STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
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CANADA'S BOOMING MINING INDUSTRY

The Annual Report for 1950 of the Mines Branch (the latest published records available) of the Canadian Department of Mines and Technical Surveys has just been received by the Department. Total value of production has exceeded the one billion dollar mark for the first time in history and marks the sixth consecutive increase in annual production. Principal gains were in crude petroleum, asbestos, gold, zinc, copper, and nickel. Also in 1950 a record in physical volume was achieved as the index was 147.6 compared with 133.6 in 1941, the previous peak. Total value of mineral production was $1,045,450,000. The value of metallics amounted to $617,238,000. This latter figure was a 14.5 percent increase over 1949.

In the metallics field, great significance for future production may be attached to construction of the railroad from the Port of Seven Islands on the Gulf of St. Lawrence to the Quebec-Labrador iron ore deposits believed to contain high-grade reserves among the largest in the world. Also in 1950 shipments of titanium ore were begun from the very large Allard Lake deposits in eastern Quebec owned by Kennecott and New Jersey Zinc companies. Both iron and titanium dioxide were produced. During the year great interest developed in the Beaver Lodge area north of Lake Athabaska in Saskatchewan where a major source of supply of uranium ore was indicated. During the year the Aluminum Company of Canada announced plans for construction of a new aluminum reduction plant at Tweedsmuir Park in northern British Columbia. The first stage of this project is the building of a hydroelectric plant with a capacity of 500,000 h.p. (Construction of this plant is proceeding according to schedule in 1953 - Ed.)

As a contrast to conditions in the United States, the Canadian gold industry shows an increase in production of 318,000 ounces compared to 1949. Canada, again in contrast to the United States, gives special encouragement to gold mining.

It is interesting to compare value of production of metals in Canada and in the United States on a per capita basis. In 1950, according to Minerals Yearbook, production of metals in the United States amounted to about $1,351,000,000 or $8.67 per capita (total United States population in 1950 approximated 154,000,000). Using the value of Canadian metallics production of $617,238,000 as given above and the population of 14,000,000, as reported in the Canadian census of 1951, the per capita production was $44.09 or five times that of the United States. The disparity is considerably greater if comparison is applied to gold only. Value of United States gold production in 1950 was approximately $83,789,000 or $0.54 per capita. Canadian production was valued at $168,988,687 or $12.07 per capita, or more than 22 times that of the United States.

Canada's mineral wealth, especially in metallic minerals, is developing by leaps and bounds. Hardly a year goes by that we do not hear of some major discovery of metallic minerals in Canada. This, of course, is partly due to the wonderful mineral potentialities in the great Canadian shield which covers so much of northern Canada. However, if there were no profit incentive, prospecting and discovery would cease. In large part credit for the healthy state of Canada's mining industry is the government's recognition of the importance of the industry to the country and appreciation of the hazard to capital represented by the search for and the development of mineral deposits. This recognition has resulted in a favorable tax climate created by the Canadian government - a climate not now enjoyed by the United States mining industry.

F.W.L.

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STATE OF OREGON
STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

In the matter of adoption of rules and regulations for the conservation of crude oil and natural gas to be adopted pursuant to Chapter 667, Oregon Laws, 1953, by the Board of the State Department of Geology and Mineral Industries.

PROCEEDING NO. 1

NOTICE OF HEARING

Hearing will be held in Room 36, State Office Building, Portland, Oregon, on September 15, 1953, beginning at 10:00 a.m. Copies of proposed rules and regulations may be secured from the Department at a cost of 7 cents each to cover cost of mailing.

/S/ Mason L. Bingham
Chairman

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AUSTIN DUNN NEW MEMBER OF DEPARTMENT'S GOVERNING BOARD

Mr. Austin Dunn's appointment by Governor Patterson as a member of the Governing Board of the State Department of Geology and Mineral Industries has been confirmed by the interim committee on executive appointments to the Department. Mr. Dunn's term began August 1, 1953. He replaced Mr. H. E. Hendryx, long connected with mining activities of eastern Oregon, who resigned because of ill health. Mr. Dunn is an attorney of Baker and a former State Senator.

