The Ore Bin

Vol. 24, No. 1
January, 1962

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

The Ore Bin

Published Monthly By

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
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Subscription rate 50 cents per year. Available back issues 5 cents each.

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Application to mail at second class postage rates
is pending at Portland, Oregon

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OREGON'S MINERAL INDUSTRY IN 1961

By

Ralph S. Mason*

After staunchly surging upward each year for the past five years in spite of several nationwide economic reverses, Oregon's value of minerals produced dipped slightly in 1961. Preliminary estimates by the U.S. Bureau of Mines for last year's mineral production show a total of $48,089,000, a drop of approximately 12 percent. Reduction in the demand by industry for sand and gravel and cement accounted for the bulk of the decline. The long-range trend in Oregon's mineral economy is perhaps best reflected in the 50 percent increase of the state's contribution to the total United States mineral production since 1955. During the same period total United States mineral production increased about three percent.

Completion of a trans-state natural gas line and early construction of additional gas and products lines and distribution facilities in the state (see December 1961 Ore.-Bin) presage a new series of metallurgical developments which may well have widely ranging economic significance. Possible pattern for such a trend has been established at Albany, "exotic metals capital of the United States," where three space-age metals operations employ nearly 1,000 men. All of the raw materials other than power and water for these plants are shipped into the state. Exploration for oil in the state went forward on two fronts. Four major oil companies engaged in offshore investigations during the last half of the year and there was intensive leasing in the central Willamette Valley as the year ended.

METALS

Copper

The long-range study of copper mineralization in the state, started last year by the department, was continued actively during the year. The study includes geologic mapping, petrographic examinations, and geochemical prospecting. Field work was concentrated in a mineralized area a few miles north and east of Baker.

Late in the year the Golden Road Mining Co. began shipping lump copper ore from the Elmer Milton property 18 miles north of Rogue River in

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Jackson County. Small production of concentrates was reported from the Mount Bolivar property in Douglas County, where a 50-ton mill was erected during the summer.

Aluminum

Harvey Aluminum increased by approximately 25 percent the melting capacity at its primary reduction plant located at The Dalles in Wasco County. The new smelting facilities with integrated heat treating and billet casting were placed on the line during the first quarter. The enlarged plant has an annual capacity of approximately 75,000 tons of primary metal.

Two new reduction plants for the state were indicated when Cerro Corp. announced plants for construction of a 55,000 ton smelter on deep water at Wauna, 40 miles upstream from the mouth of the Columbia, and Howe Sound Co. negotiated with the Port of Portland for a plant site at the confluence of the Willamette and Columbia rivers to erect a $25 million plant. The company announced that an electrolytic manganese plant would also be built on the same site.

Exploration for ferruginous bauxite by the department revealed the presence of ore on the north flank of the Chehalem Mountains near Newberg in Yamhill County. Minor exploration in northwestern Oregon was reported by two major aluminum companies.

Gold

Over two years of hard work and more than 1,500 feet of tunnelling finally paid off at the Buffalo Mine in Grant County. James P. Jackson, Jr., mine owner and manager, drove the 600 level in from a new portal and tapped the Constitution vein 253 feet below the last workings on the south end of the vein on the 400 level. The vein, as exposed by several hundred feet of drift, carries good values and has a width comparable to that on the upper level. The persistence of the vein at depth not only spells continued life for the Buffalo, which began producing in 1903, but pumps new hope into other mines in the district which have similar mineralization.

Sale of the Cornucopia gold mine in northeastern Baker County late in the year to an eastern investor served to recall the colorful past of this major gold producer in Oregon. Located in the late 1870's, the mine confounded the experts by producing over $3 million after it was reported to be mined out in 1930. The property has been idle since it was shut down during World War II by the ill-advised government order L-208.

The Warner mine in the Greenback District, Josephine County, was operated by Frank Gelhaus. It was the top producer among the 15 lode gold mines active in the state last year.

Placer mining activity was largely confined to southwestern Oregon, where 17 miners operated during high water periods only. Opposition to any form of placer mining, even skin diving, increased during the year.

Particular concern was expressed by various governmental agencies which are more concerned with pleasure than payrolls. Mining people were confused by the welter of conflicting testimony concerning certain fishing streams which have also had some placer mining on them. The Rogue River and its tributaries have been intensively placer mined for more than 100 years and yet the Rogue remains a top fishing stream known the world over, they pointed out. Skin diving for gold became a recreational activity for many people in the state in 1961. Equipment ranged from the simplest face mask and "snorkel" to complete SCUBA outfits plus gasoline-powered floating section pumps and lightweight underwater "dredges." Appraisal of the skin diver's luck is difficult, since only rarely does the successful operator tell about his discoveries for fear of attracting too much competition.

