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

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URANIUM PROSPECTING

By The Staff

The following material has been prepared to answer some of the questions most frequently asked the Department about radioactive minerals, radiation detection equipment, and laws governing locations of claims for fissionable materials. Included also are references to published information on uranium minerals and how to prospect for them.

Ed.

Radiation Detection Equipment

General

The two main types of radiation detection instruments are the Geiger and scintillation counters. Both work on the same principle in that they detect and count the frequency of particles resulting from radioactive disintegration. An electric charge is set up on a Geiger counter when a particle enters the gas-filled Geiger-Mueller tube, and an electric charge is set up on a scintillation counter when a particle strikes a crystal which the instrument contains.

The cost of an instrument may be the primary consideration if purchase is contemplated. The scintillometer costs several times as much as the Geiger counter but it is much more sensitive. Ease of carrying, reading, and the use to be made of the instrument will also influence the choice.

The scintillometer is used for detecting small variations in radiation over wide areas. This instrument can be used from a plane or car with some success. The Geiger counter is best adapted to prospecting in mines and in widespread zones of known radioactivity.

A dial which records in mR/hr* is a desirable feature on the instrument. Readings recorded in mR/hr have more meaning than "counts per minute" as the counts will vary with the instrument. Scintillation counters always record in this manner but some Geiger counters do not. A Geiger counter without a recording dial generally has a headphone attachment. A probe attachment for the Geiger tube is handy in exploring small crevices or drill holes.

Use

Several factors enter into the proper use of the instruments and interpretation of their results. Following are those that are considered most important:

(1) Background count - A background count of radiation results from cosmic rays and small noncommercial amounts of radioactive material which nearly always are present in all rocks. The background count may vary over distances of a few feet; therefore when determining the radioactivity of a specimen the background reading should always be found and subtracted from the total. Since the scintillometer gives much higher counts than the Geiger counter, it is less affected by the background, especially on low-grade samples.

(2) Mass effect - A large mass of weakly radioactive rock may give a fairly high reading on a counter, although the amount of radioactive material in a small sample of the rock is minute. A scintillometer is especially sensitive to this phenomenon. The Geiger

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*mR/hr = milliroentgens per hour. One milliroentgen is 1/1000 of a roentgen. A roentgen is a definite unit of radiation and is used to measure the quantity or amount of radiation.

counter has a smaller area of detection and is not as strongly affected. Light-colored acid lavas such as rhyolite and dacite often give a higher count than the darker basic rocks but do not necessarily contain commercial quantities of uranium.

(3) Depth of detection - Depth of detection of uranium ores depends upon size and grade of the deposit, thickness and type of cover, and type of instrument used. Generally speaking, small quantities of radioactive material cannot be detected through more than several feet of water or loose soil and rock. Solid rock gives an even greater shielding effect.

(4) Precautions - It is well to realize that these machines are delicate electronic instruments and cannot take excessive abuse. If the instrument does not perform properly a check of the batteries frequently discloses the source of most trouble. Radio repair shops are usually equipped to make this check. If other repair becomes necessary it is much safer to ship the instrument to the manufacturer.

A Geiger counter can become contaminated by radioactive dust or radon gas, one of the disintegration products of uranium. If so, it will not give accurate results.

Cold weather may affect the Geiger counter tube, causing improper functioning of the instrument. Care should be used in wet weather. Water may "short out" the machine if it penetrates to the inner workings.

Contrary to popular notion, a counter will not "burn out" in the presence of high-grade radioactive samples. Also, the needle on the recording dial will fluctuate within narrow limits while being held on a single sample.

Excessive static in earphones, the "frying" sound, may be due to a "short" somewhere in the machine.

Radioactive Minerals

The uranium and thorium minerals are the only radioactive substances that are at present of commercial or potential commercial value. There are a few other elements that are radioactive but the radioactivity is so slight that it is recognized on radiation counters only when large masses of rock containing these elements are present - i.e., mass effect. An example would be the rocks containing potassium minerals. Gold and other more common metals cannot be detected by radiation counters.

Some uranium salts and radioactive minerals, such as autunite, show distinctive fluorescence when examined under the short or long wave fluorescent lamp. Carnotite, pitchblende, and many other radioactive minerals do not fluoresce. Therefore fluorescence is only an aid in the determination of radioactive materials but it is not a sure test.

