changing demands for special metals in jets, missiles, and nuclear reactors. Research by the Bureau of Mines at Albany resulted in the first shaped casting of molybdenum and the first production of ductile yttrium. A few years ago the Bureau produced the first ductile zirconium, titanium, and chromium and subsequently made the technique available to industry.

Some of Oregon's Minerals at a Glance
(Preliminary figures)

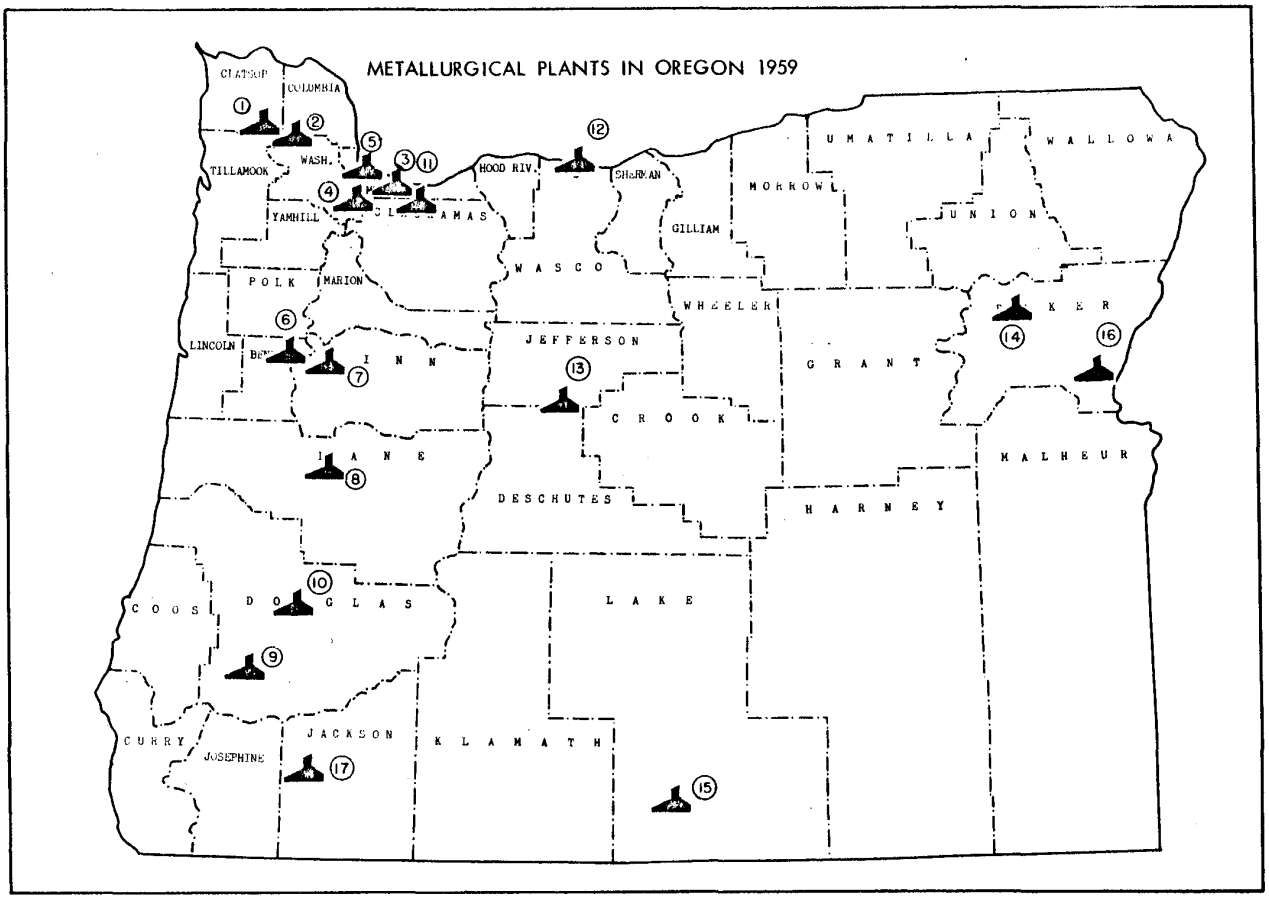
	1958	1959
Chromite	$ 379,000	$ 0 -
Clays	293,000	255,000-
Copper	5,000	0 -
Gold	50,000	15,000-
Mercury	521,000	299,000-
Pumice	331,000	358,000+
Sand and gravel	10,265,000	11,000,000+
Stone	15,621,000	11,000,000-
Undistributed*	18,932,000	17,628,000-
Total	$ 45,190,000	$ 39,600,000-

* Includes cement, diatomite, lime, uranium, etc.
(Symbols indicate relation to 1958.)

