

## OREGON'S MINERAL INDUSTRY IN 1966

By Ralph S. Mason\*

Oregon's booming mineral and metallurgical industries, which posted a huge 21.2 percent increase in 1965 over the previous year, seem to be continuing in the more than \$80,000,000 bracket. Although preliminary estimates released by the U.S. Bureau of Mines indicate a slight drop during 1966, in all probability the revised figure, usually released toward the close of the year, will show an increase over the 1965 figure of \$82,967,000. Last year the revised final figures were \$14.5 million higher than the preliminary estimate.

Once again the state's mineral and metallurgical industries performed the seemingly impossible task of holding the price line on the two major mineral commodities which account for slightly more than 70 percent of the new wealth pumped into the local economy. Unit prices for sand and gravel actually dropped from \$1.51 per ton in 1965 to \$1.50 in 1966; stone held rock steady at \$1.29. Combined value of these two vital commodities necessary for community development totaled \$57,000,000 as valued in the pit.

Employment in the mining industry increased 6 percent over 1965, and primary metals saw a 7 percent gain. These figures compare with an overall state increase of 4.4 percent.

### The Metals

#### Mercury

Despite relatively high prices during the year, mining and furnacing of Oregon quicksilver declined from 1,364 flasks in 1965 to 703 in 1966. Although activity was reported at quite a few properties, only four mines had a record of production. The largest producer was the famous Black Butte mine in southern Lane County. The property was sold by American Mercury Corp. in the spring to Allegheny Mining & Explorations Co., Ltd. Both companies are based in Canada. The Bretz mine, located near the Nevada line in southern Malheur County, exhausted all available low-grade surface ore in its pits and shut off the burners in September. The Bretz has produced

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\* Mining Engineer, State of Oregon Dept. Geology & Mineral Industries.

Some of Oregon's Minerals at a Glance  
Preliminary Figures for 1966  
(in thousands of dollars)

	1965	1966
Clays	\$ 359	\$ 408
Gold	17	4
Lime	1,853	2,150
Mercury	779	298
Sand and Gravel	32,849	30,000
Stone	27,301	27,000
Misc. *	19,809	20,707
Estimated total	\$82,967	\$80,567

\* Cement, copper, diatomite, gem stones, iron ore, lead, nickel, peat, perlite, pumice, silver, zinc.

more than 16,000 flasks since it was first operated in 1931. A new retort was constructed and considerable development done at the Doodlebug mine in southern Jackson County by five local mining men. A small amount of mercury had been produced by year's end. The Elkhead mine, situated about 5 miles west of the Black Butte mine, was intermittently operated in 1966 and furnished a few tons of ore.

A few miles south of Canyon City in Grant County, the Canyon Creek mine owned by Lawrence Roba and Banday Sintay was leased late in the year to Standard Slag, which

announced a program for exploring and developing the property. Tunneling work at the mine prior to the take-over by Standard Slag was aided by a homemade mucking machine incorporating an air-driven "tugger" hoist, a scraper, and lots of angle iron.

Jackson Mountain Mining Co. completed construction of a flotation mill and retort at Glass Buttes in the northeast corner of Lake County. The plant was scheduled to be fired up early in 1967. A unique feature of the mill is an electrically heated series of retorts which have axial screw-feed augers for transferring the charge. Minor exploration was conducted at a raw prospect located on Connor Creek in eastern Baker County.

### Gold and silver

The most remarkable feature about gold mining in Oregon during 1966 was the almost complete lack of any production. A total of only 113 ounces was reported. A few small, seasonal placer mines and one or two small, hard-rock mines were active. In sharp contrast, however, was the large and growing interest by the general public in recreational gold mining. Skin diving for placer gold has been popular for a number of years and most of Oregon's streams, whether gold-bearing or not, have been prospected with underwater equipment. Many other people annually take to the hills to "do a little panning." Few of these ever recover much gold but the pleasure derived is great, particularly since no substitute for finding "color" in the pan has yet been invented.

The Buffalo mine, which has been explored and developed by Union Pacific Railroad for the past two years, became idle in September. The mine, located high in the Blue Mountains of eastern Grant County, was leased to A. W. Brandenthaler of Baker at the close of the year. The Buffalo mine has been a fairly consistent producer over the years despite the fact that it is snowbound for long periods during the winter and spring.

### Nickel

During 1966 the Hanna Mining Co. and its wholly-owned subsidiary, Hanna Nickel Smelting Co., continued to operate its nickel property at Riddle on a full-production basis. The mine, located on Nickel Mountain, is the only primary nickel-ore producer in the United States and the smelter produces ferronickel by an electric furnace process.

