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COVER PHOTO

Oregon Portland Cement's new cement plant under construction near Durkee, Baker County (see page 58). Plant is scheduled for completion by this fall. Photo looks northward across Durkee Valley. Interstate 80-N lies to the east of the plant. (Photo courtesy Braun Studio, Ontario)

To our readers:

The Oregon Department of Geology and Mineral Industries issues publications to disseminate geologic information to interested persons and agencies at reasonable cost. The agency also serves as clearinghouse for geologic data in the State and performs geologic survey functions.

Making publications available reduces considerably the professional staff time devoted to public services, allows for effective distribution of information, and assures access to geologic information for specialists and others who need it.

Primary distinguishing features of the various publication series prepared by the Department are:

1. Map - Diffuse audience, map is the basic element, long-term demand (funding may necessitate open-file release for remote areas).
2. Bulletin - Diffuse audience, complex maps, broad range of topics or a general topic, long-term demand, major effort.
3. Special Paper - Moderately diffuse audience, emphasis on text rather than maps, somewhat specialized information.
4. Miscellaneous Publication - Diffuse audience, long-term demand, topical subject, small size or short length.

The Special Paper series, inaugurated in 1978, comprises papers of the type earlier published as Miscellaneous Papers or Short Papers.

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CONTENTS

Oregon's mineral industry	
in 1978 - - - - -	55
Petroleum source rock tests on	
two central Oregon wells - -	63
Department announces new geo-	
thermal publication - - - - -	64
Current Department activities -	65
OMSI summer program announced -	66
Water Law Short Course set - -	66
AMS to give scholarship - - - -	66
Meeting announcements - - - - -	66

Oregon's mineral industry in 1978

by H.C. Brooks, Resident Geologist, Baker Field Office; J.J. Gray, Economic Geologist; Len Ramp, Resident Geologist, and N.V. Peterson, District Geologist, Grants Pass Office
Oregon Department of Geology and Mineral Industries

INTRODUCTION

Preliminary estimates of the value of Oregon's mineral products in 1978 total \$122.7 million. This amounts to a 12 percent increase over the 1977 production of \$109.1 million. The construction materials, mainly sand, gravel, stone, and cement, along with one metal, nickel, continue to be the principal products. The increased production value was due mainly to record demands for construction materials, especially cement.

At least 20 mining and exploration companies were involved in exploration for base metals, gold, silver, nickel, and uranium. An exploration highlight

was the announcement of a major new uranium discovery near McDermitt in southern Malheur County.

Table 1 summarizes Oregon's mineral production values for 1977 and 1978. Not included in the total is an additional \$500 million worth of materials such as aluminum, ferroalloys, carbide, reactive metals, ferro-silicon, and ceramic ware from metallurgical plants and foundaries employing about 9,500.

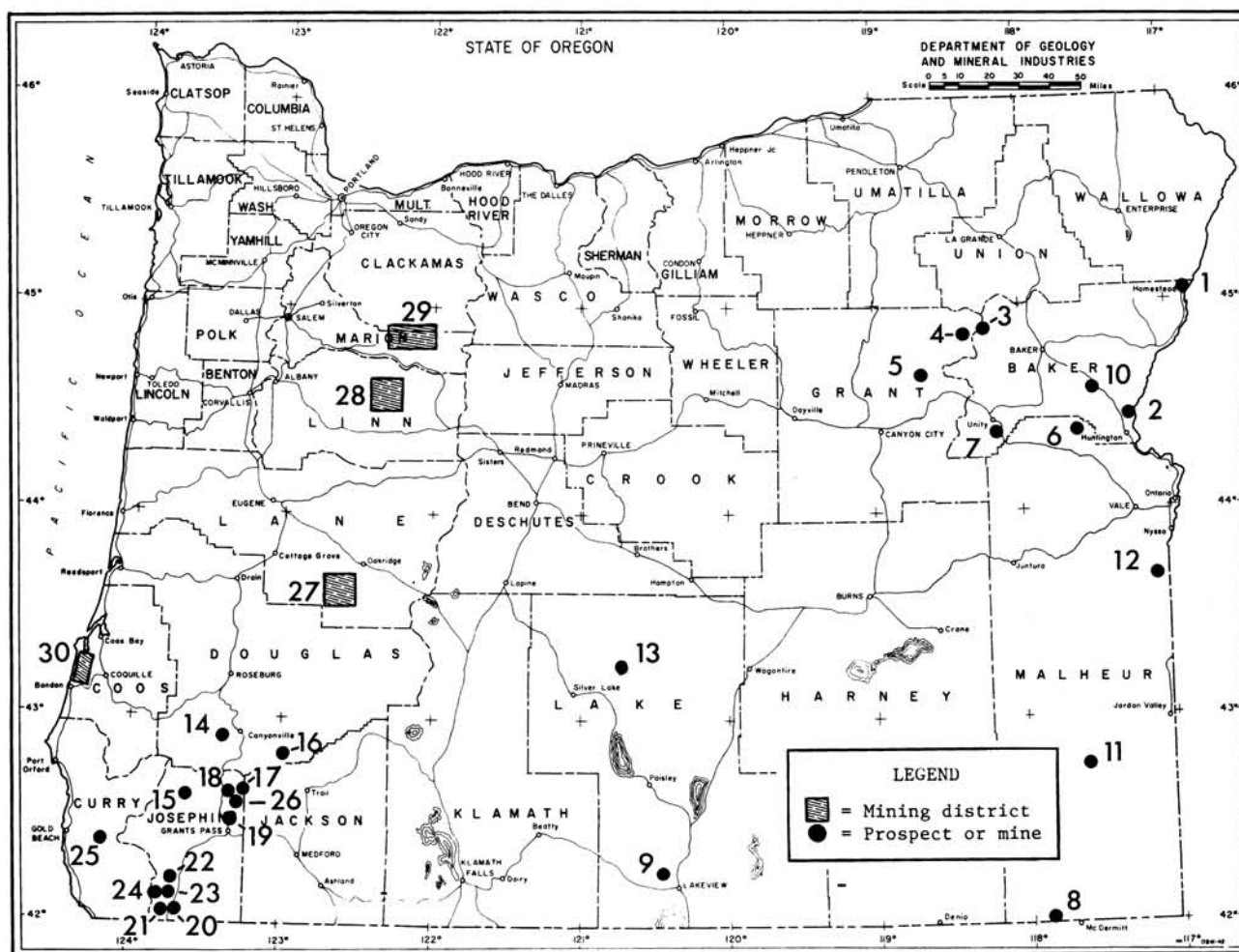
Figure 1 shows the location of places where mining and mineral exploration occurred during 1978. Point numbers in the text refer to localities shown in Figure 1.