There is no known danger from radioactivity in handling samples of uranium minerals. Since 1950, doctors and technicians of the U.S. Public Health Service in cooperation with other agencies have been checking the health hazards to mine and mill workers in the uranium industry on the Colorado Plateau. The September 1954 issue of Mining Engineering reported Duncan Holaday, coordinator of the program, as stating, ". . .it takes many years of exposure to radioactive materials to cause damage to human organisms."

Analysis

Chemical analysis for uranium

With time, uranium partially "breaks down" into "daughter products" or disintegration products. All of these products are radioactive and contribute to the radiation detected by a Geiger counter. Therefore, since part of the total "count" may be due to elements other than uranium, the most common method for determining the actual amount of uranium in the ore is by a chemical analysis. This analysis is designated on the assay report as percent uranium.

Equivalent U_3O_8

Because Geiger and scintillation counters are sensitive to all types of radioactive decay, they only tell that radioactivity is present. They do not differentiate between the various radioactive elements. Therefore, the mR/hr of the counters is generally converted

to "equivalent U_3O_8" when reporting results from the assay-type instruments. This is sometimes termed a radiometric analysis. Equivalent U_3O_8, then, means the amount of radioactivity rather than the amount of uranium.

Assay services of the Department

The offices of the Department of Geology and Mineral Industries in Portland, Baker, and Grants Pass are equipped to examine any specimens originating in Oregon by testing on a Geiger counter. The Department is not equipped at present for the chemical determination of uranium or thorium in amounts below 0.1 percent.

The Atomic Energy Commission has placed in the Portland office of the Department a Radioassayer. The Radioassayer is an assay-type Geiger counter that automatically counts for one minute and then records the total as U_3O_8 equivalent

Laws Governing Fissionable Materials

Staking a claim for uranium is no different than for any other mineral. Public Law 585, 83rd Congress, provides that a claim may be staked for uranium. No license is needed for prospecting, and existing State and Federal mining laws apply. However, radiation counters may not be taken out of the country without an Atomic Energy Commission license.

Prospectors are not required to report any discovery of fissionable material, although State and Federal agencies are glad to assist the prospector who submits interesting samples from a bona fide discovery.

The Atomic Energy Commission will provide information on the location of the nearest purchasing point of uranium ores. Ore does not have to be sold to the Government, but it is required that a license be obtained in order to sell, transfer, or receive more than minute quantities of uranium or thorium ores that have been removed from the ground.

Radioactive Minerals in Oregon

In Oregon no definite uranium mineral or deposit has yet been authenticated by the Department. However, there are several places where minor amounts of radioactivity have been found. In some of these places the radioactivity has been attributed to some indefinite uranium salt. The thorium minerals, allanite and monazite, have been found in the Wallowa Mountains and very minor amounts of monazite sand have been found in some stream beds and along the coast.

It is interesting to note that the Atomic Energy Commission, in its nation-wide investigations, has recorded discoveries of radioactive materials in almost every possible rock type and in most classes of ore deposits.

There is still a lot to learn about the genesis and occurrence of uranium. The agencies and men working in this branch of earth science are the first to admit this.

References and How to Obtain the Publications

Oregon Department of Geology and Mineral Industries

"Radioactive minerals the prospector should know," by David J. White: Short Paper 18, rev. ed., 1953. For sale by the Department (20 cents).

Geological Society of America

"Bibliography and index of literature on uranium and thorium and radioactive occurrences in the United States," by Margaret Cooper: Geological Soc. Am. Bull., vol. 64, 1953. Part I, Arizona, Nevada, and New Mexico (50 cents); Part II, California, Idaho, Montana, Oregon, Washington, and Wyoming (25 cents); and Part III, Colorado (25 cents). May be obtained from the Geological Society of America, 419 West 117th Street, New York, N.Y.

U.S. Atomic Energy Commission

(and U.S. Geological Survey) "Prospecting for uranium," 1951. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. (55 cents).

"Prospecting with a counter," by Robert J. Wright, rev. 1954. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. (30 cents).

"Selected bibliography on uranium exploration and the geology of uranium deposits," by Margaret Cooper: RME 4007, 1953. Available from the Office of Technical Services, Department of Commerce, Washington 25, D.C. (35 cents).

U.S. Geological Survey

"Identification and occurrence of uranium and vanadium minerals from the Colorado plateaus," by A. D. Weeks and M. E. Thompson: Bulletin 1009-B, 1954. For sale by U.S. Government Printing Office, Washington 25, D.C.