During the year, a new and larger crushing and screening plant was put into operation at the mine. This new installation provides additional economies for the mine operation, as well as releasing a considerable tonnage of nickel ore that had previously been tied up by the original screening plant.

### Uranium

Resurgence of interest in uranium as a source for atomic fuel for thermal powerplants resulted in renewed activity at the White King mine northwest of Lakeview in Lake County. Western Nuclear leased the property and began a diamond-drilling and underground exploration program. Pumping of the old open pit adjacent to the underground workings was partly completed when the presence of acid waters was detected in the effluent. Pumping was stopped until corrective measures could be taken. Western Nuclear also leased the Lucky Day group of claims on Thomas Creek not far from the White King property.

## Exploration Projects

More than a dozen exploration programs were conducted in Oregon during 1966. Only a few of these, however, had progressed to the point where the principals were in a position to divulge any details by year's end.

In Baker County the famous old gold camp in the Bourne area was the center of operations for Omega Mines, Ltd., of Vancouver, B.C. Omega spent the year driving tunnels under portions of the old E. and E. and North Pole mines. Further exploration of the vein, which at places is very wide, is planned by long-hole drilling. Union Pacific Railroad developed the Buffalo mine by extending the cross-cut on the 500 level until it hit the No. 3 vein, and by driving a cross-cut on the 600 level to hit the same vein.

# ACTIVE MINES IN OREGON, 1966

Mine	County	Mine	County	Mine	County	Mine	County
<u>Gold Placer</u>		<u>Gold-Silver Lode</u>		<u>Nickel</u>		<u>Lightweight Aggregates</u>	
Big Slide	Coos	Pedro Mt.	Baker	Red Flat*	Curry	Boise-Cascade	Deschutes
Hisow	Douglas	Record*	Baker	Hanna Nickel Co.	Douglas	Pumice	
Hogum Creek	Douglas	Buffalo	Grant			Central Oregon	Deschutes
Lyons Gulch	Jackson	Fleming	Jackson			Pumice	
Bobbitt	Jackson	Lucky Strike	Jackson			Permanente	Gilliam
Leopold	Josephine	Oregon Belle	Jackson	<u>Uranium</u>		Pacific Diatomite	Lake
Maloney	Josephine	Double Jack	Jackson	White King*	Lake	Cloverleaf Mines	Washington
Gold Bar	Josephine	Dark Canyon	Josephine			Empire Bldg.	
Fowler*	Josephine	Snowbird	Josephine			Materials	Washington
Johnson*	Josephine	Humdinger	Josephine				
Bummer Gulch	Josephine	Weiss*	Josephine			<u>Limestone and Lime</u>	
Ideal	Josephine	Mountain Lion	Josephine	<u>Barite</u>		Chemical Lime	Baker
Leland	Josephine	Oak Mine*	Josephine	Almeda*	Josephine	Ideal Cement	Josephine
Cloverdale*	Josephine	Turner-Albright*	Josephine			Oregon Portland	
Golden Princess	Josephine	Braden*	Josephine	<u>Building Stone</u>		Cement	Baker, Polk
Canyon Creek	Josephine			Moon Mesa	Baker	<u>Sand and Gravel,</u>	
Bear	Josephine	<u>Mercury</u>		Red Rock	Deschutes	<u>Crushed Stone</u>	
Barr Mine	Josephine	Connor Creek	Baker	Jones Marble	Jackson		
Basin Creek	Malheur	Elkhead	Douglas	Willowdale	Jefferson		
		Canyon Creek	Grant				
<u>Copper</u>		Doodlebug	Jackson				
Banfield-Rowley*	Douglas	Glass Buttes	Lake	<u>Silica</u>			
Turner-Albright*	Josephine	Black Butte	Lane	Big Quartz	Douglas		
Oak* (Cu-Zn)	Josephine	Bretz	Malheur	Bristol	Jackson		

\* Exploration and development only.

Active commercial producers in every county and in nearly every community in the state total more than 200. Numerous additional quarries are operated by state, city, county, and federal agencies, and by logging companies using aggregate for private use.

Standard Slag Co. of Reno, Nev., lease-optioned the Canyon Creek mercury mine a few miles south of Canyon City in Grant County, and after mapping the surface geology made a magnetometer survey of the property. Some 'dozing of the surface trace of the vein was done late in the year with additional work, including underground exploration and drilling, scheduled for early 1967.

The Department of Geology and Mineral Industries started a long-range exploration into the thermal-spring potential in the state. Considerable field work was done in the Klamath Falls area, where 500 residences are heated with hot water obtained from wells drilled at or close to the point of use. Several wells were thermally logged by staff members. Thermal activity is known to exist at several other places in the state, and the Department hopes to extend its studies to these and other areas in the future.