Table 1. Oregon's mineral production values for 1977 and 1978

Mineral commodity	1977		1978*	
	Value (thousands)	Percent	Value (thousands)	Percent
Stone	\$ 39,400	36	\$ 40,100	32
Sand and gravel	33,127	30	34,000	28
Cement, copper, diatomite, gold, lime, nickel, silver, talc, and tungsten	33,323	31	45,312	37
Pumice	2,429	2	2,566	2
Gemstones	520	0.5	530	0.4
Clays	193	0.2	216	0.2
Gold	100	0.1	Combined**	--
Silver	33	--	do.	--
Copper	7	--	do.	--
Total	\$109,132	100	\$122,724	100

* Preliminary data provided by U.S. Bureau of Mines

** Combined to avoid disclosing company confidential data



- | | | |
|----------------------------|----------------------------------|---------------------------------|
| 1. Iron Dyke (Cu-Au) | 11. Rome (zeolite) | 21. Turner Albright (Cu) |
| 2. Bayhorse (Ag) | 12. Adrian (bentonite) | 22. Eight Dollar Mountain (Ni) |
| 3. Meadow Lake (Cu) | 13. Christmas Valley (diatomite) | 23. Woodcock Mountain (Ni) |
| 4. Cougar-New York (Au-Ag) | 14. Silver Peak (Cu-Zn-Ag) | 24. Rough and Ready (Ni) |
| 5. Dixie Meadow (Au-Ag) | 15. Almeda (Ag-Cu) | 25. Red Flat (Ni) |
| 6. Basin Cr. placers (Au) | 16. Banfield-Rowley (Cu) | 26. Greenback (Au-Ag) |
| 7. Unity (Cu) | 17. Gold Note (Cu-Au-Ag-Zn) | 27. Bohemia District |
| 8. McDermitt (U) | 18. Copper Queen (Cu-Au-Ag-Zn) | 28. Quartzville District |
| 9. Lakeview (U) | 19. Oak (Cu-Au-Ag-Zn) | 29. North Santiam District |
| 10. Durkee (cement) | 20. Queen of Bronze (Cu-Au) | 30. Coastal black sand deposits |

Figure 1. Mineral exploration and development in Oregon in 1978. Point numbers in text refer to numbers of locations shown on this map.

INDUSTRIAL MINERALS

Sand and gravel and stone accounted for 66 percent of the value of Oregon's mineral products in 1977 and an estimated 60 percent in 1978.

The ability of sand and gravel and stone operators to maintain reserves and production capabilities that are adequate for present and future needs continues to be an important problem in

some of the more populated areas of the State. Many operators face increasing pressure from State and local government agencies, environmental groups, and neighboring homeowners who are concerned about air and noise pollution connected with pit and quarry operations.

In some counties, no new pits or quarries have been allowed to open for several years. The Department continued its program of inventorying sand and



Figure 2. Oblique aerial view of city of Corvallis and two sand and gravel sites; site 1 in Linn County and site 2 in Benton County. Site 2 was isolated from the rest of Benton County when Willamette River changed channels. This photograph shows the need and opportunity for good land use planning and the relationships between urban needs, urban growth, and demand for rock material. (Photo from Short Paper 27, Rock Material Resources of Benton County, Oregon)

gravel resources to provide a data base for local and State land use planning. A report, *Rock Material Resources of Benton County, Oregon*, was published by the Department in 1978 as Short Paper 27 (Figure 2).

The Department also initiated a program to provide data regarding future demands for sand and gravel and stone for the State as a whole and also for selected areas. Most of the work will be done under contract by Economic Consultants Oregon, Ltd., of Eugene.