McGraw Hill

"U_3O_8, a formula for profits" (a collection of articles on the uranium situation): Engineering and Mining Journal, Sept. 1954. May be obtained from the McGraw-Hill Publishing Company, 330 West 42nd Street, New York 36, N.Y. (50 cents).

Addresses of Atomic Energy Commission

U.S. Atomic Energy Commission
Division of Raw Materials
Washington 25, D.C.

U.S. Atomic Energy Commission
Colorado Raw Materials Operations
P.O. Box 270
Grand Junction, Colorado

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EASTERN OREGON MINING NEWS

The Department's branch office in Baker reports that Mr. Frank Reid and associates have leased the Herschoff furnace on the Ochoco Mining Company's property (Crook County) in order to test ore from the Mother Lode quicksilver mine located in the Ochoco Mountains about 30 miles from Prineville. Reid and associates have been developing the mine during the past season and operate as a partnership under the name of Canyon Creek Mining Company, General Delivery, Prineville, Oregon.

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Production of limestone at the quarry of National Industrial Products Corporation at Durkee, Baker County, Oregon, is now about 15 railroad cars a working day (approximately 825 tons per day). Most of the output is going to sugar and paper mills.

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FOURTH EDITION OF MINING LAW BULLETIN ISSUED

"Mining Laws of the State of Oregon," designated as Bulletin No. 1, has just been issued in its fourth revised edition by the State Department of Geology and Mineral Industries. This new revision contains numbering and wording according to Oregon Revised Statutes. As the oil and gas conservation law was issued previously as a separate Department publication (Miscellaneous Paper No. 4), it is not included in this new edition. Mr. Sam R. Haley of the State Statute Revision Council provided the applicable ORS pages for reproduction, and Mr. Ralph S. Mason of the Department staff assembled the bulletin material.

Since publication of the first edition of Bulletin No. 1 in 1937 the Department has sold nearly 5,000 copies. The fourth revised edition may be obtained for 50 cents from the Portland office of the Department at 1069 State Office Building, or from the field offices at Baker and Grants Pass.

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SCHEDULE OF PRICES FOR URANIUM ORE*

(As Specified in Atomic Energy Commission Price Circ. 5 Revised, and Circ. 6)