At Springfield, National Metallurgical Corporation installed a second electric furnace to make silicon. The new 3000-kilowatt, 16-foot diameter furnace doubles the plant capacity. Silicon is used as an alloy in aluminum, in silicones, as a deoxidizer in steel making, and when ultra refined in transistors. Raw materials include quartz from Nevada, petroleum coke from California, wood chips from nearby lumber mills, and electric power from the Springfield Municipal Power Company. Late in the year the plant was purchased from Apex Smelting Company by Aluminium Limited of Montreal, Canada.

Operations at the only nickel mine in the United States near Riddle were continuous throughout the year. Approximately 1 million tons of ore were mined and trammed down the slopes of Nickel Mountain to the smelter operated by Hanna Nickel Smelting Company where the ore is reduced to ferronickel under Government contract.

The two aluminum reduction plants in the State, Reynolds Metals at Troutdale and Harvey Aluminum at The Dalles, continued operations during the year. The Harvey plant commenced operations late in 1958; the Reynolds plant is 17 years old. Both plants import alumina from outside the State. Harvey unloads bottoms at Portland and rails the shipment to The Dalles.



Metallurgical and Electrometallurgical Plants in Oregon

Map No.	Company and Plant Location	Product
1	Empire Building Materials Co. Sunset Tunnel	Expanded shale
2	Smithwick Concrete Products Co. Vernonia	Expanded shale
3	Pacific Carbide & Alloys Co. Portland	Calcium carbide, acetylene, vinyl acetate
4	Oregon Portland Cement Co. Oswego	Portland cement
5	Electrometallurgical Co. Portland	Calcium carbide, ferroalloys
6	Wah Chang Corp. Albany	Columbium, tantalum, zirconium, hafnium, titanium
7	Oregon Metallurgical Corp. Albany	Zirconium and titanium ingots, forgings and castings
8	National Metallurgical Corp. Springfield	Elemental silicon
9	Hanna Nickel Smelting Co. Riddle	Ferronickel
10	Bonanza Oil & Mine Corp. Sutherlin	Mercury
11	Reynolds Metals Co. Troutdale	Aluminum
12	Harvey Aluminum Co. The Dalles	Aluminum
13	Great Lakes Carbon Corp. Lower Bridge	Diatomite
14	Chemical Lime Co. Baker	Burned lime
15	Lakeview Mining Co. Lakeview	Uranium yellow cake
16	Oregon Portland Cement Co. Lime	Portland cement
17	Ideal Cement Co. Gold Hill	Portland cement

Pacific Carbide & Alloys produced calcium carbide at its plant in North Portland. Limestone is imported from a company-owned quarry near Enterprise in Wallowa County. Construction of a $500,000 vinyl-acetate plant adjacent to existing facilities was commenced during the year. Electrometallurgical Corporation, also located in North Portland, produced calcium carbide and various ferroalloys. Oregon Steel Rolling Mills was in continuous production at its plant in Portland during the year despite the nation-wide steel strike. The plant melts steel scrap in electric furnaces. Electric Steel Foundry, a producer of stainless and other specialty steels in Portland, uses the only privately-owned betatron west of the Mississippi to check for flaws in its castings.

Industrial Minerals

Lightweight aggregates

The State's lightweight aggregate industry continued to expand both in volume and in new applications in 1959. Preliminary figures indicate that pumice increased 8 percent over the previous year. Increases in the production of expanded shale cannot be released since there are but two operators, Smithwick Concrete Products and Empire Building Materials, in the State. In the Bend area two pumice operators, Cascade Pumice Company and Central Oregon Pumice Company, produced various sized fractions of pumice and volcanic cinders principally for concrete block and monolithic concretes. Harney Concrete Tile Company at Burns also produced pumice for block. The Burns pumice is unusually hard and is extensively used as a road metal for logging roads in the area. Lightweight concrete blocks are becoming increasingly popular and, although the standard 8 x 8 x 16 inch block will always be in demand, the production of special architectural shapes and patterns is opening up new fields of use. A special "Centennial" block was extensively used at the Oregon Centennial Exposition for the construction of walls, and pierced block for screen walls was used in several other buildings on the grounds. The new Portland Sheraton Hotel employed the use of over 100,000 lightweight block, many of them containing some design, in the construction of the 11-story building.

Readymix plants used increasing amounts of expanded shale aggregate in 1959 in response to demands for lightweight monolithic concrete pours.

The most interesting development in the use of lightweight aggregate has been the rapid expansion in the use of pre-cast and pre-stressed beams and girders. Architects and structural engineers, working with manufacturers, have produced a whole new concept in modern construction. Ten years ago the thought of using a concrete beam 112 feet long to support a roof, or a beam which could be designed so that it would also be a floor, was unheard of. Today such structural members, while not yet commonplace, are going into buildings in the Northwest. One of the problems peculiar to this development has been the transportation of the finished units to the job site, often a distance of a hundred miles or more. The extreme length of some of the beams plus their weight requires special truck and trailer units equipped with two drivers, front and back, who communicate by closed circuit telephone.