Exotic metals

The Wah Chang Corp. plant at Albany added the fabrication of tungsten and molybdenum to its list of products, thereby covering the entire heat spectrum of the refractory metals. The plant is fully integrated and processes columbium, tantalum, hafnium, and zirconium ores through to mill products. The corporation's research center developed a superconductive wire made from a columbium-zirconium alloy and was able to produce it in more than laboratory quantities for industry.

Oregon Metallurgical Corp., also at Albany, continues to be the only known commercial producer of tungsten or other refractory metal-cast shapes. Other products include titanium ingots and castings, zirconium alloy ingots, and high-purity vanadium. Experimental work was done on vacuum-melted ferrous and copper-base alloys and on specialties such as deep-drawn zirconium crucibles.

Sierra Metals Corp., a subsidiary of Martin Marietta Corp., started construction of a $750,000 metallurgical research laboratory near Beaverton. Sierra will employ 25 scientists to develop high-temperature processes and materials for space exploration, defense, and industry.

Mercury

Production of mercury in Oregon, once one of the leading mercury states in the Union, slumped to a mere 133 flasks. Bulk of production came from the Bretz mine in Malheur County operated by the Arentz Comstock Mining Venture of Salt Lake City. Small production was also reported from the Red Rock group of claims in Harney County and the Elkhead mine operated by Washington Mining Co. in Douglas County. Considerable core drilling at the Elkhead encouraged the company to drive a 200-foot crosscut 100 feet below the lowest workings. Several hundred feet of drifting exposed good low-grade ore and the company reportedly is planning on opening the mine for production. At the Nisbet mine in Clackamas County a deep drilling project in cooperation with the Office of Minerals

Some of Oregon's Minerals at a Glance
Preliminary Figures for 1961
(in thousands of dollars)

	1960	1961
Clays	$ 370	$ 310
Gold	29	23
Mercury	108	26
Sand, gravel	16,170	13,000
Stone	19,721	19,000
Misc.*	14,124	16,749
TOTAL	$ 54,520	$ 48,089

* Asbestos, carbon dioxide, cement, copper, diatomite, gem stones, lead (1961), lime, nickel, pumice, silver, uranium, zinc (1961).

Exploration was nearing completion at year's end. The Werdenhoff Mining Co. suspended exploration at the Mother Lode Mine in Crook County shortly after the erection of a Herreschoff furnace.

Nickel

The Hanna Mining Co. open-pit nickel mine and the Hanna Nickel Smelting Co. reduction plant at Riddle in Douglas County were in continuous operation throughout 1961. Hanna purchased the plant from the government during the year and began selling ferronickel, upgraded from 45 to 55 percent nickel content, to commercial customers. Approximately 1 million tons of ore were mined from the top of Nickel Mountain and aerial trammed down to the smelter below, where nearly 21 million pounds of contained nickel were produced.

Chromite

Although no chromite was mined in the state last year, there was considerable interest shown by miners and metallurgists in the possibility of establishing a local ferrochrome plant. A report "Ferrochromium From Western Metallurgical-Grade Chromite" issued by the U.S. Bureau of Mines (Report of Investigations 5897) in 1961 pointed out that all of the necessary raw material for the production of ferrochromium is available in the area and that the electrical energy requirements for the smelting of a 60 percent grade product are relatively low. The report relates that there appears to be sufficient metallurgical grade beneficiable ore in the western coastal states to sustain a 25,000-ton-a-year smelting schedule for 25 years.

Late in the year the California-Oregon Chrome Producers' Assn. announced plans for establishing a chrome depot at Crescent City, California. Under the plan a producer would get half of the market price for his ore upon delivery to the depot, with the balance to be paid upon eventual sale. The association hopes to accumulate approximately 10,000 tons of ore for shipment to the east coast by boat.

Uranium

Kermac Nuclear Fuels Corp. purchased the Lakeview Mining Co. uranium mill located at Lakeview in March. The mill has been idle since late in 1960, when ore mined from the White King mine open pit was exhausted.

Vance Thornburg began unwatering the White King pit in April and by year's end had shipped 15 cars of high grade ore to Vitro Chemical in Salt Lake City. Thornburg began erection of a headframe over the old No. 1 White King shaft in November. The Lucky Lass property near the White King shipped several cars of ore to Vitro and began underground mining in November.

INDUSTRIAL MINERALS

Building Stone

Interest in Oregon building stone continued at a high level during 1961. Increased use of ornamental stone in commercial buildings and private residences required quantities of local and out-of-state stone. The selection of such stone is based largely on its appearance, and individual taste with respect to color, texture, and shape vary widely. It is little wonder that shipments come from considerable distances to supply a definite demand and local stones travel far from home for the same reason. Oregon quarries, scattered over the state, produced a variety of colorful stones which spanned the color spectrum from green through yellow and brown to pink. Most were of volcanic origin with airborne and water-laid tuffs predominating. Some of the state's many lavas were also used, and although they tended to be less colorful they were more interesting texturally. A survey of building stones conducted by the department located a lava outcrop which emits a musical tone when struck. Lavas with warped fossil bubble holes and tuffs which can be carved, glazed, and fired are also available from Oregon quarries.