### Materials for Lunar Research

Interest in lunar research increased during 1966 and numerous samples from Oregon's "Moon Country" in central Oregon were shipped to various research centers. A shipment of 15 tons of high-porosity basalt blocks was obtained for testing special lunar drills. At the suggestion of one of the nation's leading astro-geologists, the Department investigated the possibility of obtaining combined water from some of the volcanic tuffs of the area. An inexpensive, lightweight, electrically heated furnace was constructed by two staff members, and more than 3,000 cubic centimeters of water were recovered from 59 kilograms of pre-dried tuff. Should the lunar surface prove to be of volcanic origin, the ability to recover combined water from the easily available rocks would be of paramount importance.

### Metallurgical Plants

Demand for space-age metals, particularly titanium, increased in 1966 and resulted in a plant expansion at Oregon Metallurgical Corp.'s facility at Albany. Oremet installed a titanium sponge unit with an annual capacity of 3.6 million pounds. The addition of sponge production was a further step toward complete plant integration. Wah Chang Corp. continued the manufacture of a wide range of exotic metals and powders at its north Albany site. Also in the Albany area the U.S. Bureau of Mines continued research at its Electrodevelopment Laboratory, and Northwest Industries machined reactive metals for high-temperature and corrosion-resistant applications.

Reynolds Metals Co. initiated a plant expansion at its Troutdale works. When completed, the annual capacity will be 140,000 tons of primary aluminum. Reynolds celebrated the 20th anniversary of its operation of the plant last summer. At The Dalles, Harvey Aluminum Co. produced 88,000 tons of virgin metal, slightly in excess of the previous year's record.

## Industrial Minerals

### Sand and gravel and stone

Despite the considerable cutbacks in other segments of the state's economy due to the slump in building construction during 1966, the production of sand and gravel and stone continued at almost exactly the same high level as that of the year before. Oregon produced an estimated 20,000,000 tons of sand and gravel, which is equal to a cone-shaped pile 2,000 feet in diameter and 250 feet high. Nearly all of this was carefully washed, screened, and then size-blended to suit the particular application at hand. The production of stone, all 21,000,000 tons of it, would make a second pile of almost the same dimensions.

A long-term study of the geology and mineral resources of the Willamette Valley has been undertaken by the Department in cooperation with the State Division of Planning and Development under a prime contract with the U.S. Department of Housing and Urban Development. Identification of sand and gravel and stone resources within the area is included in the survey. The Department has long recognized the importance to community growth and industrial development of local deposits of these natural resources, and the aim of the current study is to inventory these deposits and call the attention of the various area planning groups to them.

### Lightweight aggregates and pozzolan

Interest in pozzolan, the world's original cementing material, continued to grow in Oregon during the past year. Three producers, namely Empire Building Materials, Permanente Cement, and Oregon Portland Cement, were active during the year. Empire used expanded shale, Permanente beneficiated volcanic ash, and OPC ground volcanic cinders. The Permanente plant in Gilliam County was idled in mid-year and placed on a stand-by basis with its silos full. The Department cooperated with the U.S. Bureau of Mines on a sampling project of possible materials suitable for making pozzolan. The survey included clinoptilolite, volcanic tuff, pumicite, volcanic ash, tuffaceous siltstone, perlite, diatomaceous pumicite, and shale.

Production of lightweight aggregates continued at a high rate, with almost a 10-percent increase in volume over the previous year. Two producers, Cloverleaf Mines and Empire Building Materials, quarried and furnished tuffaceous shales at their plants in northern Washington County. In the Bend area, Cascade Pumice Corp. and Central Oregon Pumice Co. quarried pumice and volcanic cinders in pits near Bend and produced crushed, screened, and blended lightweight aggregate for a wide variety of markets. Uses for these natural aggregates included athletic cinder tracks, mixes for lightweight concrete blocks and monolithic concretes, domestic walks and driveways, roofing granules, horticultural applications, and landscaping.

Plans for construction in 1967 of a perlite-popping plant at Bend were announced by A. M. Matlock of Eugene. Raw material will be trucked from a deposit 5 miles south of Paisley in central Lake County. Matlock was the only diatomite producer in the state during 1966. Raw diatomite was trucked to Eugene for processing from deposits near Christmas Valley in northern Lake County.