A court case involving the Oregon State Land Board and Corvallis Sand and Gravel Co. concerning ownership of a river bed after the river changed course during a flood was concluded after 20 years of litigation. The decision was in favor of Corvallis Sand and Gravel Co., now out of business. The firm's assets have been taken over by Wildish Sand and Gravel Co.

Amendments to the Federal Mine Safety and Health Act became effective in March 1978. The amendments strengthened safety rules for all surface and underground mine operations except coal mines.

Cement production expanded substantially, reflecting an increase in many types of construction in the Pacific Northwest. Oregon Portland Cement Co., with plants at Lime and Lake Oswego, is the only cement producer in Oregon. This company is continuing construction of its new cement plant near Durkee in Baker County (point 10 in Figure 1), scheduled for completion in fall 1979. Capacity of the plant will be about 500,000 tons per year, 2.5 times as great as that of the old plant at Lime, to be phased out as soon as demands for cement can be absorbed by the new plant.

Bentonite clay is being dried and bagged at a small plant near Adrian (point 12). The clay is from quarries near the head of Sucker Creek. Glen Teague is the operator.

Diatomite production in Christmas Valley (point 13) was expanded. In 1978, the capacity of the drying and bagging plant was enlarged, and a calcining kiln was installed. The calcined product is used as a filler for fertilizers and a carrier for insecticides; the uncalcined material is sold mainly for cat litter.

Figure 3. Loading soapstone blocks from deposit on Elliot Creek Ridge, southern Jackson County.



Soapstone mining in southern Oregon was the subject of an article in the September 1978 ORE BIN (Figure 3). John Pugh of southern Oregon continued to mine and market block soapstone for carving.

The extensive zeolitized tuff beds near Rome (point 11) continue to be of interest. Although there has been no commercial production, land positions are being maintained.

METALS

Oregon continued to be the only state producing primary nickel. Nickel production from the Hanna Mining Co.'s mine at Riddle (Figure 4) decreased from 14,347 tons in 1977 to 13,535 tons in 1978. Because of the high inventories of ferronickel, the smelter was closed for about 6 weeks in January and February 1978. The mine continued in operation, with the ore being stockpiled. Federal funds were available to the laid-off workers under the Trade Act of 1974 because competition from foreign imports caused the inventory buildup that forced the closure.

Oregon's production of base and precious metals has been very small for many years. In the past, however, the State has produced significant quantities of gold, silver, and copper, mostly from underground mining of narrow veins and shear zones. Some areas of the State are geologically favorable for the occurrence of large tonnage deposits of these metals, and a considerable amount of exploration work has taken place in the past few years.

EXPLORATION AND DEVELOPMENT

The 1978 exploration highlight was the announcement by Placer Development Co. of a major uranium discovery in the McDermitt area (point 8) in southern Malheur County. Thirteen million metric tons of ore containing 0.05 to 0.06 percent of U_3O_8 was indicated in December, and drilling was continuing. During the year, a claim-staking boom reminiscent of the 1950's in Utah and Colorado occurred. The area of interest extends west and southwest from McDermitt, encompassing much of the McDermitt Caldera, a huge Miocene acidic volcanic center. Many large and small mining



Figure 4. Nickel Mountain, site of only active nickel mine in United States, located near town of Riddle, Douglas County. Smelter located in background and mine employ about 580 people and annually produce ferronickel worth approximately \$50 million.

companies established land positions in the area, and much exploration drilling was done during the year.

The White King and Lucky Lass Mines (point 9), northwest of Lakeview, are the only properties in Oregon that have produced any significant amount of uranium. They were operated mainly in the late 1950's. Production totaled about 200 tons of U_3O_8 from 120,000 tons of ore. Western Nuclear has owned the properties since the mid-1960's. Annual assessment work has usually included exploration drilling. The uranium mineralization is associated with Pliocene acidic volcanic and shallow-intrusive rocks. Opalization and clay alteration are prominent in the ore-bodies and suggest a rather low-temperature hydrothermal origin for the deposits.

A significant note is a 1977 State law forbidding radioactive waste storage in Oregon. An attorney general's opinion early in 1978 transferred regulatory authority for these materials to the Energy Facilities Siting Council. Late

in the year, after two hearings, a State hearings officer recommended that waste containing more than five picocuries of radium-226 be prohibited from being stored in Oregon. This ruling could affect discovery adversely, along with the 120,000 tons of mill tailings near Lakeview from the White King and Lucky Lass Mines.

Ongoing exploration projects in eastern Oregon include the work by Birch Creek Resources, Inc., at the Iron Dyke copper mine; Ibex Minerals at the Bay-horse silver mine; Johns-Manville at their Meadow Lake copper property; W.A. Bowes and Assoc. at the Cougar and New York gold mines; and Dixie Meadow Gold Mines, Ltd., at the Dixie Meadows Mine. All of these projects have been underway for several years.

The Iron Dyke Mine (point 1) is near Homestead on the Oregon bank of the Snake River. Recorded production is about 7,000 tons of copper, 35,000 oz of gold, and 256,000 oz of silver. The main period of operation was between 1916 and 1928. The deposit is in arc-

related Permian volcanic and volcani-clastic rocks. Birch Creek Resources, Inc., leased the property several years ago and has done extensive exploration work including diamond drilling.