Although most building stone is produced commercially and placed professionally a growing trend was noted during the year towards more "do-it-yourself" stone masonry. Particular interest was indicated in homemade panels and slabs of exposed aggregate with either cut and polished or rough surfaces.

Lightweight aggregates

Production of the natural lightweight aggregates pumice, volcanic cinders, and scoria, continued at about the same rate as last year. Two operators produced expanded shale from quarries in northwestern Oregon and a considerable quantity of the bloated shale was fine ground and used as a pozzuolan substitute for portland cement in monolithic concrete poured at the John Day Dam. The pozzuolan lessened the heat produced by the setting of the concrete, lowered the cost, and reduced shrinkage. Lightweight concretes continued to invade the structural field traditionally dominated by lumber and steel, with the only limits in sight being the ability to handle the size of the piece produced and the imagination of the architect and engineer.

Sand and gravel

As it has for many years, the production of sand and gravel and crushed stone provided the largest value of all the mineral commodities produced in the state. Compared to the previous year there was a decline of approximately 18 percent from the 17.7 million tons reported in 1960. The decrease is directly related to dam and highway construction. Production of aggregates by commercial operators supplying industrial and domestic markets continued at about the same rate as previously. Growing concern was expressed by both sand and gravel operators and local and state government agencies over the rapid encroachment by urbanization which is paving over, building on, or zoning out existing and potential quarries.

Bentonite

Production of bentonite by Central Oregon Bentonite Co. more than doubled over the previous year. The bentonite is dug from shallow pits in eastern Crook County and is used for sealing stock ponds and irrigation canals, for facing foundry sand molds, for drilling muds in oil wells, and for binding feed pellets. Some bentonite was shipped to Hawaii for dusting pineapples.

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OIL AND GAS EXPLORATION IN 1961

By

Vernon C. Newton, Jr.*

This is the first year since enactment of the Oil and Gas Act in 1953 that the Department did not record a single new oil test hole. Some footage can be claimed for 1961 as Humble Oil & Refining Co. completed drilling in February on its second well, the "D.J. Leavitt No. 1", a short distance south of Lakeview. Total depth was 9,579 feet. At the end of 1961, Oregon was still one of the nation's nonproducing states. In spite of the low drilling record, 1961 was one of the most active oil exploration years in Oregon history. Thirteen major oil companies and one independent company made geological and geophysical surveys this past year.

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In May 1961, the Oregon legislature passed an offshore lease law which allowed for exploration in coastal waters and resulted in application by three major oil companies for permits. These companies, namely the Gulf Oil Corp., Shell Oil Co., and Union Oil Co., were joined later in the summer by Standard Oil Co. of California. The main portion of the work consisted of seismic studies. No applications for offshore leases have been made to date. The law requires that leases for offshore parcels be granted to the person offering the highest cash bonus submitted in sealed bids. Size of each lease can be no greater than 3 by 6 miles in area, or approximately 13,200 acres, and the annual rental shall be 50 cents per acre.

R. J. Deacon, publisher of Northwest Oil Report, Portland, reported in a news release in November that nine oil companies had jointly contracted for aerial magnetic surveys along the Oregon and Washington coasts. The participating companies were: Standard Oil Co. of California, Humble Oil & Refining Co., Mobil Oil Co., Ohio Oil Co., Pan American Petroleum Corp., Phillips Petroleum Corp., Richfield Oil Corp., Superior Oil Co., and Texaco, Inc.

Willamette Valley leasing

In November news of a leasing play along the eastern side of the valley came into the Department in the form of telephone calls from landowners seeking information on leasing policies and development regulations. An estimated 100,000 acres were under lease in the Willamette Valley and adjacent area for oil and gas minerals by the end of 1961 and leasing was continuing in 1962. Oil companies reported to be putting acreage together in this area are: Humble, Gulf, Superior, and Reserve. A group headed by Wesley Bruer of Bakersfield, California, leased an area south of Salem in August for oil exploration, and Willard Farnham of Portland applied for leases on state and federal land along the east side of the valley.

It appears that the attraction behind the present leasing along the east side of the Willamette Valley is based upon a projection of Tertiary marine sediments and possibly Mesozoic sediments, beneath the volcanic rock which borders the Western Cascades. Subsurface geologic information in this region is essentially nonexistent and therefore it appears likely that some of the present interest might stem from results of the drilling northeast of Lebanon by the Linn County Oil Development Co. in 1958. Shows of oil and gas in this well were reported in the press by company officials.

Leasing in Coos and Douglas Counties

Activity reported thus far in northern Coos and southern Douglas Counties has been scattered with no particular concentration. One party, however,

Willard Pittman of Portland, Oregon, awakened interest by filing application in June 1961 for a lease on the Elliott State Forest consisting of about 80,000 acres. Action on the application is still pending.