#### Lime, limestone, and cement

Limestone, mined high in the Elkhorn Mountains of Baker County, was burned by Chemical Lime at its plant on the outskirts of Baker. In the Portland area, Ashgrove Lime & Portland Cement Co. calcined limestone imported from Texada Island, British Columbia. Both plants sold their product on the open market. Pacific Carbide & Alloys Co. burned limestone for its own use in the manufacture of calcium carbide in its north Portland plant. Several other plants, principally paper mills and a sugar mill, also burned either limestone to make quicklime or reburned calcium hydrate in their kilns.

The manufacture of cement was confined to three plants in the state. Oregon Portland Cement Co. operated its plants at Lime in Baker County and Oswego in Clackamas County. The Lime plant burned limestone and shale from nearby pits; the plant at Oswego imported barge-loads of stone from Texada Island, British Columbia, and used local shales. Ideal Cement Co. quarried limestone at its Marble Mountain quarry in Josephine County and trucked it to its kilns at Gold Hill in Jackson County. At year's end Ideal announced the closure of the plant, effective April, 1967. Oregon Portland Cement began a \$5.75 million plant expansion at its Oswego facility during the year. Completion is scheduled for mid-1967 and will include additional kiln capacity of 1.5 million barrels a year. This will give the plant an annual capacity of 3.5 million barrels.

#### Bentonite

Central Oregon Bentonite Co. quarried bentonite at its Silver Wells deposit in Crook County. The product was used in well drilling, stock feed pellets, and as a sealant for water reservoirs and irrigation canals. Anderson Mining & Development Co. custom ground bentonite at its Bend plant.

#### Peat

A large peat-humus deposit near Enterprise in Wallowa County was explored and developed during the year by Jewell's Mother Earth Co. Following a full year of investigation of possible markets, prices, rail rates, and beneficiation and packaging procedures, the company installed screening and sacking facilities in anticipation of marketing both bulk and packaged material in 1967.

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## OIL AND GAS EXPLORATION IN 1966

By V. C. Newton\*

Oil companies operated off the Oregon and Washington coasts continuously from April 1965 to October 1966, when equipment was moved to northern California to explore offshore leases in that area. During 1966, three deep holes were drilled off the Oregon and one off the Washington coast. The Standard-Union-Pan American group deepened a 5,600-foot test hole on Tract 57 to 10,010 feet. The Department issued two drilling permits, one deepening permit, and one redrilling permit. Figure 1 shows location of drillings in western Oregon. Total footage drilled onshore in 1966 was 3,090 feet, and footage on the Oregon shelf lands amounted to 29,408 feet. No favorable shows were reported in any of the Oregon tests, and interest in the continental shelf prospects appears to be waning after six years of exploration.

### Offshore

At renewal deadline in December, the oil companies quitclaimed 14 federal tracts or approximately 20 percent of the Oregon shelf leases. Expenditures to date in the Pacific Northwest offshore venture are estimated to be \$60 million. (A summary of the offshore exploration will be given in a later issue of The ORE BIN.) This total includes lease acquisition costs as well as operation expenses.

Thickness of marine rocks offshore is probably as great as indicated by seismic studies (20,000'+), but reportedly few sands were found in the holes drilled thus far. Apparently sands mapped on the adjacent coastal plain in rocks of Miocene, Oligocene, and late to middle Eocene age grade to finer material a few miles offshore. None of the offshore holes is believed to have penetrated the entire Tertiary marine section on the continental shelf. Possibly the test holes were stopped in middle Eocene rocks; lower Eocene rocks onshore in northwestern Oregon are predominantly volcanic, and upper lower Eocene rocks in the southern coastal region are composed of fine-grained sediments.

An idea of the Tertiary section off the central Oregon coast may be inferred from the Sinclair Oil & Gas Co. "Federal-Mapleton 1" drilled onshore near the coastal town of Florence in 1954. Approximate stratigraphic

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\*Petroleum Engineer, Oregon Dept. of Geology and Mineral Industries.



relationships are:

Tyee sands and shales	0 - 3,100'
Umpqua shales	3,100 - 6,000'
Conglomerate	6,000 - 6,600'
Lower Eocene volcanics	6,600 - 12,880' TD

The "Federal-Mapleton 1" was abandoned at 12,880 feet after drilling 6,280 feet of basaltic flows below the Umpqua sediments; thickness of the volcanics remains unknown.