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ASBESTOS COMPANY TO ENCOURAGE PROSPECTING

The Canadian Johns Manville Company is seeking information on sources of potentially commercial deposits of serpentine asbestos in Oregon. Prospectors who have such a deposit or who know of one are requested to send samples to Mr. John Gill, geologist, Canadian Johns Manville Company, Bates, Oregon. If samples are encouraging, the company will make an examination and will pay for an option if the field conditions warrant exploration.

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AN OREGON EXPLORATION LOAN

Among 46 new mineral exploration contracts announced by the Defense Minerals Exploration Administration on July 22, 1953, is approval of one to Morris L. and Charles J. Page, Crook County, Oregon. The contract is for a total of $5,600, of which the Government's share is $4,200. The exploration project is for mercury.

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ZIRCONIUM AND HAFNIUM PRODUCTION

The U. S. Bureau of Mines reports in its July Commodity Report that zirconium production for July amounted to 23,037 pounds of sponge; also that hafnium production during the month was 667 pounds of cleaned metal sponge. Entire output of both metals goes to the Atomic Energy Commission.

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BAUXITE ON CLACKAMAS RIVER AT GLADSTONE

In the July issue of the Ore.-Bin it was reported that pieces of oölitic and pisolitic ferruginous bauxite were being brought up from a gravel trench in the Clackamas River by the dragline of the Oregon City Sand and Gravel Company at Gladstone near Oregon City. Water in the river has been falling since the first report and Mr. Murray Miller, who first recognized the pieces, has been able to inspect the shore north of the trench. Directly below the garage of the Oregon City Sand and Gravel Company, on the north side of the river, a nearly vertical bank a few feet above river level contains an outcrop of oölitic bauxite about 4½ feet thick which lies on and grades into massive brown clay. The exposure is about 65 feet long. Both ends are masked by debris and brush. There is an apparent gentle dip to the south and toward the dragline trench. However, the pieces brought up out of the trench may be float from the exposure on the bank.

Three vertical channel samples were taken by the Department and gave returns as follows:

		Width	Al_2O_3	Fe_2O_3	SiO_2
1.	Top Section	22 inches	41.13%	20.51%	10.06%
2.	Middle Section	30 "	40.01	18.11	16.12
3.	Bottom Section	36 "	29.60	17.96	31.04

(Full section not exposed.)

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CHROME NEWS

New chrome producer

Bob Radcliffe and Al Lea are working their claim, the Lucky L & R, which they discovered last November. It is on the west side of the northern extension of Chrome Ridge in sec. 35, T. 35 S., R. 9 W., Josephine County. They put in about half a mile of road and began mining on their claim this spring. They hauled out their first load of high-grade chromite early in July. To date they have shipped nearly 50 tons of ore, none of which assayed less than 52 percent Cr_2O_3. They are also mining some low-grade ore which they are stockpiling at Radcliffe's mill at his gold mine, the Black Bear, in sec. 26, T. 34 S., R. 8 W., about 3 miles northwest of Galice. At the L & R claim open cuts have exposed disseminated and some high-grade chrome in discontinuous narrow stringers over a distance of about 120 feet.

Ashland Mining Company leases Chrome Ridge claims

The Ashland Mining Company, operated by Fred and Dewey Van Curler, has a leasing agreement with Dana Bowers to work any of the old Sordy claims not being worked by Bowers and sons. The Van Curler brothers are also leasing the Catty Buck claim from Lou Robertson. It is in sec. 22, T. 36 S., R. 9 W., in Josephine County at the head of Red Dog Creek.

Robertsons lease chrome properties

Lou and Bill Robertson have leased the Sad Sack, formerly known as the Black Prince, from C. O. Russell and C. O. Anderson. It is in the northeast corner of sec. 23, T. 36 S., R. 9 W., Josephine County. They have recently driven nearly 300 feet of tunnel about 60 feet below the open pit work done last summer and are starting to mine a stringer of high-grade ore, which is apparently an extension at depth of a pod mined near the surface. The Jim Bus mine, owned by Jim Gallaher and C. O. Russell, on the southwest side of the Illinois River in sec. 21, T. 37 S., R. 9 W., has been leased by Bill Robertson and

associates. A low-water bridge has been built across the river and an inclined shaft is being sunk alongside a prominent diorite dike where a fairly large pod of high-grade chromite occurs. The Jim Bus is about ¼ mile south of the Oregon Chrome mine near the Illinois River west of Selma, Josephine County.

