ORE.-BIN

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STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
Head Office: 1069 State Office Bldg., Portland 1, Oregon

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Harold D. Wolfe, Field Geologist

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OREGON'S MINERAL INDUSTRY IN 1951

By

R. S. Mason and F. W. Libbey

Introduction

As in former years, sand and gravel and crushed rock headed the list of industrial minerals in importance. Limestone and portland cement, clay, perlite, pumice, expanded shale, diatomite, silica, gem stones, and coal comprised the balance of the nonmetallics industry in the State with their value in the approximate order given. Chrome and quicksilver have again entered the mining picture. Gold production is still fading away. Potential copper and zinc mines are not receiving the attention that is warranted.

According to an estimate by the U. S. Bureau of Mines, value of mineral production for 1950 amounted to approximately $21\frac{1}{2}$ million as shown on page 3. Probably the value in 1951 was about the same.

Nonmetallics

Sand, gravel, and crushed rock

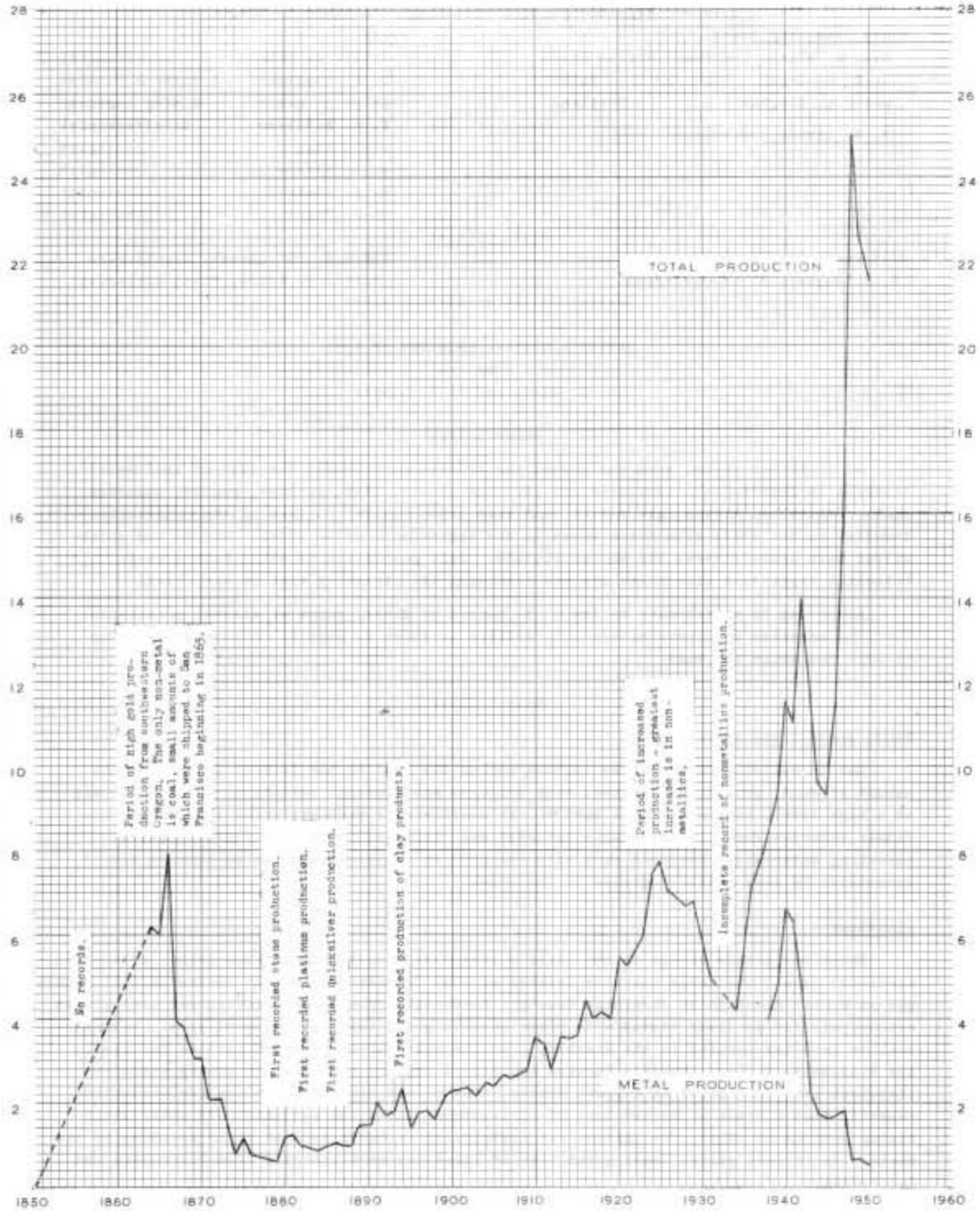
Due to building restrictions imposed during the year by the federal government the amount of sand, gravel, and crushed rock produced was somewhat curtailed. Production was at a high level, however, due in part to the considerable yardages going into large monolithic concrete dams. Considerable interest was displayed during the year in natural cementing materials. Research work into the problem of securing pozzolan cements was undertaken by some research groups in the State.