While not new, the use of lightweight aggregate in tilt-up walls, lift-slabs, and poured-in-place roof and bridge decking continued to expand. Most of this type of construction has been used on industrial or commercial buildings but the industry is looking forward to the day when homes will also be made out of modular wall units either delivered ready to place or poured in standard forms on the concrete floor slab at the site. Mechanization of home construction is long overdue. The only significant advances in home construction in the past 100 years have been the use of squared lumber instead of logs and round nails for square ones.

During the year, the J. A. Wiley Company began producing wall units which may well be the forerunner of a new type of house-wall construction. Forms the thickness of the intended wall are constructed on the floor slab at the site and either chunks of rubble or shaped pieces

of building stone are placed in them face down on a bed of dry sand. Reinforcing steel is added and then concrete is poured and screeded off across the top of the form. When cured, the form is stripped and the wall panel is lifted into place. The stone face is swept free of the bedding sand and needs no further work done on it. The savings effected by this type of construction as compared to regular stone masonry are considerable. Its use ought to increase the use of building stone in home construction due to lowered costs.

Not all lightweight aggregates produced in Oregon are used in the construction industry. Crushed pumice is used as a bedding material in nurseries, for poultry litter, and as a conditioner for heavy soils. Volcanic cinders, properly sized, are sold for athletic field tracks and road metal for highways. Empire Building Materials Company announced at year's end that it was to furnish expanded shale aggregate for use in the John Day Dam on the Columbia River. The aggregate will be ground to -325 mesh and added to regular cement for its pouzzolan qualities. Pouzzolan cements are useful in massive concrete structures since they generate less heat while curing than standard cements.

Diatomite

Great Lakes Carbon Company continued production of diatomite from its quarry and plant at Lower Bridge in northern Deschutes County, the only operation of its kind in the State. In Lake County, Archie Matlock of Eugene dug about 150 tons of diatomite and hauled it to a small plant at Irving north of Eugene. Matlock produced poultry-nest material and a litter additive, both of which are said to produce cleaner eggs and a drier floor. A screening and calcining plant for processing the diatomite will be erected near Silver Lake in Lake County this spring. Other markets developed by Matlock include a sweeping compound, cleanser, nursery bedding material, and sawed insulation blocks.

Silica

The Rannells silica deposit, located approximately 35 miles east of Roseburg in Douglas County, was extensively sampled during the year by Hanna Nickel Mining Company. A 400-ton sample was shipped to the Hanna nickel smelter at Riddle for testing and the Department of Geology and Mineral Industries began preliminary geologic studies of the area. Bristol Silica Company at Rogue River in Jackson County continued production of high-grade metallurgical silica as the State's only producer. Bristol will move the plant a few miles east to a new location on the Southern Pacific tracks in the near future. The move was made necessary due to routing of the new U.S. Highway 99 through his plant.

Limestone

Sale of the National Industrial Products Company operation near Durkee, Baker County, to Oregon Portland Cement Company was announced in September. Production at the NIPCO quarry and crushing plant will continue and will provide the cement company with high-grade limestone suitable for use in sugar mills, metallurgical plants, and by the paper industry. In Josephine County, Pacific Northwest Lime, Inc., prepared to open the old Jones limestone quarry near Murphy. Considerable time was lost by the company in fighting a ruling by the Bureau of Land Management which would have imposed a toll of $2\frac{1}{2}$ cents a ton for all stone hauled out over the half-century old road. The ruling was finally set aside after nearly six months of delay, and due to the time lost the company decided to wait until spring.

Limestone was produced by Oregon Portland Cement Company at its two quarries at Lime in Baker County and near Dallas in Polk County to supply its two cement plants at Lime and Oswego. Ideal Cement Company quarried stone at Marble Mountain south of Grants Pass and trucked it to the plant at Gold Hill in Jackson County. Preliminary estimates by the U.S.

Bureau of Mines indicate that shipments of cement from these three plants declined approximately 15 percent from the previous year. The decrease is largely due to no heavy dam concrete construction in the marketing area of the plants during the year. Pacific Carbide & Alloys quarried marble near Enterprise in Wallowa County and railed the rock to its carbide plant at Portland. Chemical Lime Company quarried high-grade limestone west of Baker and trucked it to its kilns at Wingville. Due to the prolonged steel strike the kilns were idle during the fall. The plant resumed operation with one kiln in November.

Salines

The first production of soda from Alkali Lake in many years occurred in 1959. Archie Matlock, who had mined 50 tons from the potholes at the south end of the dry lake bed in 1955, reported that logging companies were experimenting with soda solutions used for killing brush in reforested areas. Apparently the soda has little effect on conifer seedlings but greatly retards growth of broad-leaved plants. The soda is also sold as an additive in steam cleaning, and tests are underway to determine the possible markets for recrystallized soda.

Building stone

At least 14 building-stone quarries were active in Oregon during the year. Most of the stone produced was of volcanic origin and consisted largely of tuffs of many colors and markings. The tuffs work easily, are relatively light in weight, and many have pleasing "warm" colors and interesting color bandings. A few tuffs are gray and are used for either retaining walls or, if quite porous, for insulating blocks in cold rooms and warehouses.