Last September, the negotiation of a joint venture agreement with Silver King Mines, Inc., was announced. Silver King operates the Copper Cliff Mine near Cuprum, Idaho, 22 mi from the Iron Dyke. Under the agreement, Silver King will conduct underground exploration to determine the continuity of mineralization and to substantiate the copper-gold values indicated by diamond drilling. Two-thirds of the exploration will be borne by Birch Creek, one-third by Silver King. If sufficient ore is found, the two companies may form an operating partnership. Ore may be trucked 22 mi to Silver King's 800-tons-per-day flotation plant at the Copper Cliff Mine.

The Bayhorse Mine (point 2) is a few hundred feet above the level of Brownlee Reservoir on the Snake River, about 7 mi north of Huntington. The mine, last operated in the late 1920's, has produced about 286,000 oz of silver. In 1975, Ibex Minerals, Inc., began an exploration program which included rehabilitation of the old workings, diamond drilling, and a limited amount of underground exploration. In August 1978, Ibex was joined by Centennial Exploration Co. in an agreement to continue the exploration program and to form an operating partnership if an adequate tonnage of ore is found.

At their Meadow Lake copper prospect (point 3) on Elkhorn Ridge (Figure 5) west of Baker, Johns-Manville did a small amount of diamond drilling as part of the 1978 assessment work. Johns-Manville began exploration in this area in 1971. More than 200 claims are involved. The host rock is granodiorite of the Jurassic Bald Mountain batholith. The prospect area is in the heart of the Twin Mountain RARE II area.

The Cougar and New York Mines (point 4) are in the Granite gold mining district in Grant County. Both mines produced small amounts of gold prior to 1942. They were developed in gold-quartz veins in argillite and chert of the Permian Elkhorn Ridge Argillite near the southwest margin of the Jurassic

Bald Mountain batholith. W.A. Bowes and Assoc. began work to reopen the mines in 1974. Equipment for heap-leach cyanidation, including a 280-by-90-ft asphalt pad and tailing storage pond, has been installed. Work at the Cougar Mine in 1978 involved running a decline to intercept the Cougar vein beneath the old workings.

Exploration and development work at the old Dixie Meadows Mine (point 5) in the Quartzburg District, north of Prairie City, has been underway for about 5 years. Late in 1978, the property was sold to Canadian Natural Resources, Ltd., of Vancouver, B.C. Mineralization is associated with a shear zone that averages about 60 ft in width and dips 65 degrees. The country rock is a complex of greenstone, diorite, serpentinite, and argillite. The mineralized material is fault-brecciated country rock that locally has been partly replaced by quartz, sericite, and sulfide minerals, including pyrite, arsenopyrite, chalcopyrite, pyrrhotite, galena, marcasite, and sphalerite.

In the Basin Creek area (point 6), placer mining for gold continued. Operations have been sporadic. Small washing plants are utilized to treat terrace gravels about 150 ft above the present level of Basin Creek. The creek bed was worked extensively in the late 1800's. Water is scarce for mining the terrace deposits.

Point 7 indicates the location of a large group of mining claims filed by Johns-Manville Co. in the Camp Creek drainage southeast of Unity. More than 300 claims have been located. Johns-Manville's interest in the area followed a stream-sediment geochemical sampling program sponsored by the Oregon Department of Geology and Mineral Industries which disclosed zinc and copper anomalies in the area. According to existing geologic maps, the area includes Jurassic marine sedimentary rocks and small granitic intrusives. A regional geologic mapping program has been initiated by the Department.

In southwestern Oregon, firms involved in exploring for volcanogenic sulfide deposits containing copper, gold, silver, and zinc include American Selco, Asarco, Canadian Superior, Chevron, Cominco, Conoco, Gulf Minerals, Newmont, and Noranda.