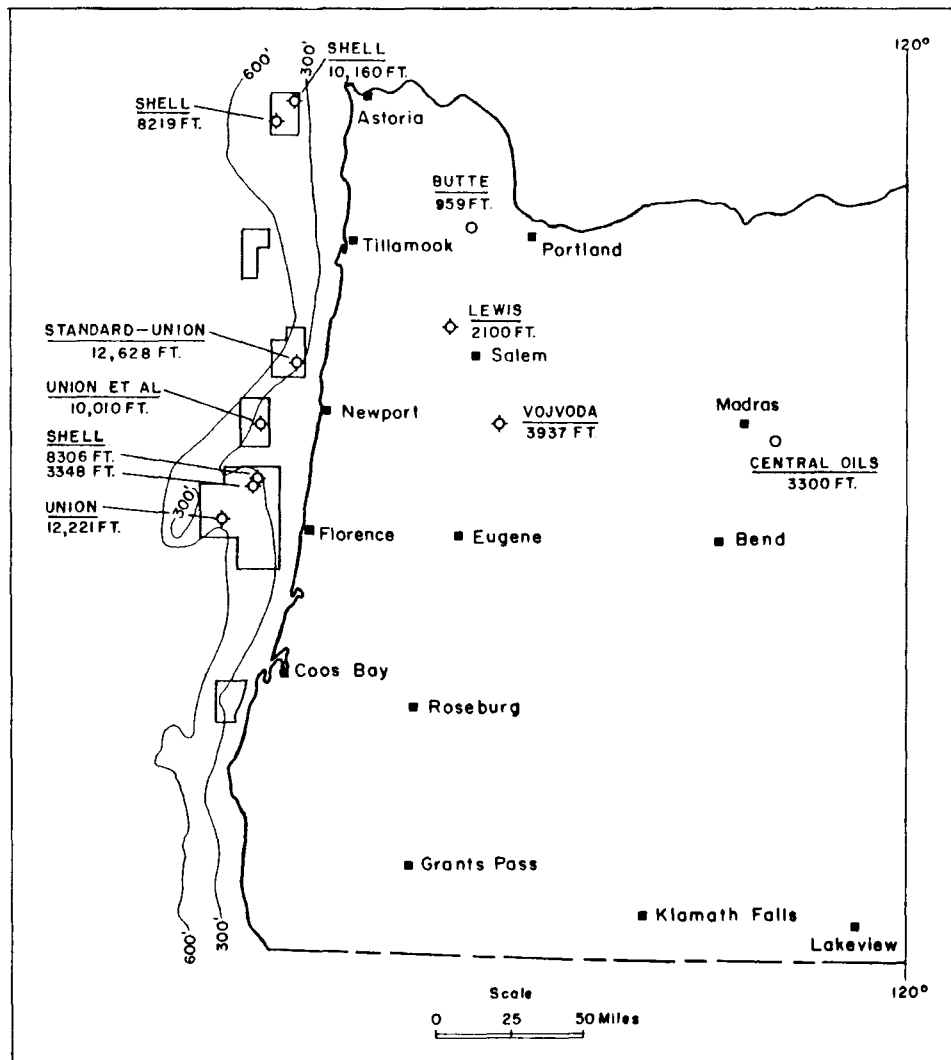


Figure 1. 1965-1966 continental shelf drillings and 1966 onshore permits in western Oregon.

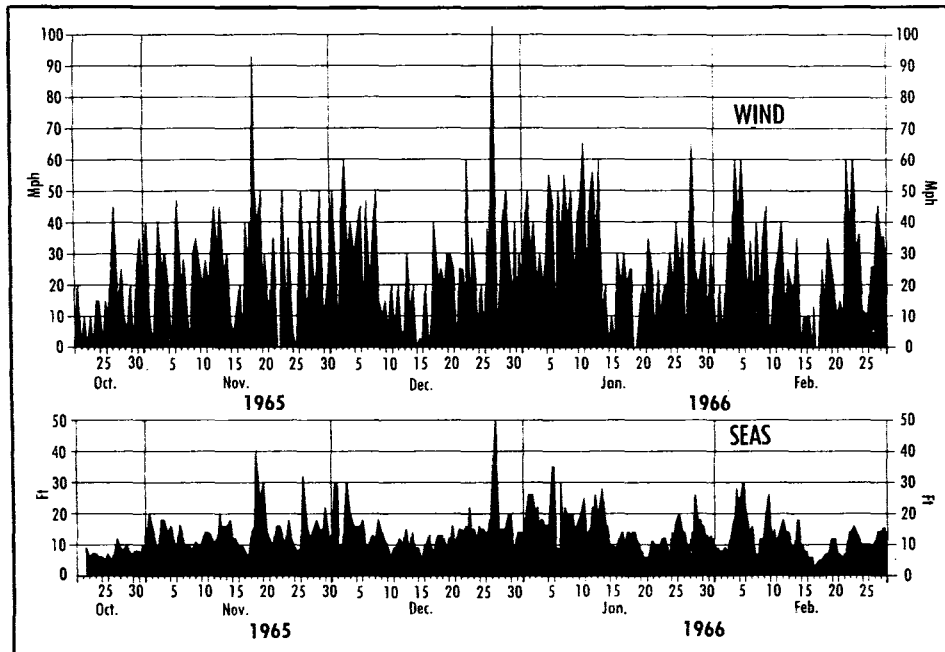


Figure 2. Wave and wind conditions off the Oregon coast (Oil and Gas Journal, August 15, 1966).