Eastern Oregon drilling

Two-State Oil & Gas Co. of Boise, Idaho, began drilling a well near Vale, Oregon, in September, but terminated work at a depth of 250 feet when unable to meet the requirements of the state Oil and Gas Act.

Records and statistics

Footage drilled by years	
1954	20,509
1955	41,920
1956	9,458
1957	29,024
1958	17,113
1959	5,192
1960	22,802
1961	6,479

Up to the present, 162 oil and gas tests have been drilled in the state without a single commercial discovery. Of this number, however, not more than 30 wells were drilled with what is generally considered as adequate supervision and only about 18 were drilled as a result of reliable field studies. In western Oregon the Tertiary marine basin covers an area of about 12,000 square miles, in which only about a dozen wells have penetrated enough section to be helpful in projecting subsurface conditions. In eastern Oregon, where less drilling has been done, an area of 6,000 to 8,000 square miles of Mesozoic-Paleozoic marine basin offers prospect for production.

Well Records Released from Confidential Files in 1961

Company	Well Name	Location	County	Depth	Records*
Miriam Oil Co.	Elliott No. 1-deepening	SW¼ sec. 9 T. 8 S., R. 5 W.	Polk	1,822'	Driller's log, cuttings
V. V. Erntson	Schermacher No. 1	NE¼ sec. 27 T. 9 S., R. 2 W.	Marion	2,426'	Electric log, driller's log, cuttings
Ross Mitchell	Bliven No. 1	NW¼ sec. 15 T. 8 S., R. 5 W.	Polk	1,347'	Driller's log, gas analysis, cuttings
Ross Mitchell	Paige No. 1	SW¼ sec. 11 T. 8 S., R. 5 W.	Polk	600'	Driller's log, cuttings
Sunnyvale Oil Co.	Federal-Mitchell No. 1	SE¼ sec. 14 T. 16 S., R. 29 E.	Grant	1,168'	Petrographic description, cuttings

*Cuttings available for study at Portland.

GEOLOGIC MAP OF WESTERN OREGON NOW AVAILABLE

The long-anticipated geologic map of the western half of Oregon has been received by the United States Geological Survey and the State of Oregon Department of Geology and Mineral Industries and is now available for general distribution. The map is entitled "Geologic Map of Oregon West of the 121st Meridian" and bears the U.S. Geological Survey designation of Miscellaneous Geologic Investigations Map I-325. It was prepared under the direction of Francis G. Wells and compiled by Dallas L. Peck of the federal agency.

More than 80 geologic units are shown on this multicolored map and are briefly described in the legend. The scale of the map is 1:500,000 or approximately 1 inch = 8 miles. The map sheet, which measures 48 by 66 inches, also includes four geologic cross sections, a small tectonic map of the area, and an index map of sources of geologic data together with numerous references to literature.

Publication of this map represents the culmination of a century of geologic investigation in western Oregon, beginning with that of the pioneer geologist, Dr. Thomas Condon. The first geologist to do detailed mapping in this part of the state was J. S. Diller of the federal survey. Diller's work began in the 1890's and continued almost uninterruptedly until 1907. The results of his studies in southwestern Oregon were published by the Survey in four folios: Roseburg, Coos Bay, Port Orford, and Riddle.

Since Diller's time many geologists have done field mapping in western Oregon, working on state or federal assignments or as graduate students gaining master's or doctoral degrees. Their findings have contributed significantly to the present map.

Beginning in 1951, the reconnaissance mapping in unsurveyed areas was carried out on a cooperative basis between this department and the U. S. Geological Survey. Several oil companies gave generous support to this project. Field work was completed in the fall of 1956 and compilation of the final map and its publication were performed by the Geological Survey.

Geologic mapping of the eastern half of Oregon to complete the state geologic map is in progress but is not expected to be ready for compilation for a number of years.

Four major geomorphic provinces lie within the mapped area, as follows: Coast Range, Klamath Mountains, Willamette Valley, and Cascade Range. Small portions of the Basin-Range, High Lava Plains, and Deschutes-Umatilla Plateau flank the Cascades along the eastern margin.

The northern Coast Range is composed of Eocene submarine volcanic rocks, mainly pillow lavas and palagonitic tuffs and breccias flanked by later Tertiary marine sandstones, tuffaceous shales, and mudstones. The southern part is underlain almost entirely by Eocene marine sandstones and shales.

The Klamath Mountains have a core of Paleozoic schists which underlie a thick sequence of interbedded marine and nonmarine Mesozoic volcanic and sedimentary rocks. The entire section has been tightly folded, faulted, and intruded by ultramafic to acid plutonics. Slightly deformed Upper Cretaceous marine sediments occur in troughs and grabens within the mountains and along the coastal border.