Grade of ore, percent U_3O_8	Pounds of U_3O_8 per ton of ore	Base Price		Grade premium		Mine develop. allowance .50/lb.	Price per ton of ore		
		Pound U_3O_8	Ton of ore	75¢ a lb. over 4-lb.	25¢ a lb. over 10-lb.		Price before initial prod. bonus & haulage allowance	Initial prod. bonus on 10,000 lbs.	Price before haulage allowance
0.10	2.00	$1.50	$ 3.00	$ -	$ -	$ 1.00	$ 4.00	$ 3.00	$ 7.00
0.11	2.20	1.70	3.74	-	-	1.10	4.84	3.74	8.58
0.12	2.40	1.90	4.56	-	-	1.20	5.76	4.56	10.32
0.13	2.60	2.10	5.46	-	-	1.30	6.76	5.46	12.22
0.14	2.80	2.30	6.44	-	-	1.40	7.84	6.44	14.28
0.15	3.00	2.50	7.50	-	-	1.50	9.00	7.50	16.50
0.16	3.20	2.70	8.64	-	-	1.60	10.24	8.64	18.88
0.17	3.40	2.90	9.86	-	-	1.70	11.56	9.86	21.42
0.18	3.60	3.10	11.16	-	-	1.80	12.96	11.16	24.12
0.19	3.80	3.30	12.54	-	-	1.90	14.44	12.54	26.98
0.20	4.00	3.50	14.00	-	-	2.00	16.00	14.00	30.00
0.21	4.20	do	14.70	0.15	-	2.10	16.95	14.70	31.65
0.22	4.40	do	15.40	0.30	-	2.20	17.90	15.40	33.30
0.23	4.60	do	16.10	0.45	-	2.30	18.85	16.10	34.95
0.24	4.80	do	16.80	0.60	-	2.40	19.80	16.80	36.60
0.25	5.00	3.50	17.50	0.75	-	2.50	20.75	17.50	38.25
0.26	5.20	do	18.20	0.90	-	2.60	21.70	18.20	39.90
0.27	5.40	do	18.90	1.05	-	2.70	22.65	18.90	41.55
0.28	5.60	do	19.60	1.20	-	2.80	23.60	19.60	43.20
0.29	5.80	do	20.30	1.35	-	2.90	24.55	20.30	44.85
0.30	6.00	3.50	21.00	1.50	-	3.00	25.50	21.00	46.50
0.31	6.20	do	21.70	1.65	-	3.10	26.45	21.70	48.15
0.32	6.40	do	22.40	1.80	-	3.20	27.40	22.40	49.80
0.33	6.60	do	23.10	1.95	-	3.30	28.35	23.10	51.45
0.34	6.80	do	23.80	2.10	-	3.40	29.30	23.80	53.10
0.35	7.00	3.50	24.50	2.25	-	3.50	30.25	24.50	54.75
0.36	7.20	do	25.20	2.40	-	3.60	31.20	25.20	56.40
0.37	7.40	do	25.90	2.55	-	3.70	32.15	25.90	58.05
0.38	7.60	do	26.60	2.70	-	3.80	33.10	26.60	59.70
0.39	7.80	do	27.30	2.85	-	3.90	34.05	27.30	61.35
0.40	8.00	3.50	28.00	3.00	-	4.00	35.00	28.00	63.00
0.41	8.20	do	28.70	3.15	-	4.10	35.95	28.70	64.65
0.42	8.40	do	29.40	3.30	-	4.20	36.90	29.40	66.30
0.43	8.60	do	30.10	3.45	-	4.30	37.85	30.10	67.95
0.44	8.80	do	30.80	3.60	-	4.40	38.80	30.80	69.60
0.45	9.00	3.50	31.50	3.75	-	4.50	39.75	31.50	71.25
0.46	9.20	do	32.20	3.90	-	4.60	40.70	32.20	72.90
0.47	9.40	do	32.90	4.05	-	4.70	41.65	32.90	74.55
0.48	9.60	do	33.60	4.20	-	4.80	42.60	33.60	76.20
0.49	9.80	do	34.30	4.35	-	4.90	43.55	34.30	77.85
0.50	10.00	3.50	35.00	4.50	-	5.00	44.50	35.00	79.50
0.60	12.00	do	42.00	6.00	0.50	6.00	54.50	42.00	96.50
0.70	14.00	do	49.00	7.50	1.00	7.00	64.50	49.00	113.50
0.80	16.00	do	56.00	9.00	1.50	8.00	74.50	56.00	130.50
0.90	18.00	do	63.00	10.50	2.00	9.00	84.50	63.00	147.50
1.00	20.00	3.50	70.00	12.00	2.50	10.00	94.50	70.00	164.50
2.00	40.00	do	140.00	27.00	7.50	20.00	194.50	140.00	334.50
3.00	60.00	do	210.00	42.00	12.50	30.00	294.50	210.00	504.50
4.00	80.00	do	280.00	57.00	17.50	40.00	394.50	280.00	674.50
5.00	100.00	do	350.00	72.00	22.50	50.00	494.50	350.00	844.50
6.00	120.00	3.50	420.00	87.00	27.50	60.00	594.50	420.00	1,014.50
7.00	140.00	do	490.00	102.00	32.50	70.00	694.50	490.00	1,184.50
8.00	160.00	do	560.00	117.00	37.50	80.00	794.50	560.00	1,354.50
9.00	180.00	do	630.00	132.00	42.50	90.00	894.50	630.00	1,524.50
10.00	200.00	do	700.00	147.00	47.50	100.00	994.50	700.00	1,694.50

*From California Division of Mines Mineral Information Service, vol. 7, no. 11, Nov. 1, 1954.

NEW DRILLING PERMIT ISSUED

Drilling permit no. 5 was issued November 15, 1954, to El Paso Natural Gas Company, 303 Tribune Building, Salt Lake City, Utah. The application to drill stated that the well will be known as Federal No. 1. The drilling site was given as the NE¼ sec. 5, T. 20 S., R. 44 E., Malheur County.

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MINERAL NOTES

Chrome

Chromite shipments received at the Grants Pass depot on November 8 surpassed all previous daily totals, except for the opening day on November 23, 1951, when there was a rush of shipments due to accumulation in anticipation of the depot's opening. Shipments originate in six counties in Oregon, with California and Alaska also contributing.