#### Offshore Drilling, 1966

Company	Tract No.	Well Name	Bonus Price (in millions)	Location	Water Depth (ft.)	Total Depth
Shell	18	Expl. Test 1	\$1.6	26 mi. off coast from Seaside	467	8,219
Shell	22	Expl. Test 1	.5	17 mi. off mouth of Columbia River	408	10,160
Union	136	Fulmar 1	2.2	25 mi. off coast from Heceta Head	404	12,221
Union-Standard-Pan Am. group	57	Grebe (Deepening)	.35	16 mi. off coast from Waldport	195	10,010

After Shell's experience in conducting year-long operations off the Oregon coast, no one was willing to attempt drilling this winter offshore in the North Pacific. Figure 2 illustrates sea and wind conditions which hampered the 1965-66 drilling. Daily costs probably exceeded \$20,000 during much of the time from November to March.

## Onshore

Butte Oil of Oregon, Inc., began drilling a shallow test in Washington County south of the town of Cornelius in March. Plans were to test Oligocene marine sediments below Miocene lavas. The company was engaged in fishing operations at the close of the year. The second shallow test in 1966 was drilled by Marvin Lewis, a local wildcatter, 15 miles northwest of Salem in the Willamette Valley. Work on this hole was suspended in August. Central Oils, Inc., of Seattle, Wash., received a permit to deepen a hole southeast of Madras which was begun in 1952 by Northwestern Oils, Inc. The group plans to explore Mesozoic marine sediments which are overlain by Eocene lavas and pyroclastics. Commencement of this venture has been delayed until the spring of 1967.

Ivan Vojvoda, associated with Supreme Oil & Gas Corp., Mountain View, Cal., attempted to re-drill Linn County Oil Development Co.'s "Barr 1", but operations were terminated after loss of tools in the hole. The "Barr 1" was drilled in 1958 a few miles north of the town of Lebanon and shows of oil were reported (Figure 3). Subsequent testing failed to produce any oil and only a small amount of gas was obtained.

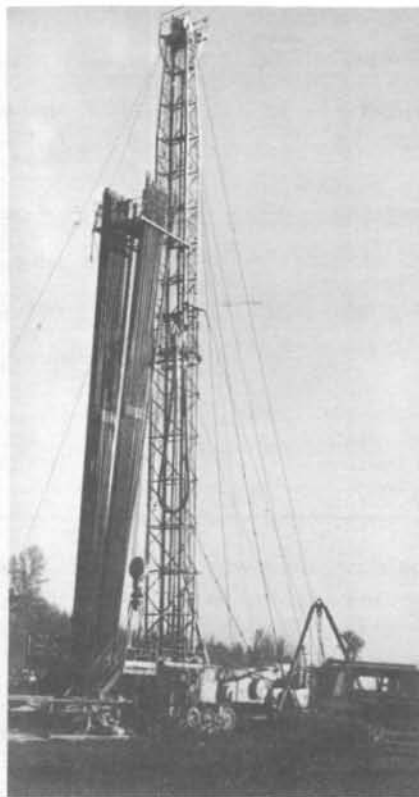


Figure 3. Vojvoda "Redrill" near Lebanon (Len Owen rig, Rio Vista, Cal.)

## Future

More drilling is expected off the coast of Oregon, probably on tracts southwest from the mouth of the Columbia River and offshore from Heceta Head. One or two additional holes will probably be drilled off the Washington coast also. Exploration beyond 1967 will depend on whether or not any significant oil or gas shows are found this year.