The Willamette Valley is a flood plain with isolated hills, lying in a structural trough between the Cascade and Coast Ranges. The unconsolidated Quaternary sands and gravels which blanket most of the valley are underlain by marine Oligocene and Eocene sandstones and shales. Miocene lavas cap marine sediments in the northern part of the valley, and in the Portland area consolidated sands and gravels of Pliocene age fill local structural basins.

The Cascade Range is divisible into the Western Cascades and High Cascades and is best described as a great pile of volcanic rocks. The section underlying the Western Cascades ranges in age from late Eocene to early Pliocene and is composed mostly of pyroclastics with interbedded lava flows and lenses of continental waterlaid sediments. These sediments intertongue with or grade westward into the marine Eo-Oligocene sediments that lie beneath the Willamette Valley.

The High Cascades are the majestic volcanic peaks, cinder cones, and relatively undissected lavas along the summit of the range. Most peaks are Plio-Pleistocene in age. Recent flows and cinder cones are common. The lavas are dominantly basaltic andesites and olivine basalts with some scattered outcrops of rhyolite and obsidian. Mt. Hood, one of the extinct volcanoes that cap the range, rises to an elevation of 11,245 feet, the highest point in Oregon.

Copies of Map I-325 may be purchased from the U.S. Geological Survey, Denver Federal Center, Denver, Colorado, at a price of $2.00, or from the Oregon department's offices in Portland, Grants Pass, and Baker for $2.00 at the counter, $2.15 mailed folded in an envelope, or $2.50 mailed unfolded in a map tube.

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LESTER CHILD DIES

Lester Child, member of the department's Governing Board from 1957 to 1960 (see July 1957 "Ore Bin"), died in Grants Pass January 23 at the age of 75. He was very active in the fields of business and geology, with special interest in petroleum exploration. In recent years he was a member of the Western Governors Mining Advisory Council and the Interstate Oil Compact Commission.

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MORE THESES ON OREGON GEOLOGY AVAILABLE

The master's theses on Oregon geology listed below represent those completed by graduate students at Oregon State University during 1959, 1960, and 1961. A similar list of University of Oregon theses was published in the November 1961 Ore Bin, and the two lists supplement the department's Miscellaneous Paper No. 7, "Bibliography of Theses on Oregon Geology." Those theses marked with an asterisk may be consulted in the department's library in Portland.

Greene, Frank F., Geology of the northeast corner of the Sparta quadrangle and vicinity, Oregon. 1960

* Johnson, George D., Geology of the northwest quarter Alvord Lake Three quadrangle, Oregon. 1960

* Jones, Robert W., Lower Tertiary foraminifera from Waldport, Oregon. 1959

Lauritsen, Don A., Humphreys spiral beneficiation of sulfide ores from the Bohemia district Musik mine (Oregon). 1961

* Maloney, Neil J., Geology of the eastern part, Beaty Butte Four quadrangle, Oregon. 1961

* Pilcher, Stephen H., Rock alteration and vein mineralization at the Buffalo mine, Grant County, Oregon. 1959

* Taylor, Edward M., The geology of the Clarno basin, Mitchell quadrangle, Oregon. 1960

* Wetherell, Clyde E., Geology of part of the southeastern Wallowa Mountains, northeastern Oregon. 1960

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HIGH PURITY METALS EXHIBITED

An exhibit of high purity metals from Cominco Products, Inc., Electronic Materials Department, Spokane, Washington, has been on display for the past month in the Portland office of the Department of Geology and Mineral Industries. Metals of 69 grade (99.9999 percent pure), including antimony, arsenic, bismuth, cadmium, indium, lead, silver, tin, and zinc, and also various alloys comprise the exhibit. These ultra pure materials are protected against contamination by special packaging in plastic, inert atmosphere, or vacuum. They are made in forms such as ingots, bars, sheets, ribbon, wire, shot, powder, and a variety of preforms for specific applications in the electronics industry.

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NEHALEM WAX GETS CARBON 14 DATE

A redetermination on the age of the Nehalem beeswax has been made in the laboratory of the Shell Oil Co. by the carbon 14 method. The new results, obtained late in 1961, agree favorably with the belief, based on historical data, that a Spanish galleon bringing beeswax from the Philippines to Mexico was wrecked on the Oregon coast in the early 1700's. Previous carbon 14 tests on the beeswax by Shell's laboratory, using modern wood as a standard, resulted in a date about 200 years older than expected. The new determination used a sample of modern beeswax collected in 1937 prior to possible contamination by products of nuclear explosions as a comparative standard. The laboratory report is as follows:

> "The age which we now obtain is $280^{\pm}$ 110 years with a 95 percent confidence level for the measurement. This places the date of formation of the beeswax between 1570 A.D. and 1790 A.D."