General Services Administration has recently announced that 70,070 tons of chromite ore and concentrates have been delivered to the Grants Pass stockpile. This is approximately 35 percent of the total amount deliverable under the contract which expires June 30, 1955.

The Government's "Defense Production Act Inventory" now contains nearly $447 million worth of metals and minerals. Included with the 19 stockpiled commodities are 157,223 tons of chromite. The mineral and metal reserve was created under the Government's Korean expansion program when purchases were made at guaranteed floor prices. Most of these stocks will be transferred to the regular federal stockpile shortly.

Chromite will be one of the items in the proposed U.S. Agriculture Department barter transactions with foreign countries according to E&MJ Metal and Mineral Markets. These will be direct commodity-for-commodity transactions involving the exchange of United States surplus farm goods for metals and minerals. They do not include the use of foreign currencies acquired through sale of farm surplus.

Mercury

The New York price of quicksilver in mid-November was quoted as $323-330 per 76-pound flask, according to E&MJ Metal and Mineral Markets. Buying was slow, the consumer coming into the market only when he had to. Some foreign metal was available, mainly from Yugoslavia and Mexico, but Spanish quicksilver, usually the controlling factor in the price, was missing. The lack of Spanish metal has been the source of many unconfirmed rumors. Metal and Mineral Markets report that there is some skepticism of Spanish metal reaching the United States and that there are widespread reports of technological problems in the new Spanish furnaces.

GSA has not been able to purchase a single flask of mercury under its announced stockpile purchase price of $225 a flask. This is the only government stockpiled material that does not show substantial progress. The failure to date bears out the feeling of the quicksilver industry that the announced price was way too low.

Manganese in 1953

The final annual figures for manganese in 1953 have recently been released by the U.S. Bureau of Mines. The statistics showed domestic production in 1953 to be 157,536 short tons of manganese ore running 35 percent or more manganese. This is somewhat higher than the 1952 production of 115,379 tons but still not up to the 1944-48 average of 167,263 tons. Domestic production, however, was still a small fraction of the imports which amounted to 3,500,986 tons, the highest on record. India continued to be the main source of the imports by providing 37 percent of the total. Other important contributors were Gold Coast, Union of

South Africa, and Cuba. Of the domestic production Montana supplied 72 percent and Nevada around 10 percent. Oregon produced 46 tons of ore running approximately 39 percent manganese and 271 tons running approximately 25 percent manganese.

Of possible interest to owners of low-grade manganese properties is an article in the November 1, 1954, issue of Chemical and Engineering News. This article is on a pilot plant at Patersen, New Jersey, that converts raw material containing 10 to 12 percent manganese to a concentrate running about 60 percent manganese. The recovery from the low-grade raw material is stated to be 80 percent and the concentrate is suitable for the chemical and dry-cell battery industries. The process which was developed by Ernest S. Nossen and put through the pilot plant stage by E. S. Nossen Laboratories uses a nitric acid leach and is applicable to carbonate, oxide, and some types of silicate ores. The pilot plant is using at present ore from Aroostook County, Maine, that contains large amounts of calcium oxide, iron oxide, and silica, all so intimately mixed that heretofore the material has been considered useless. Pilot plant capacity is around 12 tons of ore a day and the "break even" point was estimated to be 600-700 tons.

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REVISION OF MINING LAWS TO BE CONSIDERED BY NEXT CONGRESS

According to the November 1 Bulletin Service of the American Mining Congress, a bill is expected to be introduced early in the next session of Congress to codify and revise the laws dealing with the conservation and reclamation activities of the federal government. Two sections of the 674-page proposed measure are of particular interest to the mining industry as they would confine the use of the surface on mining claims located or patented within all national forests pretty much to rules and regulations set up by the United States Forest Service. Similar changes in the mining laws were contained in measures introduced in the past session of Congress by Representative Hope (Kansas) and Senator Anderson (New Mexico). The 83rd and previous sessions of Congress have not seen fit to pass such legislation. The proposed measure is now before the House Judiciary Committee. The American Mining Congress states that its Public Lands Committee has the measure under study and expects to submit its comments to the House Committee in the near future.

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BUREAU OF MINES REPORTS ON OREGON ORES

Results of sampling and testing a nickel deposit in Curry County, Oregon, by the U.S. Bureau of Mines, have been published (Sept. 1954) in Report of Investigations 5072, Preliminary investigation of the Red Flats nickel deposit, Curry County, Oregon, by R. J. Hundhausen, J. R. McWilliams, and L. H. Banning.