Limestone

There was little change in the State's limestone industry during the year. Production continued at all the large quarries located at Lime in Baker County, at Dallas in Polk County, and at Marble Mountain in Josephine County. Production from these quarries was used almost exclusively for portland cement with minor amounts going into agricultural uses. Several smaller quarries located in the Roseburg area and near Dallas produced agstone for use in the Willamette Valley. Pacific Carbide and Alloys Company continued to quarry their own limestone near Enterprise in Wallowa County. The Production and Marketing Administration reported that a total of 49,106 tons of agricultural limestone was purchased under their liming program in 1951. The agstone was distributed to farms located in 17 counties in the State. As in past years, small quantities of limestone were imported from Washington and California.

OREGON MINERAL PRODUCTION

(IN MILLIONS OF DOLLARS)



Clay

Nineteen brick and tile plants were active throughout the year. Some producers reported considerable competition from other building materials such as precast masonry units, but in general the demand was good. Continuing efforts by the Department to find a suitable white paper coating clay have not been successful so far.

Mineral Production in Oregon in 1950

Mineral	Quantity	Value
Clays (except for cement) thousand short tons	112	$ 91,000
Coal (thousand short tons)	1	8,000
Copper (short tons)	19	8,000
Gold (troy ounces)	11,058	387,000
Lead (short tons)	17	5,000
Mercury (flasks, 76 pounds)	5	1/
Perlite (short tons)	17,397	70,000
Pumice and pumicite (short tons)	79,653	321,000
Sand and gravel (thousand short tons)	8,200	8,168,000
Silver (thousand troy ounces)	14	12,000
Stone 2/ (thousand short tons)	3,837	5,559,000
Zinc (short tons)	21	6,000
Undistributed: Asbestos, carbon dioxide (natural), cement, diatomite, gem stones, lime, quartz, stone (dimension and crushed granite)	---	6,907,000
Total	---	$21,542,000

1/Less than $500.

2/Excludes dimension stone and crushed granite which are included in "undistributed."

Perlite, pumice, and expanded shale

Lightweight aggregates have become firmly entrenched as standard building materials, and the production of the various lightweight materials continued at a brisk pace. Pumice producers have shifted the emphasis of their production from concrete block aggregate to such items as plaster sand, florist bedding material, poultry litter, and monolithic aggregate. Several of the producers have constructed efficient screening, crushing, and drying plants and are concentrating on the production of material rigidly adhering to specifications. The net result of this change in the type of products manufactured is an increase in value per unit over the previous year. In 1949 the average value per cubic yard of pumice produced was $1.63 as compared to a value of $2.24 per cubic yard for 1950. The trend in production of higher priced pumice products will probably continue. One producer in the central Oregon area has produced a light cinder aggregate which is almost as light as pumice but much stronger. The cinders are separated with air, the heavier fractions being used as a driveway road metal. About the same quantity of perlite plaster aggregate was produced by Dant and Russell, Inc., Dantore division, as in 1950.

The expanded shale industry, which is centered in Portland, enjoyed a considerable increase in production during the year, with a large percentage of the finished material moving out of the State to markets as far distant as British Columbia, Montana, and eastern

Washington. The improvements in flow sheets at both of the expanding plants permitted greater efficiencies which enabled a considerably greater production without installation of additional kiln capacity. Total value of expanded shale produced in the State during the year approached the half-million dollar mark.

Diatomite

The production of diatomite remains, as it has for many years, in the hands of one producer, the Great Lakes Carbon Corporation. From its plant at Lower Bridge in northern Deschutes County, products are shipped all over the country for use by chemical and construction industries.