Over the years, more than 12 tons of beeswax has been dug from the sand spit near the mouth of the Nehalem River, giving rise to much speculation regarding its origin. One of the theories that evolved, and which continues to crop up despite evidence to the contrary, is that the wax is a natural deposit of ozocerite (or ozokerite) and indicates the presence of oil. Ozocerite is a plastic waxlike paraffin sometimes found in veins and believed to result from the drying out of a paraffin-base oil. The Nehalem "deposit", however, occurs in the form of molded slabs of uniform dimensions bearing trade marks and even candle wicks. Moreover, chemical tests of the Nehalem wax present conclusive evidence that the material is real beeswax. The carbon 14 dating by Shell's laboratory precludes any possibility of the wax being the residue of a fossil oil field and gives Oregon unquestioned claim to a unique cargo from the Orient.

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PHILIPPINES PRODUCE GOLD

Benguet Consolidated, the largest gold producer in the Philippine Islands, produced 20,693 ounces of gold in September 1961, for which it received 3,517,000 pesos - equivalent to 724,250 American dollars. The Philippine Central Bank purchased the output at 170 pesos per ounce. Formerly, Benguet received 70 pesos per ounce. The higher price represents a subsidy by the Philippine Government to Philippine gold mines. (From "News Letter", Nevada Mining Association, January 15, 1962.)

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PACIFIC STONEWARE PRODUCTION EXPANDS

As many companies move to faster, automatic production, Pacific Stoneware, Inc., has found that the market for handmade items is growing. For this reason the company is increasing its inventory of old pottery items with modern adaptations. In some cases the original molds, unused since grandmother's day, are being brought back into production. A partial list would include:

1. Original butter churns - for lamp bases.
2. Hand decorated planters and vases.
3. Patio sand jars.
4. Cast stone cooking ware.
5. Hand-thrown pottery cups, bowls, mugs, bean pots, jugs, and casseroles.
6. Foot warmers - squat jugs which were filled with hot water.

Pacific Stoneware, Inc., was organized in Portland in 1870, and since 1923 has been at the same location at 9217 N. Peninsular Avenue. It has been owned by the Welsh family for the past two years, with Bennett Welsh in charge of the plant. Sales are handled by Fred Cheek. Bennett Welsh operated a pottery in Gresham from 1947 to 1953 and later was head of ceramic production at Tektronix, Inc. In days before the modern cannery appeared, the production at this plant was divided about equally between flower pots and such items as stoneware crocks, tubs, and jugs. Flower pots of all sizes still form a major portion of the plant production. To eliminate packing for shipment, all orders to dealers are delivered by company truck throughout most of Oregon, Washington, and Idaho.

The present production of flower pots and glazed pottery is made primarily from a combination of local alluvial clays and black ball clay purchased from Willamina Clay Products Co. The raw clays are washed and refined during the blending process. The clay from Mica, Washington, which had been used in making stoneware, has been exhausted, and full-scale stoneware production cannot be resumed until another source is found. Clay brought in from Tennessee or Livermore, California, carries such a high freight rate that it can not be used for local production, even for local distribution. Mr. Welsh needs a refractory, stoneware-type clay. It must be self-slaking, since the wet process of refining is used, and should burn to a buff or light-brown color.

An exhibit of some of the products made by Pacific Stoneware will be on display in the department's museum in Portland beginning in February. Samples of raw clays, refined clay, molds, unfired pieces, and an assortment of glazed pottery will be shown.

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H.R. 1960 NEEDS ACTION

H.R. 1960, which was introduced by Rep. Poff (Virginia) and passed the House last July 10, is still in the Senate Judiciary Committee. This bill would permit a ruling of the Secretary of the Interior as to the validity of any mining claim to be challenged in the U.S. District Court for the area in which the claim is located. The Senate Judiciary Committee deferred action until this session of Congress. If passed into law, judicial review of hearings officers would be greatly simplified and be less costly. The American Mining Congress, in its meeting last September, urged the passage of this type of legislation with the following policy statement:

"The prevailing rule that the validity of administrative rulings of the Secretary of the Interior with respect to mining claims can be challenged only in a proceeding brought in the District Court of the District of Columbia places an undue burden on owners of such claims. We favor legislation conferring jurisdiction to review such determinations on the U.S. District Court in the district in which the mining claims are situated.

"We believe the executive agencies should administer the General Mining Laws, as amended, in accordance with the terms of those laws and the intent of Congress as expressed at the time of their enactment or amendment. Such Congressional intent should not be thwarted or distorted by administrative rulings or determinations.

"We urge upon the Department of Agriculture and its Forest Service, and upon the Department of the Interior and its Bureau of Land Management, that their regulations be administered uniformly to the end that the development of our natural resources may be prosecuted without undue burden."

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AIME CONFERENCE IN SEATTLE

The AIME - ASM will hold the Pacific Northwest Regional Minerals and Metals Conference at Seattle on April 26-28; headquarters will be at the Benjamin Franklin Hotel. The meeting dates will coincide with the opening week of Century 21, Seattle's World Fair.

A total of eight sessions is anticipated, the number being kept to a minimum to avoid conflicting papers. A series of presentations is planned in the following fields: mining, geology, mineral beneficiation, industrial minerals, extractive metallurgy, and physical metallurgy. Details on programming will follow at a later date.