Onshore, one or possibly two shallow wildcats are expected to be drilled in western Oregon in 1967, and the deepening by Central Oils, Inc.,

## Onshore Drilling, 1966

Company	Permit No.	Well Name	Location	Depth (Feet)	Status
Butte Oil of Oregon, Inc.	55	Cowan 1	NW $\frac{1}{4}$ sec. 8, T. 1 S., R. 3 W. Washington County	959	Fishing for drill pipe.
Central Oils, Inc.	57D	Morrow 1	SW $\frac{1}{4}$ sec. 18, T. 12 S., R. 15 E. Jefferson County	3,300	Suspended. Deepening has not begun.
Marvin Lewis	56	Crossley-Jennings 2	NE $\frac{1}{4}$ sec. 31, T. 6 S., R. 4 W. Polk County	2,100	Suspended.
Ivan Vojvoda (Linn County Oil Develop- ers, Inc.)	58RD	Barr 1	NW $\frac{1}{4}$ sec. 32, T. 11 S., R. 1 W. Linn County	4,529 T.D. 3,937 R.D.	Abandoned. Made 31' of new hole, then twisted off.

should be under way in eastern Oregon by spring. Activity onshore by large firms is expected to be very limited, at least for the next few years.

Use of petroleum and natural gas in the Pacific Northwest is expected to increase substantially in the next two decades. Gasoline consumption is projected to increase 113 percent by 1985, as compared to the 1960 level (Conkling, 1966). The Northwest market provides an attractive reward for those who discover local sources.

Return on investments today in foreign oil is not much better than that received from domestic ventures (Oil and Gas Journal, October, 1966). Incentive to re-examine the possible producing areas in North America is growing and it is hoped that the sedimentary basins in Oregon will be explored further before the region is rejected as a prospect.

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## A DECLARATION OF POLICY

By The American Mining Congress\*

Within little more than a century the United States advanced from a struggling young country to the most powerful nation in the world. This remarkable achievement was attained because we were a nation of industrious people, living in a free-enterprise society, and possessing the ingenuity to develop the country's extensive natural and human resources.

The American mining industry at home and throughout the free world developed abundant sources of metals, minerals, and energy fuel for the industrial societies of the West. Recent economic and political difficulties remind us that this world-wide productive network is not a gift of nature but the work of man and of his drive and ingenuity, and that it needs to be sustained and furthered.

The discovery and exploitation of mineral deposits require enormous expenditures of capital. Profits from successful operations must make up for fruitless searches as well as furnish the starting capital for new ventures. Political and economic policies of our government must be realistic in their application to the minerals industries if these industries are to remain competitive and supply the needs of the nation's expanding economy.

With strains of war, with new dimensions of space and atomic energy has come a larger role of government in national and international economic life. While public responsibilities are inherent in our complex society and the need for cooperation between public and private sectors of the economy is recognized, great care must be exercised by government to avoid infringement of the rights, responsibilities, and incentives of the private sector which are essential to our free-enterprise system and a cornerstone of our national security and welfare. \* \* \*

### Public Lands

Our growing population, expanding economy, and modern armament require a constant increase in the supply of metals and minerals. This is the responsibility of the American mining industry. For the mining industry to meet these demands under a free-enterprise system, the public lands of

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\* Excerpts from a policy declaration adopted at Salt Lake City, Utah, on September 11, 1966.

the United States must be freely open to location so that the prospector and engineer may make new discoveries and open new mines.

We welcome and urge a thorough study by the Public Land Law Review Commission of the mining laws and government regulations and procedures relating to the administration of the mining laws.

We are confident that such a study will recognize the importance of preserving the fundamental principles of the mining laws, which are based upon the right of individuals to search for, discover, develop, and acquire title to the metals and minerals lying within the public domain. We firmly believe that such a study will reveal erroneous interpretations of the mining laws and that regulations and administration inconsistent with the basic principles of these laws have not been in the public interest and have frequently prevented the operation of the mining laws in accordance with the intent of the Congress.

We recognize that the public lands should be used in as many ways as their resources permit, and we again express our agreement with the principle of multiple use. The public domain should be open to compatible uses even where one use predominates. No area should be closed to exploration for minerals or to mining in the absence of a compelling national interest demonstrated in a public hearing.

All withdrawals should be reviewed periodically, and areas found to be in excess of need should be reopened to mining locations.

As the nation's mineral resources cannot be developed and their value to the country determined until after they are discovered, public lands should be kept open wherever possible to mineral exploration and the location of new discoveries.

Exploration must, for the most part, be directed to the discovery of nonoutcropping and often deeply buried mineral deposits. Hence, appropriate supplementary legislation, in keeping with the basic concepts and intent of our present mining law, is required to afford reasonable pre-discovery protection to one who is in good faith engaged in seeking a discovery of minerals. Such protection is needed to encourage expenditure of the large sums necessary to carry forward mineral exploration.

The Congress should explicitly and with care spell out the limits within which the administrative agencies are permitted or required to act in administering public lands. The administration of public lands is a proper subject of concern to the states in which such lands are located. Therefore, we believe that the views of such states relating to policy for the utilization of resources within their respective boundaries should be considered.