Northwestern Granite quarry at Haines was the only producer of monumental stone in the State. Melvin Parker produced the only sandstone from a quarry near Riddle in Douglas County. Parker also quarried a light-colored siliceous sinter at Kahneeta Hot Springs on the Warm Springs Indian Reservation. The stone, which has an attractive mottled appearance, is used in rubble walls. Quarries that were in operation during the year and have been more or less continuously active for the past few years included the following: Carver, Oregon Tuff Stone, Pacific States Cut Stone, Rainbow Rock, Tetherow Butte, Natural Stone, and Rocky Butte. Stone was also obtained from Dooley Mountain in Baker County, from a quarry owned by Dwane Coble about 50 miles east of Roseburg, from a deposit of "Indian Candy Stone" on the Warm Springs Indian Reservation, and from a site in southern Lake County where A. O. Bartell made some shipments of volcanic agglomerate.

Bentonite

Central Oregon Bentonite Company installed a grinding mill having a 12-ton-per-day capacity at its Prineville plant. Over 800 tons of bentonite were processed during the year and at the end of the year a larger roller mill was on order for installation in 1960. Most of the ground bentonite is sold locally to ranchers and the U.S. Bureau of Land Management for sealing stock reservoirs.

Hot water

At precisely 1:55 p.m. on July 1, 1959, a new source of thermal energy was made available in the State but six months later it was still unused and untamed. A well which had only recently been drilled to a depth of 1684 feet and then abandoned by the Nevada Thermal Power Company, began to spout water in a column 20 inches in diameter and about 200 feet high. Temperature of the water is close to the boiling point and the volume is about 500 gallons a minute. The phenomenon has become quite a tourist attraction but no practical use has been made of the "spouter", partly due to the fact that the well was not cased properly and no shut-off valve was installed. At Lakeview several buildings and the Lakeview uranium mill use hot water from wells. A highway underpass in Klamath Falls is "frostproofed" and numerous homes are heated by hot water.

Carbon dioxide

The Gas-Ice Corporation produced the only commercial "dry ice" in the State at its plant near Ashland which is supplied with water containing carbon dioxide from a series of wells. The Department completed a study of all known carbon dioxide wells and springs in the State and published the results in the November 1959 issue of The Ore.-Bin.

Metals

Gold

Production of gold in Oregon dropped to the lowest point on record. The Buffalo Mine, operated by the Boaz Mining Company at Granite in Grant County, reported no production during the year. The Company was engaged in driving a new lower level and at the end of the year reported that three veins had been crosscut. There was renewed activity at the North Pole and E and E mines at Bourne in Baker County where the E and E flotation mill treated ore from two mines and also retreated tailings from an operation active many years ago. Approximately half of the 420 ounces of gold produced in the State came from 28 placer operations operating seasonally in northeastern and southwestern Oregon. Unusually dry weather late in the year delayed the start of many of the operations.

In mid-year the Department published Bulletin No. 49, "Lode Mines of the Central Part of the Granite Mining District, Grant County, Oregon," by George S. Koch, Jr. The area covered by the bulletin includes one of the important gold mining districts of the State.

Copper

No copper was produced in the State during 1959. Some exploration and development work was carried on at the Standard mine near Prairie City in Grant County. Most of the copper produced in the State in recent years has come from ore mined principally for gold. Copper prospects in the lower Powder River area of Baker County were inspected by several major copper companies. The Department began a detailed study of copper mineralization in the so-called "copper belt" of the southern Wallowa Mountains in Baker County.

Uranium

Lakeview Mining Company, sole producer of uranium in the State, mined ore from the White King mine northwest of Lakeview and trucked it 14 miles to its mill just north of town. Difficulties experienced with underground mining early in the year made it necessary to switch to open-pit operation which was shut down for the winter late in December. The mill operated an average of 22 days per month on a 3-shift basis and processed 6000 tons of ore per month. Ore from the Apex mine in Nevada was shipped to the Lakeview mill the middle of December, according to a news story in the Reese River Reveille published at Austin, Nevada. Solar-X Corporation of Boise explored the Kiska prospect on Pike Creek in Steens Mountain with a 100-foot drift and raise along a mineralized fault.

Mercury

The Bonanza mine near Sutherlin in Douglas County produced approximately 60 percent of the State's total for the year of slightly more than 1300 flasks of mercury, a decline of 42 percent from last year's total production. In Malheur County the Bretz mine, operated by Arentz Comstock Mining Venture, produced intermittently during the year. Some exploratory drilling and shaft sinking were done. A small rotary furnace operated by Dave Chase at the Bonita mine in Jackson County reportedly produced 12 flasks during the summer months. Exploration at the Big Muddy cinnabar prospect in eastern Jefferson County was carried out with the aid of a $24,000 OME contract. This was the only OME contract in force in Oregon during the year.