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OREGON LAND WITHDRAWALS - 1961

During 1961, federal bureaus made application for the following land withdrawals in the State of Oregon. The total acreage applied for was 28,849. This compares with 4 withdrawals and 1,287 acres in 1960; 12 withdrawals and 20,737 acres in 1959; 5 withdrawals and 44,323 acres in 1958; and 17 withdrawals and 20,402 acres in 1957.

Agency requesting withdrawal	Acreage	County	Reason
U.S. Bureau of Reclamation	240	Malheur	Bully Creek Reservoir
U.S. Corps of Engineers	730	Linn	Green Peter Reservoir
U.S. Forest Service	824	Josephine Jackson Curry	Recreation use
U.S. Forest Service	975	Grant Curry	Recreation use
U.S. Forest Service	4,872	Crook Wheeler	Consolidate national forest land for administrative purposes
Bonneville Power Administration	10	Deschutes	Hampton Substation
U.S. Dept. of Agriculture	1,702	Josephine Jackson Deschutes	"Strengthened security of tenure"
U.S. Bureau of Land Management	19,496	Malheur	"For recreational pursuits pertaining to petrified materials"

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TECTONIC MAP OF UNITED STATES AVAILABLE

A new edition of the Tectonic Map of the United States has been published by the U.S. Geological Survey and is for sale for $4.50 by the Distribution Section, U.S. Geological Survey, Denver Federal Center, Denver 25, Colorado. The map is published in two sheets, each about 41 by 54 inches, and has a scale of 1:2,500,000 (1 inch equals 40 miles).

The purpose of the map is to show the major structural features (faults and folds) resulting from deformation of the earth's crust. These features are shown by symbols, patterns, and contour lines. Various color patterns on the map delineate regions of Precambrian, Paleozoic, and Mesozoic rocks, intrusive igneous and volcanic rocks, and selected areas of Cenozoic sedimentary rocks having broad tectonic features.

The map was prepared as a joint project of the U.S. Geological Survey and the American Association of Petroleum Geologists and is of special interest to economic geologists engaged in search for petroleum, natural gas, and ore deposits.

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MARINE MINING DEVELOPED

Dr. Hiroshi Niino, marine geologist of Tokyo University, in a recent statement, said that Japan has dredged about 7 million tons of iron ore from the ocean floor of Tokyo Bay from a depth of 90 feet. Dr. Niino said that the ore is very high grade and is one of the major deposits of iron ore in Japan. It is also reported that the Soviet Union is actively engaged in the investigation of marine mining and to have a fleet of 6000-ton research vessels at work in the Arctic, Atlantic, and Pacific Oceans. (From "News Letter", Nevada Mining Association, January 15, 1962.)

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NOTED PALEOBOTANIST DIES

Dr. Roland W. Brown, eminent paleobotanist formerly with the U. S. Geological Survey, died in Pennsylvania December 21, about three years after his retirement. Dr. Brown, known affectionately as "Brownie", spent some of his last field summers in Oregon in connection with the state geologic map project. His identification and dating of fossil plants in the Western Cascades and in various parts of central and eastern Oregon aided materially in the mapping of continental sediments.

As attested by the long list of his works, published in Professional Papers by the Survey and in scientific journals, his studies were varied and spread widely over the western United States. Among his papers are numerous additions to and revisions of Oregon paleobotanical material from such localities as Bridge Creek, Sucker Creek, and Mascall Ranch.

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AVAILABLE PUBLICATIONS

(Please include remittance with order. Postage free. A complete list of publications will be mailed upon request.)

BULLETINS

2. Progress report on Coos Bay coal field, 1938: F. W. Libbey 0.15
8. Feasibility of steel plant in lower Columbia River area, rev., 1940: R.M.Miller 0.40
14. Oregon metal mines handbooks: by the staff . . . . . .
    C. Vol. II, Section 1, Josephine County, 1952 (2d ed.) 1.25
    D. Northwestern Oregon, 1951 . . . . . 1.25
26. Soil: Its origin, destruction, preservation, 1944: W. H. Twenhofel 0.45
27. Geology and coal resources of Coos Bay quadrangle, 1944: Allen & Baldwin . 1.00
33. Bibliography (first supplement) of geology and mineral resources of Oregon, . 1947: J. E. Allen 1.00
34. Mines and prospects of Mt. Reuben mining district, Josephine County, Oregon, 1947: E. A. Youngberg 0.50
36. (1st vol.) Five papers on Western Oregon Tertiary foraminifera, 1947: . . . Cushman, Stewart, and Stewart 1.00
    (2nd vol.) Two papers on Western Oregon and Washington Tertiary foraminifera, 1949: Cushman, Stewart, and Stewart; and one paper on on mollusca and microfauna, Wildcat coast section, Humboldt County, Calif., 1949: . . . Stewart and Stewart 1.25
37. Geology of the Albany quadrangle, Oregon, 1953: Ira S. Allison 0.75
40. Preliminary description, geology of the Kerby quadrangle, Oregon, 1949: . . Wells, Hotz, and Cater 0.85
41. Ground-water studies, Umatilla and Morrow counties, 1949: Norman S. Wagner 1.25
44. Bibliography (2nd supplement) of geology and mineral resources of Oregon, . . 1953: M. L. Steere. 1.00
45. Ninth biennial report of the Department, 1952-54 . . . . . Free
46. Ferruginous bauxite deposits, Salem Hills, Marion County, Oregon, 1956: . . R. E. Corcoran and F. W. Libbey 1.25
47. Tenth biennial report of the Department, 1954-56 . . . . . Free
49. Lode mines, central Granite Mining District, Grant County, Oregon, 1959: . Geo. S. Koch, Jr. 1.00
50. Field guidebook - geologic trips along Oregon highways, 1959: Prepared . . under direction of W. D. Wilkinson 1.50
51. Twelfth biennial report of the Department, 1958-60 . . . . . Free
52. Chromite in Southwestern Oregon, 1961: Len Ramp . . . . . In press