The law of discovery, as intended by the Congress in enacting the mining laws and as interpreted by the contemporaneous decisions of the courts, encouraged the search for and development of new ore bodies. The law of discovery has been distorted by the Office of the Solicitor of the Department of the Interior as to discourage rather than encourage this search. The original concept of discovery should be maintained.

We urge the Department of Agriculture and its Forest Service, the Department of the Interior and its Bureau of Land Management, and all other government agencies dealing with the public lands to administer their regulations fairly and uniformly and to formulate and carry out their regulations in a manner which will encourage and not discourage the development of our mineral resources. \* \* \*

#### Gold, silver, and monetary policies

Current estimates indicate that the nation is still faced with a substantial deficit in its balance of payments. Monetary gold stocks of the United States continue to decline as foreign central banks and other official agencies exercise their right to convert dollars into gold at \$35 per ounce. No discernible progress has been made in efforts to achieve a more stable monetary order by international agreements. None to date has done more than meet an immediate crisis.

Gold remains the final basis of settlement in international financial transactions and is not likely to be displaced by any monetary units based on credit alone. Maintenance of a monetary stock of gold more than ever is a vital need, and additions to it from whatever source are surely in the nation's interest. One obvious move to accomplish this end and improve our country's financial strength would be to increase the output of gold from domestic mines. To gain this objective, we again recommend:

Enactment of legislation by the Congress of the United States to provide tax incentives or financial assistance payments, or both, to present and potential domestic gold producers to stabilize and insure greater life of existing properties, to reopen closed mines, and to stimulate aggressive search for new gold ore reserves.

As ever larger quantities of the new base-metal 10-cent and 25-cent coins authorized by the Congress in June 1965 are released for circulation, it is apparent that silver dimes and quarters are disappearing, following in the footsteps of the silver dollar and the silver half-dollar. We believe that the complete substitution of base-metal coins for our silver coinage was a mistake and has proved unnecessary. We believe that a subsidiary coinage of intrinsic value is of great benefit to the nation and to the prestige of the dollar. We urge that the Congress, at an early date, authorize the mint to strike 10-cent and 25-cent coins of 40 percent silver content as it is now authorized to do in the case of 50-cent pieces. Furthermore, as soon as minting capacity permits, silver dollars of 40 percent silver content should be minted.

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## METALS AND MINERALS CONFERENCE TAKING SHAPE

The nineteenth Pacific Northwest Metals and Minerals Conference, scheduled for April 19, 20, and 21, 1967, will attract miners, geologists, metallurgists, and economists from all of the West. The conference is jointly sponsored by the American Institute of Mining, Metallurgical, and Petroleum Engineers, the American Society for Metals, and the American Welding Society. The three days of technical sessions and various social functions will be held at the Sheraton Motor Inn in Portland. Field trips to local metallurgical plants and tunneling and dredging projects are scheduled.

One of the highlights of the conference will be the Third Gold and Money Session. The two previous sessions, both held in Portland, have attracted mining men and economists from a wide area. Speakers from as far away as South Africa are expected to be present. A full day of papers and a noon luncheon have been set aside for this popular feature. Dr. Ian Campbell, Director of the California Department of Conservation and until recently Chief of the California Division of Mines and Geology, will speak on the growing problems of "Social Geology" at the Friday night banquet.

Eight major technical sessions at which 81 papers will be presented include the following: material science, welding, electric furnace, gold and money, mining and geology, minerals beneficiation, petroleum and marine mining. A complete program for the ladies will include tours, fashion shows, and luncheons. Additional information may be obtained from Ralph S. Mason, 1069 State Office Building, Portland, Ore., 97201.

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## BRONOWSKI TO DELIVER CONDON LECTURES

The Condon Lectures this year will be delivered by Dr. Jacob Bronowski, Senior Fellow at the Salk Institute for Biological Studies at San Diego, Cal. Dr. Bronowski received his degree at Cambridge in England and was senior lecturer at the University of Hull. He is an internationally known mathematician, anthropologist, and philosopher of science. His lecture dates are: February 20-21, University of Oregon; February 22-23, Oregon State University; and February 27-28, Portland State College.

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## OAS TO MEET AT WILLAMETTE U.

The Oregon Academy of Science will hold its annual meeting February 25 at Willamette University, Salem. Presentation of papers will begin in 9:30 a.m. in Collins Hall. At 1:30 p.m. there will be a short business meeting followed by a speaker. Afternoon papers will be given from 3 to 5 o'clock. Dr. G. T. Benson of the Department of Geology, University of Oregon, is chairman of the Geology-Geography section.

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