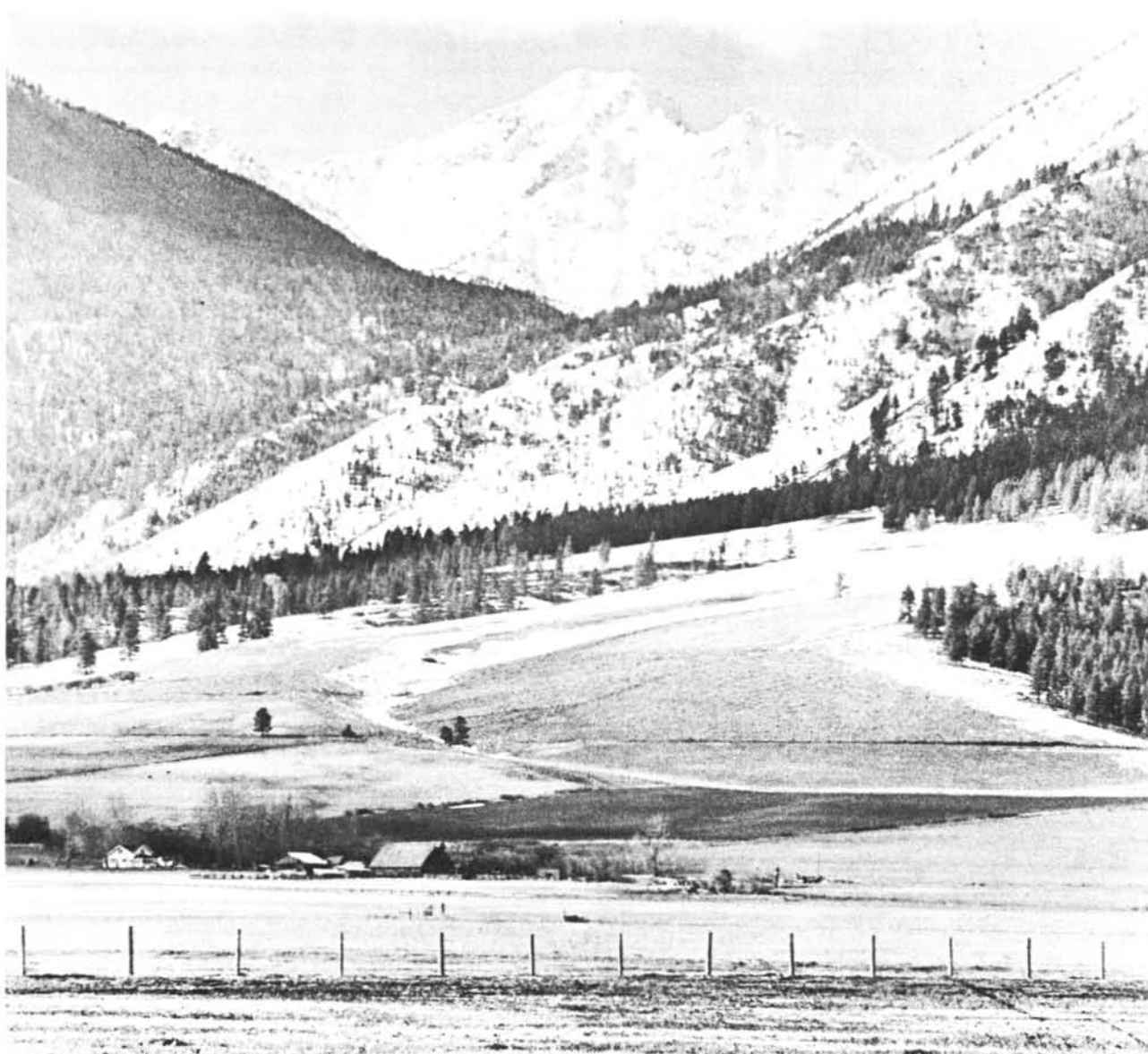


Figure 5. View of Elkhorn Ridge, looking west from a point 15 mi northwest of Baker, Baker County. Johns-Manville has been conducting exploration in this area since 1971. (Photo courtesy Baker Democrat Herald)

The principal area of interest has been the Big Yank mineralized zone that extends from the Silver Peak Mine (point 14) in southern Douglas County to the Almeda Mine (point 15) in northern Josephine County, a distance of about 20 mi. The deposits consist of disseminated and massive sulfides, mainly pyrite, chalcopyrite, and sphalerite in Jurassic metavolcanic rocks. Total production of the several mines and prospects in this zone has been about \$350,000 in copper, gold, and silver, all prior to 1930. The country rocks have been silicified and in places replaced by massive barite. Chevron continues active exploration at the Silver

Peak Mine and surrounding area, and Newmont is conducting preliminary geophysical surveys south of the Almeda Mine near Galice.

Other volcanogenic sulfide deposits that received attention include the Banfield and Rowley Mines in southeastern Douglas County and scattered deposits in Josephine County, including the Oak, Copper Queen, Gold Note, Turner-Albright, and Queen of Bronze Mines. The Rowley and Banfield Mines (point 16) are about 7 mi south of Tiller. The deposits are in a body of schist and gneissic amphibolite. Jurassic quartz diorite and small Tertiary andesite intrusives are

exposed nearby. The ore minerals are disseminated chalcopyrite, sphalerite, and pyrite accompanied by hydrothermal alteration of the host rocks. The mineralized zones range from 10 to 150 ft wide and are several hundred feet long.

At the Queen of Bronze Mine (point 20), lenticular bodies of massive sulfides as large as 10,000 tons have been mined. Ore minerals include pyrite and chalcopyrite, with smaller amounts of pyrrhotite and sphalerite. Ore shipped prior to 1930 averaged 8.3 percent copper, 0.13 oz gold, and 0.16 oz silver per ton. Total production of the mine is estimated at about \$1.35 million from 35,000 tons of ore. The deposits are in greenstone of the Triassic Applegate Group. During 1977, Canadian Superior rehabilitated and sampled the underground workings. This work is being evaluated.

Nickel exploration in southwestern Oregon and northern California picked up markedly, mainly due to the activity of Canadian stock companies. Detailed sampling of the laterite with a reverse circulation drill continued most of the summer on Eight Dollar Mountain (point 22) by U.S. Nickel Corp. of Vancouver, B.C.

Inspiration Development Co. continued its nickel exploration activity, mainly in the Rough and Ready Creek area (point 24) of southern Josephine County, conducting seismic exploration, back-hoe sampling, and some ore-dressing tests. Coastal Mining Co. (Hanna Mining) has kept its nickel laterite claims in northern California and southern Oregon, including Woodcock Mountain (point 23) in Josephine County and Red Flat (point 25) in Curry County.