Western Minerals, Inc., produced a small amount of mercury from a property on Quartz Mt. in Lake County, and minor production was reported from the Mother Lode mine in Crook County operated by the Werdenhoff Mining Company. The old Chisholm quicksilver property in the Meadows district north of Gold Hill, Jackson County, was actively prospected during the year. Steelhead Mines completed a drilling program at a property in Jackson County and planned to install a 25-ton rotary furnace in the near future.

The Department continued its examination of all of the mercury occurrences in the State. Information obtained by the survey will be published in bulletin form sometime in 1961. A paper "Quicksilver in Oregon" was presented by Howard Brooks, Department geologist in charge of the project, at the Northwest Metals and Minerals Conference of AIME in Seattle last spring. A few copies are still available for free distribution.

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OIL AND GAS EXPLORATION IN OREGON DURING 1959

By

Vernon C. Newton, Jr.*

At the beginning of 1960 Oregon is still among the 17 states that have no oil and gas production; however, increased exploration over the past 15 years indicates that industry has hopes of eventually finding production in the State. Drilling was very slow this year with only three permits issued.

Drilling Permits Issued in 1959

Permit No.	Company	Well Name and Location	Depth (feet)	Status
35	Ross R. Mitchell	Bliven No. 1 NW¼ sec. 15, T. 8 S., R. 5 W. Polk County	1347 T.D.	Abandoned 9/21/59
36	Oregon Oil & Gas Company	Roberts No. 1 SE¼ sec. 25, T. 10 S., R. 8 W. Lincoln County	2630	Idle
37	Ross R. Mitchell	Paige No. 1 SW¼ sec. 11, T. 8 S., R. 5 W. Polk County	600 T.D.	Abandoned 10/31/59

Drilling was continued on Miriam Oil Company's "Elliott No. 1 - deepening" in Polk County the first quarter of the year. The work was abandoned in July after reaching a depth of 1835 feet. Uranium Oil & Gas Company's "Ziedrich No. 1" in Douglas County and Sunnyvale Oil Company, Inc.'s, "Federal-Mitchell No. 1" in Grant County were plugged and abandoned in April 1959. Riddle Gas & Oil Producers suspended drilling on "Aikins No. 1" in January. Total footage drilled in Oregon during 1959 was 5192 feet.

Oil and gas leasing was active throughout the central Willamette Valley in 1959 as a result of oil and gas shows obtained last December in a well drilled by the Linn County Oil Development Company near Lebanon.

The Humble Oil & Refining Company gave exploration activity a big boost this summer when it leased more than 250,000 acres of land in southern Lake County and about 200,000 acres adjacent to Lake County in northern California. This was the first activity in central Oregon since abandonment of the joint venture by Sunray Mid-Continent Oil Company and Standard Oil Company near Prineville in August 1958. Humble has not announced a drilling program as yet for the new leases.

Geologic field parties from three major companies were actively exploring Oregon in 1959 for areas where oil and gas might be found. Several other companies expressed interest during the year in oil and gas prospects of the State and had representatives checking current activities.

Developments in Washington State kept oil interests stirring in the Northwest. The Sunshine Mining Company continued producing its "Medina No. 1" at Grays Harbor at a 6-10 barrel a day rate. Sunshine discovered possible gas production in the same area early in 1959 when it deepened a well which was drilled by the Hawksworth Gas & Oil Development Company in 1951.

* Petroleum Engineer, State of Oregon Department of Geology and Mineral Industries.

During August, the Tideland Oil & Gas Company obtained oil on a formation test at 3400 feet in its "Carlisle-Estate well" 12 miles north of Grays Harbor. Casing has been run in the well but no production obtained as yet.

The total footage drilled per year in Oregon for oil and gas exploration is shown on the graph for the years 1939-1959. The increased drilling activity after 1940 reflects entry of major oil-company exploration in Oregon. Wildcatters have been drilling on a small scale for oil in the State since the early 1900's, but none have been successful in finding production.

All wells that have penetrated more than 5000 feet of section in Oregon are plotted on the accompanying map of the State. The map shows the extent of the major rock areas in Oregon and the relationship of exploration to these areas. Tertiary marine sediments occupy a wide strip along the western coastal region, while Mesozoic-Paleozoic rocks are exposed in large portions of southwestern, central, and eastern Oregon. The rest of the State is buried under a complex mantle of volcanic material and stream and lake deposits of Cenozoic age. It is believed that a considerable area of Mesozoic-Paleozoic marine formations lies beneath these younger nonmarine rocks in central and eastern Oregon. Unfortunately no tool other than the drill has been devised by which the structural deformation and areal extent of these buried formations can be accurately determined. It will take costly deep wells to adequately explore this region.

About one-fourth of the State's 95,607 square miles can be considered at least a favorable place to look for oil and gas. The need for more oil and gas reserves and a decreasing number of prospective areas in the United States provide the economic conditions necessary for a greater exploration and development effort in all wildcat areas.