High-grade chrome shipped from Gardner mine

Fred Gardner, Harbor, Oregon, is shipping from his property discovered in July 1952 near Vulcan Peak, Curry County, Oregon (Ore.-Bin, September 1952). A total of 75 tons of high-grade ore has been shipped to the purchasing depot at Grants Pass. One shipment averaged 51.38 percent Cr_2O_3; another, 50.75 percent Cr_2O_3.

Six Mile Creek mill shipping

The chromite concentrating mill built this spring at the mouth of Six Mile Creek on the Illinois River road about 8 miles west of Selma in Josephine County is now milling ore. The mill is known as the Six Mile Creek mill and is owned and operated by Messrs. Floyd, Pressler, and Jackson. Ore from the Jackson Creek mine is being milled.

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CHROME PURCHASE PROGRAM EXTENSION BECOMES LAW

On August 7, 1953, the President signed HR 2824, the "Domestic Minerals Program Extension Act of 1953," thus extending the Government's chrome buying program an additional two years until June 30, 1957. Besides chromite the Act includes tungsten, manganese, mica, asbestos, beryl, and columbium-tantalum-bearing ores and concentrates. It is specified that the Act "Shall not be construed to limit or restrict the regulatory agencies from extending the termination dates of these programs beyond the two-year extension periods provided by this section or from increasing the quantity of materials that may be delivered and accepted under these programs as permitted by existing statutory authority"; also ". . .the responsible agencies controlling such purchase programs are directed to publish at the end of each calendar quarter the amounts of each of the ores and concentrates referred to in Section 3 purchased in that quarter and the total amounts of each which have been purchased under the program."

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THE REVOLUTION IN METALS*

Developments of a tremendous order are taking place in metallurgy as a result of the demand by research men and engineers in the new sciences such as electronics, aerodynamics, and nuclear physics, for materials with highly specialized and unique properties.

Metals unheard of a few years ago, except as numbers on the table of chemical elements or available only in test-tube quantities, are coming into commercial scale production. One of the newcomers is titanium, which has been found to have the best combination of high strength, light weight, and corrosion resistance of any known metal. Less than 5 years ago, titanium output was measured in tens of pounds; production this year may reach 2500 tons. High unit cost is the obstacle in the way of large scale use and this cost will be lowered as research on production methods is prosecuted. Likewise, zirconium, beryllium, lithium, and a number of other "uncommon" metals with unusual properties, are now being produced on an industrial scale.

Some of the new metals and some of the companies which are currently processing them are listed as follows:

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*Abstract of Weekly Staff Letter of David L. Babson and Company, Inc., Boston, Massachusetts.

Titanium	National Lead; DuPont; Crane
Magnesium	Dow Chemical
Zirconium	Foote Mineral; Carborundum
Lithium	Lithium Corporation; Foote Mineral
Germanium	Eagle-Picher
Columbium	Fansteel Metallurgical
Beryllium	Beryllium Corporation
Hafnium	Foote Mineral; Carborundum
Tantalum	Fansteel Metallurgical; Metal Hydrides
Thorium	Lindsay Chemical
Cerium	Lindsay Chemical; Molybdenum Corporation
Rare Earths	Molybdenum Corporation; National Lead; Lindsay Chemical
Uranium	Climax Molybdenum; Vanadium Corporation; Union Carbide

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SECONDARY RECOVERY*

Modern Producing Practices Aid Conservation of Oil

As America becomes increasingly dependent upon petroleum as an energy source, and consumption of oil products rises year after year, it becomes clearly evident that we should give serious regard to our reserves of this great natural resource. Nature put only so much crude oil in the ground, and with each passing year the chances of finding new reserves diminish in some degree.

The growing dependence upon petroleum has led oil companies in the United States to intensify their search for new oil pools in recent years, as our country came to use more oil than it could produce. It has also directed their thinking in another direction - the recovery of greater amounts of oil from fields which are already producing or even from fields which have been virtually abandoned. One effort which the oil industry is making in this direction is termed secondary recovery.