In 1946 and 1947, the Oregon Department of Geology and Mineral Industries examined and sampled the Red Flat area, as well as the Nickel Mountain and Woodcock Mountain areas, and published reports in the Ore.-Bin. Because of the continuing world shortage of nickel and the need for the development of new sources of this strategic metal, the Bureau of Mines in 1952 and 1953 further drilled and sampled the Red Flat area. A fairly large deposit of nickeliferous laterite and nickeliferous serpentine was indicated. A 15-ton ore sample was subjected to smelting tests in the Bureau's Northwest Electrodevelopment Laboratory in Albany, Oregon. These tests, which are described in the above pamphlet, showed that it is technically feasible to recover a low-carbon ferronickel product from the Red Flat ore.

The Hanna Nickel Smelting Company at Riddle, Oregon, is now producing ferronickel from similar ore on Nickel Mountain in Douglas County.

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Metallurgical testing by the Albany Laboratory of the Bureau of Mines has demonstrated that the Scappoose iron ore in Columbia County, Oregon, may be smelted to make pig iron suited to the foundry trade. Results of the tests are published in the U.S. Bureau of Mines Report of Investigations 5079, Metallurgical tests on Scappoose (Oregon) iron ore, by J. P. Walsted, October 1954.

Only two iron smelters have ever operated commercially in the Pacific Northwest, and these have been dormant for many years. The blast furnace built at Oswego, Oregon in 1867 was discontinued in 1895, and the furnace at Irondale, Washington, ceased operating in 1919. In recent years there has been considerable interest in reviving the iron industry in this region. Rapid industrialization has greatly increased the demand for ferrous metals, and since the only source of supply at present is from scrap iron and pig iron shipped in from other parts of the country, a definite need exists for an iron-smelting industry in the Pacific Northwest.

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Reports of Investigations 5072 and 5079 may be obtained free of charge from Publications Distributions Section, U.S. Bureau of Mines, 4800 Forbes Street, Pittsburgh 13, Pennsylvania.

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MINERALS YEARBOOK PUBLISHED

The Minerals Yearbook for 1951 is now available and may be purchased for $5.25 from the Superintendent of Documents, Government Printing Office, Washington 25, D.C. The Yearbook is a compilation by the U.S. Bureau of Mines of the production, distribution, and consumption of mineral commodities during 1951. Statistical information about Oregon's mineral industries appears under a number of chapter headings including those on Chromite, Mercury, Nickel, Sand and Gravel, Gem Stones, and State Reviews of Gold, Silver, Copper, Lead, and Zinc.

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NEW U.S. BUREAU OF MINES HEADQUARTERS

Headquarters of the five U.S. Bureau of Mines regions that will replace the present nine regions early next year have been announced in a recent press release by Interior Secretary Douglas McKay. They are: Albany, Oregon - Region I, comprising Idaho, Montana, Oregon, Washington, and Alaska; San Francisco - Region II, comprising California and Nevada; Denver - Region III, comprising Arizona, Colorado, New Mexico, North Dakota, South Dakota, Utah, and Wyoming; Bartlesville, Oklahoma - Region IV, comprising Arkansas, Kansas, Louisiana, Mississippi, Missouri, Oklahoma, and Texas; and Pittsburgh, Pennsylvania - Region V, comprising all other states.

Under the reorganization, all Bureau operations in a region, except those dealing with health, safety, coal-mine inspection, and helium, will be directed from regional headquarters.

The reorganization is based on the recommendations of a survey team appointed last year by Secretary McKay.

The territory of the new Region I remains essentially the same as when it was known as Region II except that Alaska has been added. Stephen M. Shelton is the Regional Director. Wing G. Agnew is the Chief of the Mining Division with headquarters at 1201 N. Division Street, Spokane 2, Washington.

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ALBANY LABORATORY TO DO TITANIUM RESEARCH

According to E&MJ Metal and Mineral Markets the Office of Defense Mobilization has instructed the General Services Administration to arrange a research and development contract for titanium production with the U.S. Bureau of Mines. The proposed contract calls for the work to be done at the Bureau's laboratories in Albany, Oregon, and Boulder City, Nevada.

(November 11, 1954)

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