SHORT PAPERS

2. Industrial aluminum, a brief survey, 1940: Leslie L. Motz 0.10
4. Flotation of Oregon limestone, 1940: J. B. Clemmer & B. H. Clemmons . . 0.10
7. Geologic history of the Portland area, 1942: Ray C. Treasher 0.25
12. Prelim. report, high-alumina iron ores, Washington County, Oregon, 1944: . Libbey, Lowry, and Mason 0.15
13. Antimony in Oregon, 1944: Norman S. Wagner 0.25
14. Notes on building-block materials of eastern Oregon, 1946: Norman S. Wagner 0.15
17. Sodium salts of Lake County, Oregon, 1947: Ira S. Allison and Ralph S. Mason 0.15
18. Radioactive minerals the prospectors should know (2d rev.), 1955: . . . . . White and Schafer 0.30
19. Brick and tile industry in Oregon, 1949: J. E. Allen and R. S. Mason . . . 0.20
20. Glazes from Oregon volcanic glass, 1950: Charles W. F. Jacobs 0.20
21. Lightweight aggregate industry in Oregon, 1951: Ralph S. Mason 0.25
22. Prelim. report on tungsten in Oregon, 1951: H. D. Wolfe & D. J. White . . 0.35

(Continued on back cover)

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Available Publications, continued:

GEOLOGIC MAPS

Prelim. geologic map of Sumpter quadrangle, 1941, J. T. Pardee and others	0.40
Geologic map of the Portland area, 1942: Ray C. Treasher	0.25
Geologic map of the St. Helens quadrangle, 1945: Wilkinson, Lowry, & Baldwin	0.35
Geologic map of the Dallas quadrangle, Oregon, 1947: E. M. Baldwin	0.25
Geologic map of the Valsetz quadrangle, Oregon, 1947: E. M. Baldwin	0.25
Geologic map of Kerby quadrangle, Oregon, 1948: Wells, Hotz, and Cater	0.80
Geologic map of Albany quadrangle, Oregon, 1953: Ira S. Allison (also in Bull. 37)	0.50
Geologic map of Galice quadrangle, Oregon, 1953: F.G. Wells and G.W. Walker	1.00
Geologic map of Lebanon quadrangle, Oregon, 1956: Allison and Felts	0.75
Geologic map of Bend quadrangle, and reconnaissance geologic map of central portion, High Cascade Mountains, Oregon, 1957: Howel Williams	1.00
Geologic map of Oregon west of 121st meridian (over the counter) folded in envelope, $2.15; rolled in map tube $2.50	2.00

MISCELLANEOUS PAPERS

2. Key to Oregon mineral deposits map, 1951: Ralph S. Mason	0.15
3. Facts about fossils (reprints), 1953	0.35
4. Rules and regulations for conservation of oil and natural gas (rev. ed.), 1955	0.50
5. Oregon's gold placers (reprints), 1954	0.25
6. Oil and gas exploration in Oregon, 1954: R. E. Stewart	1.00
6. (Supplement) Oil and gas exploration in Oregon, 1960: V. C. Newton, Jr.	0.35
7. Bibliography of theses on Oregon geology, 1959: H. G. Schlicker	0.50
8. Well records of oil and gas exploration in Oregon, 1960: V. C. Newton, Jr.	0.25

MISCELLANEOUS PUBLICATIONS

Oregon mineral deposits map (22 x 34 inches) rev., 1958	0.30
Oregon quicksilver localities map (22 x 34 inches) 1946	0.30
Oregon base map (22 x 34 inches)	0.25
Landforms of Oregon: a physiographic sketch (17 x 22 inches) 1941	0.25
Index to topographic mapping in Oregon, 1958	Free
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Geologic time chart for Oregon, 1961	Free