The very nature of crude oil itself, and of the underground formations in which it has collected, make modern secondary recovery projects possible. Crude oil is generally endowed with qualities which cause it to resist movement from the underground beds in which it has accumulated, unless there is a force of energy present to drive it out. In an oil field the energy which drives a flow of oil into the wells is usually water or gas which has been confined with the oil under pressure. As this energy decreases, oil production diminishes, until it is no longer economic to produce the well. As the percentage of oil becomes less and less, it moves with even greater difficulty due to surface tension effects.

Because this is the nature of crude oil, as much as three-fourths of the oil in many fields has never been brought to the surface. It lies locked in the underground strata where it has collected, and most of it will stay there forever. But success is being attained in increasing the percentage of oil which can be taken from our underground reserves.

Tests made in some of our older fields show that as little as 15 percent of the original oil was ever recovered. Because of more intelligent producing methods, we can now expect to double ultimate recovery from oil fields discovered in recent years. There is more oil known to exist underground in our oil fields than has ever been produced from them, and it is these reservoirs which are the target of modern oil men.

Standard Oil Company of California, along with other American oil companies, is acutely conscious of the need for greater recovery of this valuable natural resource. Its end effect

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*From Standard Oil Company of California's Bulletin, July 1953.

is the same as a new discovery. Being aware of the need to extend our oil supplies, Standard has made secondary recovery an important part of its oil field research activities, investigating the possibilities of improving present methods, and experimenting with new methods.

The Company also has a number of secondary recovery projects under way, both in California and in other Western producing areas, which are giving new life to older fields.

The success of such projects, incidentally, depends to some extent upon agreement among the various operators in these fields upon a unitization plan. Briefly, this means that they must agree to allow the field to be operated by one company, for the benefit of all the owners, so that control is exercised over energy input, and the flow of oil from the wells can be regulated to ensure greatest ultimate recovery.

The magnitude and general importance of work such as this is indicated in a compilation recently published by the Interstate Oil Compact Commission. It revealed that through secondary recovery efforts nine fields in Pennsylvania had increased their yield by some 230,000,000 barrels. Four fields in New York showed increased recovery of crude oil totaling more than 100,000,000 barrels, from pools once considered to be almost depleted.

At the present time two principal means are being employed to increase the production of such older fields as these. Both involve replacement of necessary energy which has dimished over years of production. One method centers around the use of water flooding to flush out what was once considered unrecoverable oil. The other utilizes natural gas, pumped into the oil-bearing formations under pressure to push or carry the oil to producing wells.

Everyone is familiar with agricultural achievements in putting worn-out and eroded farmlands back into production. The reworking of our older and poorly operated oil pools is a conservation step in the same direction. The original energy which brought oil booming to the surface is long since gone. But we have found that a substitute energy can do a very creditable job.

It is likely that in the future, as more research and experimental work is done, we can expect even more favorable results than those achieved so far. Oil men are learning more every day about the behavior of underground oil pools, and their response to new energy sources. And some day they may count it as a normal practice to extract more than half of the oil from any reservoir.

These things are a long way, in both time and practice, from the methods and philosophies in vogue when the petroleum industry began to grow. And they are indicative of the sound thinking of the oil men of today, who consider seriously their trusteeship of a great natural resource.

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GOVERNMENT MINERAL EXPLORATION PROGRAM REVISED

Previously 37 minerals were eligible for government assistance under the Defense Minerals Exploration Administration. According to an amendment to the DMEA Order 1, 19 of these minerals have been eliminated from the list. Government assistance is now available for the following metals and minerals:

Group A, for which the Government will contribute 50 percent of the approved project costs: Chromium, copper, molybdenum, bauxite (refractory grade only);

Group B, for which the Government will contribute 75 percent of the approved project costs: Manganese, tungsten;

Group C, for which the Government will contribute 90 percent of the approved project costs: Asbestos (amosite, chrysotile, and crocidolite), beryl, cobalt, columbium, tantalum, industrial diamonds (bort), mica (muscovite block and film), nickel, platinum, thorium, and uranium.

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