Investigations of Nickel in Oregon (Miscellaneous Paper 20), a detailed report on nickel investigations in Oregon, was published by the Oregon Department of Geology and Mineral Industries. The U.S. Bureau of Mines conducted field investigations of nickel, chromium, and cobalt-bearing laterite resources in Josephine County in support of related metallurgical work being conducted at their research center in Albany. During the summer of 1978, the Bureau of Mines also conducted a drilling project along the Oregon coast to evaluate the chromite

content of the black sand deposits (point 30).

There are still a number of small-scale itinerant gold placer operations producing small quantities of gold nuggets for sale both to individual investors and for jewelry. Operations are mainly in Josephine and Jackson Counties, along the Rogue, Applegate, and Illinois Rivers and their tributaries. Some activity has also been reported in the upper Chetco and south fork of the Sixes River in Curry County. No one operation has been steady, but production from all may be in the range of 200 oz annually.

Small-scale mining and milling has been carried on by Wesley Pieren, owner, at the old Greenback Mine (point 26), historically the largest producer of gold in southwestern Oregon.

The U.S. Geological Survey and U.S. Bureau of Mines both had crews of geologists mapping and evaluating mineral resources in the expanded Kalmiopsis Wilderness Area. The U.S. Geological Survey is continuing geologic mapping and mineral resource evaluation of the Medford 1° by 2° Quadrangle. The Oregon Department of Geology and Mineral Industries is preparing a geologic map and mineral resource inventory of Josephine County to be published in 1979.

In northwestern Oregon, exploration for copper-lead-zinc and copper-molybdenum deposits continues in the Bohemia, Quartzville, and North Santiam Mining Districts. In the North Santiam District (point 29), Amoco did some geological, geochemical, and geophysical work and some test drilling on a block of 200 claims. Cominco American did geological and geophysical work on a block of claims in the Quartzville District (point 28). Some properties changed hands in the Bohemia District (point 27). ✕

Next month

Plate tectonics and the geologic history of the Blue Mountains
by Howard C. Brooks, Oregon
Department of Geology and
Mineral Industries

Petroleum source rock tests on two central Oregon wells

by Vernon C. Newton, Jr., Petroleum Engineer, Oregon Department of Geology and Mineral Industries

When the Department loans well samples to exploration companies for special studies, it requires that test results be submitted to the Department if testing causes a loss of some of the sample. The following results of source rock tests for two central Oregon wells were obtained in this fashion. The name of the company supplying test results is withheld for proprietary reasons. The laboratory tests reported here were made on core samples from the Standard-Sunray Mid-Continent Bear Creek #1, SE $\frac{1}{4}$ sec. 30, T. 17 S., R. 15 E., Crook County; and Standard Kirkpatrick #1, SW $\frac{1}{4}$ sec. 6, T. 4 S., R. 21 E., Gilliam County (see table).

The maturation of organic debris deposited in sediments can be measured by a number of characteristics. Alteration of organic material is dependent on three main factors: depth of burial, paleotemperature, and the time duration of the

burial. Source rock studies can qualify petroleum potential of sedimentary rock units by identifying certain organic indices. Two main types of organic material buried with sediments are those originating from marine micro-organisms with some mixing of land plants and those derived from continental higher order plants. Figure 1 shows that oil is most likely to be generated in organically rich sedimentary deposits if paleotemperature is in the 60° to 130°C. range, petroleum gas (wet gas) in the range of 130° to 165°C., and dry gas (methane) from 165° to 200°C. The average corresponding burial depths for the three temperature ranges is 1.8 to 4.0 km, 4 to 4.8 km, and 4.8 to 6.5 km for dry-gas generation.

Judging by the vitrinite reflectance factor (R_o) on Figure 1, all except one of the samples tested have good potential for producing oil. Core 6304-6309 from the Bear Creek well suggests that rock