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Well Records Released from Confidential Files in 1959

Company	Well Name	Location	Total Depth (ft.)	Company	Well Name	Location	Total Depth (ft.)
Oroco Oil & Gas Company	McBride No. 1	SE¼ sec. 19, T. 16 S., R. 46 E. Malheur County	4506	Miriam Oil Company	Bliven No. 1	SW¼ sec. 11, T. 8 S., R. 5 W. Polk County	1300
Oroco Oil & Gas Company	Portland Company No. 1	NW¼ sec. 18, T. 24 S., R. 33 E. Harney County	2247	Miriam Oil Company	Bliven No. 2	SE¼ sec. 10, T. 8 S., R. 5 W. Polk County	506
Standard Oil Company	Kirkpatrick No. 1	NW¼ sec. 6, T. 4 S., R. 21 E. Gilliam County	8726	Sunray Mid-Continent Company	Kappler No. 1	NW¼ sec. 12, T. 2 N., R. 2 W. Multnomah County	1666

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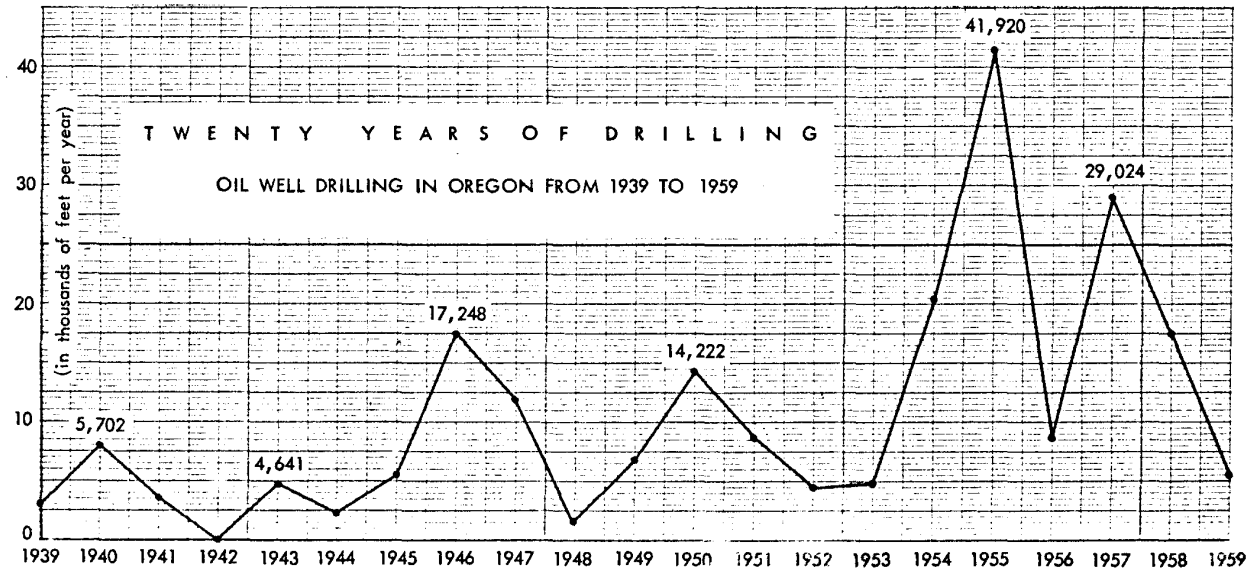