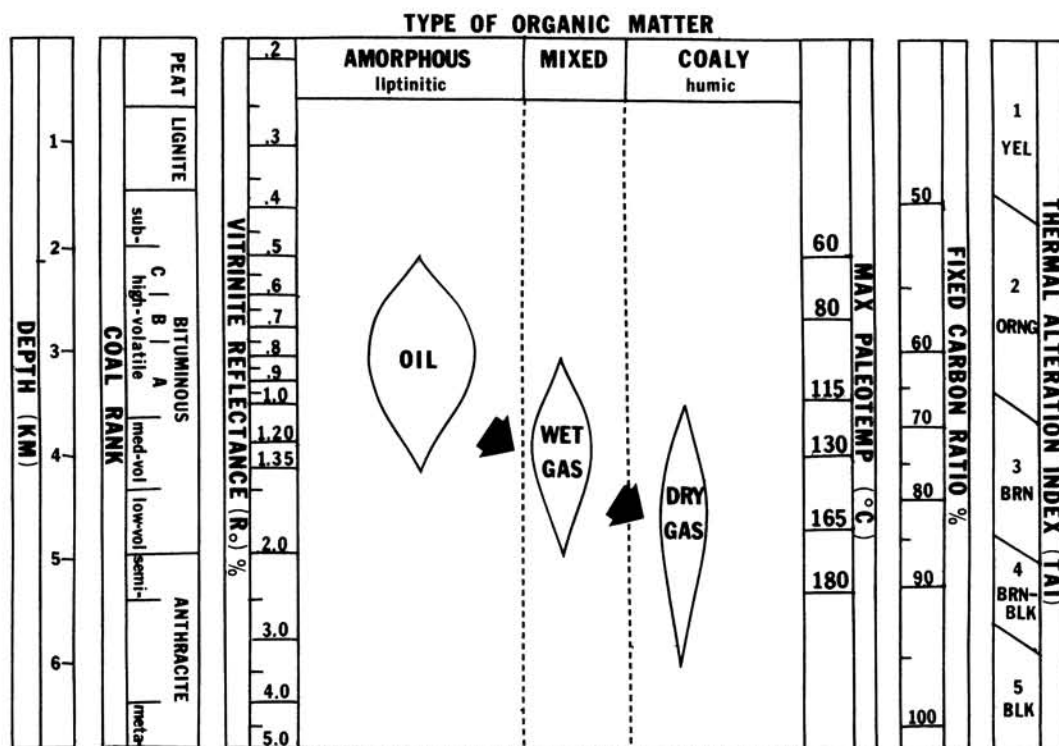


Figure 1. Correlation of organic maturation indices. (After Dow, 1978; Kantsler and Smith, 1978; and Vassoyevich, 1970)

Petroleum source rock data											
Well	Sample interval (ft)	Organic carbon content (wt %)	H/C ¹	Kerogen description				TAI ⁵	R _o ⁶ (range)	R _o (mean)	N ⁷
				% Alginite ²	% Exinite ³	% Vitrinite ⁴	% Other				
Bear Creek #1	3,489-3,496	0.81-0.76	0.51	0	0	20	80	ND ⁸	0.62-0.78	0.72	5
Bear Creek #1	4,413-4,475	0.90	0.62	0	0	20	80	ND ⁸	0.67-0.84	0.75	40
Bear Creek #1	5,311-5,320	0.68	0.54	0	0	5	95	ND ⁸	0.95-1.20	1.12	30
Bear Creek #1	5,826-5,841	0.85	0.53	0	0	10	90	ND ⁸	1.16-1.42	1.30	40
Bear Creek #1	6,304-6,309	1.18	0.55	0	0	30	70	ND ⁸	1.30-1.54	1.43	40
Kirkpatrick #1	8,385-8,393	0.80	ND ⁸	0	0	20	80	2.7	0.90-1.13	1.04	40

¹Atomic hydrogen to carbon ratio.

²Algal debris + amorphous sapropels.

³Plant cuticle + spore and pollen exines + resins.

⁴Woody tissue altered in a wet anoxic environment.

⁵Thermal Alteration Index.

⁶Vitrinite reflectance.

⁷Number of points used to obtain R_o mean.

⁸No data (recovery too low, no spores or pollen, bad sample quality, etc.).

strata at this level and below would probably produce wet gas. This means that rocks below a depth of 1.83 km in the Bear Creek area either were buried 2 km deeper in the past or were subjected to a much higher paleotemperature at a shallower depth over a long time span. Results of tests on the remaining samples indicate burial depth was greater by 1.4 to 2.0 km in the past or the rocks were subjected to higher than normal paleotemperatures. If paleotemperatures were near normal in the area, the region has been uplifted approximately 2 km since deposition of the oldest rocks.

In general, paleoenvironments and geologic history can best be reconstructed from stratigraphic, paleontologic, and structural information. Source rock

indices are then used as supplementary data.

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Department announces new geothermal publication

Newest publication of the Oregon Department of Geology and Mineral Industries is "Low- to Intermediate-Temperature Thermal Springs and Wells in Oregon" (GMS-10). This map, part of the Department's Geological Map Series, is an update of Miscellaneous Paper 14, published in 1970.

Compiled by R.G. Bowen, N.V. Peterson, and J.F. Riccio, the map is on a scale of 1:1,000,000 (1 in. = 16 mi). A table with such information as locations,

water temperatures, and references is printed on the back of the map.

Recreationists and tourists, as well as geologists, engineers, geothermal developers, and government agencies, will find the information interesting and useful.

GMS-10 is available at the Department's Portland, Baker, and Grants Pass offices (see inside front cover for addresses). GMS-10 costs \$2.50 per copy. Payment must accompany orders of less than \$20.00. ✕

Current Department activities

The Department of Geology and Mineral Industries has several current projects involving mineral resource appraisal and hazards studies as part of its ongoing survey of Oregon's geology and mineral resources. These projects will be described individually in detail in subsequent issues of OREGON GEOLOGY.

JOSEPHINE COUNTY MINERALS INVENTORY

Len Ramp and Norman V. Peterson of the Department's Grants Pass field office are working on an updated inventory of metallic and nonmetallic minerals in Josephine County in southwestern Oregon. A new geologic map of the County is being prepared. This project is jointly sponsored by the Department and Josephine County.

BLUE MOUNTAINS MAPPING

In the Blue Mountains in eastern Oregon, Howard C. Brooks of the Baker field office has begun detailed mapping of an area in southwestern Baker County which contains numerous old mines and promising prospects and which is undergoing increasing study by industry.

ECONOMIC DEMAND MODEL

Jerry J. Gray of the Albany office is working jointly with Economic Consultants Oregon, Ltd., to prepare a long-term economic demand model of sand, gravel, and crushed stone consumption in the State and several important sub-State marketing areas. This study represents a first attempt to appraise adequately Oregon's future needs for these basic construction materials on a statewide basis. The demand model is part of a larger project involving the Department of Land Conservation and Development and the Division of State Lands. Funding is being provided by the Pacific Northwest Regional Commission and the U.S. Army Corps of Engineers.

MT. HOOD GEOTHERMAL ASSESSMENT

The Department, in cooperation with the U.S. Department of Energy, U.S. Geological Survey, and U.S. Forest Service, has just completed the second field season of a detailed study of Mt. Hood Volcano, with the goal of identifying geothermal resources. The Department's work, headed by Joseph F. Riccio, includes drilling, geochemical, geophysical, and geologic studies.

STATEWIDE LOW-TEMPERATURE GEOTHERMAL INVENTORY

The low-temperature geothermal energy potential of eight areas in the State is being investigated. The study is receiving funding from the U.S. Department of Energy. Many of these areas are in eastern Oregon. They will be evaluated in more detail during the next two to three years.

COOS BASIN OIL AND GAS

A joint project, funded by the Department of Land Conservation and Development, Coos County, and private firms, under the management of Vernon C. Newton, petroleum engineer in the Portland office, is aimed at assessing petroleum and natural gas potential in the coastal portions of Coos and Douglas Counties. One purpose is to provide data to guide policy formulators at the State and local levels.

WASTE DISPOSAL

James Bela of the Portland office is compiling geologic information pertaining to northeastern Oregon. The study is part of a Federally sponsored investigation of the Columbia Plateau in Washington State as a site for deep storage of radioactive waste or spent fuel.

CLACKAMAS COUNTY GEOLOGIC HAZARDS

Herbert G. Schlicker of the Portland office is engaged in an appraisal of landslides and other geologic hazards in Clackamas County, with funding provided jointly by the Department and the Department of Land Conservation and Development.

EASTERN BENTON COUNTY GEOLOGIC HAZARDS

James Bela has recently completed a study of the geology of eastern Benton County which will be published in the near future. ✕

OMSI summer program announced

This summer, the Oregon Museum of Science and Industry and the National Science Foundation will present another 8-week high school paleobotany program.

From June 17 to August 11, a team of 10 students, based at Hancock Field Station near Fossil, will participate in a controlled excavation of fossil leaves, wood, and fruits from the Eocene Clarno Formation. Laboratory work will include preparation and analysis of fossils recovered.

Tuition for the entire program, including room, board, instruction, and laboratory facilities, will be approximately \$450. Bruce Hansen, at OMSI Research Center, 4015 S.W. Canyon Rd., Portland, Oregon 97221, can supply application forms and additional information. ✕

Water Law Short Course set

The Natural Resources Law Institute and the U.S. Fish and Wildlife Service's Cooperative Instream Flow Service Group will cosponsor a Water Law Short Course in Boise, Idaho, May 1-3, 1979.

The course covers basic principles of surface waters regulation and management, with special emphasis on the protection of instream uses of water. It is designed for employees of government agencies and private industry, but anyone interested in water law may attend.

The Natural Resources Law Institute, 10015 S.W. Terwilliger Blvd., Portland, Oregon 97219; (503) 244-1181, extension 643, can provide further information. ✕

ASM to give scholarships

The Oregon chapter of the American Society for Metals has established a new \$500 scholarship to the Oregon State University engineering school.

Each spring the mechanical engineering faculty will select the winner, who will be a junior working for a degree in mechanical engineering with a minor in material sciences. The first award will be made in May. ✕

meeting announcements

Each month, space permitting, upcoming meetings will be announced in this column. Information should reach our office no later than six weeks before a meeting. Please be specific and give full name of the organization; exact subject, location, and time of the meeting; and the name, address, and phone number of person to contact for questions or reservations.

April AIME meeting planned

The Oregon Section of the American Institute of Mining, Metallurgical, and Petroleum Engineers will meet on Friday, April 20.

Chairman William D. McMillan announces that a speaker from Portland General Electric Co. will discuss the Boardman coal-fired plant.

Meeting place will be the High Hat Restaurant, 11530 S.W. Barbur Blvd., Tigard, near the Tigard exit off Interstate 5.

The schedule includes a social hour at 6 p.m., dinner at 7, and speech at 8.

For reservations, call or write to the Oregon Department of Geology and Mineral Industries, Portland Office (see inside front cover), by April 18.

GSOC re-views eclipse

Topic of the April 20 luncheon meeting of the Geological Society of the Oregon Country will be the recent solar eclipse. Gary Stasiuk, Planetarium Director for the Oregon Museum of Science and Industry, will make a slide presentation.

GSOC luncheon meetings are held at noon in Room A, adjacent to the cafeteria on the third floor of Standard Plaza, 1100 S.W. Sixth, Portland.

Viola L. Oberson, luncheon program chairperson, can give more details to anyone interested. Her telephone number is 282-3685. ✕

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OIL AND GAS INVESTIGATIONS

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