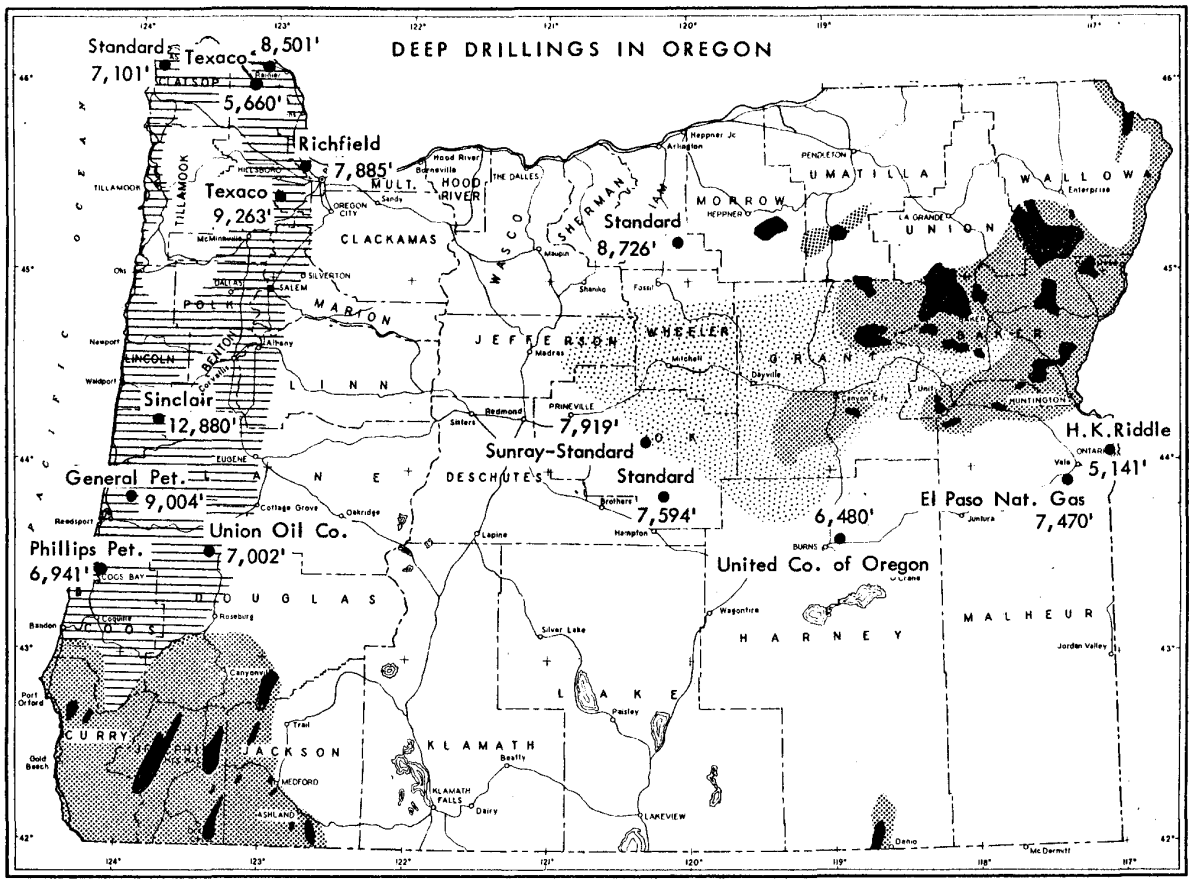

EXPLANATION

- Quaternary-Tertiary volcanics and non-marine sediments.
- Tertiary marine basin.
- Outcrop area of Mesozoic-Paleozoic marine sediments
- Outcrop area of Mesozoic-Paleozoic metamorphics
- Granitoid intrusive rocks.
- ● Drillings deeper than 5,000'

El Paso Natural Gas Company
Federal-Spurrier No. 1 (7470' T.D.)
NE¼ sec. 5, T. 20 S., R. 44 E.
Malheur County

General Petroleum Corporation
Long Bell No. 1 (9004' T.D.)
SW¼ sec. 27, T. 20 S., R. 10 W.
Douglas County

Phillips Petroleum Company
Dobbyns No. 1 (6941' T.D.)
SW¼ sec. 28, T. 26 S., R. 13 W.
Coos County

Richfield Oil Corporation
Barber No. 1 (7885' T.D.)
SE¼ sec. 23, T. 1 N., R. 1 W.
Multnomah County

H. K. Riddle
Kiesel Estate No. 1 (5141' T.D.)
SW¼ sec. 8, T. 19 S., R. 47 E.
Malheur County

Sinclair Oil & Gas Company
Federal-Mapleton No. 1 (12,880' T.D.)
SE¼ sec. 12, T. 16 S., R. 10 W.
Lane County

Standard Oil Company of California
Hoagland Unit No. 1 (7101' T.D.)
SE¼ sec. 11, T. 7 N., R. 10 W..
Clatsop County

Standard Oil Company of California
Kirkpatrick No.1 (8726' T.D.)
NW¼ sec. 6, T. 4 S., R. 21 E.
Gilliam County

Standard Oil Company of California
Pexco State No. 1 (7594' T.D.)
NE¼ sec. 36, T. 20 S., R. 20 E.
Crook County

Sunray Mid-Continent Oil Company - Standard Oil Company of California
Bear Creek Unit No. 1 (7919' T.D.)
NW¼ sec. 12, T. 2 N., R. 2 W.
Crook County

The Texas Company
Clark & Wilson No. 6-1 (8501' T.D.)
SE¼ sec. 19, T. 6 N., R. 4 W.
Columbia County

The Texas Company
Clatskanie No. 1 (5660' T.D.)
NE¼ sec. 36, T. 7 N., R. 4 W.
Columbia County

The Texas Company
Cooper Mt. No. 1 (9263' T.D.)
SE¼ sec. 25, T. 1 S., R. 2 W.
Washington County

Union Oil Company of California
Liles No. 1 (7002' T.D.)
NE¼ sec. 27, T. 25 S., R. 7 W.
Douglas County

United Company of Oregon, Inc.
Weed & Poteet No. 1 (6480' T.D.)
NW¼ sec. 9, T. 23 S., R. 31 E.
Harney County

AIME TO HOLD PACIFIC NORTHWEST METALS AND MINERALS CONFERENCE

The thirteenth annual Pacific Northwest Regional Conference of the American Institute of of Mining, Metallurgical, and Petroleum Engineers will be held at the Sheraton Hotel in Portland on April 28, 29, and 30. More than 40 technical papers will be presented at the various sessions which will include Geology, Physical and Extractive Metallurgy, Iron and Steel, Industrial Minerals, Refractories for the Aluminum Industry, and a special full-day program on Gold and Money at which a panel of speakers of national and international reputation will discuss the future of gold from a monetary standpoint. The American Society for Metals is holding joint meetings with AIME at the Conference for the first time. In addition to two luncheons and a banquet, there will be a reception at the Portland Art Museum where a special showing of the Peschel collection of mining art and the Joy Machinery Company paintings will be held. A complete Conference program will appear in the March issue of The Ore.-Bin.

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NEHALEM RIVER REPORT IN OPEN-FILE

The U. S. Geological Survey has announced the release of an open-file report on "Waterpower resources in Nehalem River Basin, Oregon, with geology of dam and reservoir sites," by L. L. Young, J. L. Colbert, A. M. Piper, and D. L. Gaskill. The report discusses the possibility of using Nehalem River water for power production at sites within the basin or by diverting it to the Columbia River. The report may be consulted in Portland at the Survey's office, 834 Interior Building.

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QUARTZBURG COPPER-COBALT REPORT ON OPEN FILE

The Department has just received from the U.S. Geological Survey a copy of "A Preliminary Report on the Copper-Cobalt Deposits of the Quartzburg District, Grant County, Oregon," by J. S. Vhay. This is a 20-page, mimeographed, open-file report with geologic and mine maps. It is available for inspection at the Department's office in Portland and at the Survey's offices in Spokane, San Francisco, and Salt Lake City. The Quartzburg district, which includes the Standard and Copperopolis mines, was investigated because of the strategic shortage of cobalt in the United States. Geology, mineral deposits, and exploration possibilities are discussed.

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GEOLOGIST JOINS DEPARTMENT STAFF

Richard G. Bowen joined the Department staff as a geologist on January 1. He is a native of St. Helens, Oregon, and graduated from the University of Oregon in 1955, obtaining his Master's Degree in 1956. Mr. Bowen was formerly a geologist with Sohio Petroleum Company, doing field work in British Columbia and subsurface geology in the San Juan Basin, New Mexico.

As a member of the Department staff, Bowen fills a position left vacant since mid-1957. He is presently assigned to the Department's field project on copper occurrences in the State. His work will emphasize geochemical investigations.

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NEW MERCURY MINERAL DESCRIBED

A new mercury mineral is described by E. H. Bailey and others in the paper "Schuetteite, a new supergene mercury mineral," published in the September-October 1959 issue of The American Mineralogist. The mineral has been found in small amounts in natural occurrences at several quicksilver deposits in arid parts of the West, including the Opalite mine in southern Malheur County, Oregon. It has been named schuetteite after C. N. Schuette, mining engineer and geologist who devoted many years to the study of quicksilver deposits. One of his many reports in this field was the Department's Bulletin 4, "Quicksilver in Oregon," published in 1938, now out of print.

Schuetteite is described as a canary-yellow mineral having the composition of basic mercuric sulfate, $HgSO_4.2H_2O$. It is friable and readily reduces to dust; hardness appears to be about 3. This same material occurs in abundance as a by-product on bricks of old quicksilver furnaces and dumps of furnaced ore. In natural occurrences, it is found as thin films on surfaces of cinnabar-bearing rocks exposed to the sunlight, and is believed by the authors to have formed through direct oxidation of cinnabar by oxygen-bearing surface water, with sunlight providing the energy to cause the reaction.

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UNIVERSITY OF OREGON OFFERS FELLOWSHIPS IN GEOLOGY

The Department of Geology at the University of Oregon announces three National Defense Graduate Fellowships leading to Ph.D. degrees in geology, beginning September 1960. The fellowships are available only to first-year graduate students who are interested in becoming teachers in institutions of higher education. Each fellowship is a three-year award paying a total stipend of $6600 plus dependent allowance and reduced tuition. For application forms and information write to Prof. Lloyd W. Staples, Head, Department of Geology, University of Oregon, Eugene, Oregon. Application deadline is February 15, 1960.

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ACADEMY TO MEET

The Oregon Academy of Science will hold its 18th annual meeting in Eugene at Straub Hall on the University of Oregon Campus, Saturday, March 5, 1960. Sessions will be held in Geology and Geography, Biology, Chemistry, and Mathematics and Physics.

Chairman of the Geology and Geography session is Dr. Walter Youngquist, Department of Geology, University of Oregon. Herbert Schlicker, Geologist, State Department of Geology and Mineral Industries, will serve as Co-Chairman. Department members who will present papers include Hollis Dole, Vernon Newton, Norman Peterson, and Len Ramp. Other papers will be given by geologists of the Ground Water Division of the U.S. Geological Survey, U.S. Army Engineers, and the geology departments of the various State colleges and universities. Dean F. A. Gilfillan of the School of Science at Oregon State College is Secretary of the Academy of Science. Attendance by the public is invited.

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