Silica

Production of silica by the Bristol Silica Company at the town of Rogue River in Jackson County constitutes the only producing source of this commodity in the State. The company crushes both quartz and granite. All of the granite and a small amount of quartz are sold for poultry grit. Quartz is also shipped for use in metallurgical industries and for special purposes.

Coal

Production of coal in the Coos Bay area of southwestern Oregon continues on a very modest scale. The South Slough mine continued operations during the year but the output was for local consumption only.

Gem stones

Popularity of semiprecious gems kept the gem collectors, lapidarists, and hobbyists active during the year. The industry is characterized by numerous individual operators who collect, cut, and polish quartz-family minerals which are found in abundance in the central and eastern parts of the State. Some operators are engaged in the work on a part-time basis while a few maintain year-round activity. Value of stones produced annually in the State has been estimated to be as high as one million dollars.

Metallics

Gold, silver, copper, lead, and zinc

Production from lode mines in the State accounted for only a small fraction of the declining gold production during the year. One bucketline dredge and numerous small hydraulic operations accounted for the bulk of production. One bucketline dredge owned by Porter & Company finished dredging on Crane Creek in Grant County in July. The company was reported to be considering dismantling the boat and shipping it to Idaho.

Some work was done at the Ruth zinc mine in Marion County, and a small amount of prospecting was done at copper, lead, and zinc deposits in the Bohemia district of Lane County as well as in some other parts of western Oregon.

Mercury

In response to the large increase in the price of quicksilver early in 1951 the Bonanza quicksilver mine in Douglas County reopened in April. The property has been in steady production ever since, and additional ore reserves have been developed as a result of exploration work conducted on the 500- and 600-foot levels in the mine. The Bonanza was the only large producer in the State during the year, with an estimated production valued at roughly $250,000. One prospect in central Oregon retorted and sold a few flasks. Quicksilver prices fluctuated slightly after reaching the $220 per flask level about the middle of the year, reaching a high of $227 at one time. Price quoted for the week ending January 5, 1952, was $208 to $211 per flask depending upon the quantity.

A new quicksilver prospect was found in southern Grant County and was under development at the end of the year.

Chromite

The big news in southwestern Oregon was the establishment of a government chrome purchasing depot. Largely as a result of concentrated effort by mining groups in the area, the General Services Administration set up this depot at Grants Pass on August 3, 1951. Shipments to the stockpile have come from many mines in southwestern Oregon and northern California, but tonnage figures of ore received are "restricted." A price schedule based on ore assaying 48 percent Cr_2O_3 and having a 3.0 to 1 chrome-iron ratio at $115 per long dry ton was set up. Payments on a sliding scale depending on the chrome content and the chrome-iron ratio range from $67 for ore assaying 42 percent Cr_2O_3 with a 2.0 to 1 chrome-iron ratio to $167 a ton for 56 percent Cr_2O_3 ore having a 3.5 to 1 chrome-iron ratio.

Limonite

An industry new to Oregon was started early in the year when the Orr Chemical and Engineering Company began producing activated limonite at its Scappoose plant. The plant prepares a finely ground limonite obtained from a deposit near at hand. Activated limonite is used as a sulphur scrubber by the Portland Gas & Coke Company in its Linnton generator. Approximately 1,000 tons of Scappoose limonite was shipped to Emeryville, California, for the production of pigment.

Exploration

Alcoa Mining Company has continued to explore ferruginous bauxite deposits in Columbia and Washington counties although on a greatly reduced scale.

Hanna Development Company, an affiliate of M. A. Hanna Company, has been exploring the nickel deposit on Nickel Mountain, near Riddle in southwestern Douglas County, Oregon, during 1951. Churn drilling, bulldozing, and some underground work were done. Values are in garnierite, a nickel silicate.

The U. S. Bureau of Mines did some exploration work in the nickel laterite on Woodcock Mountain in Josephine County. Work included bulldozing and auger-hole drilling.

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NEW CHROME CONCENTRATOR

A new mill for concentration of chromite is reported under construction on Hardscrapple Creek east of O'Brien in southern Josephine County. Rice Brothers, general contractors of Marysville, California, are constructing the mill and will operate it in conjunction with A. W. Waite. Concentrating ore will be hauled to the plant from several properties in southwestern Oregon and northern California. Milling equipment will include a ball mill, jigs, and tables. Reported capacity is 300 tons per day.

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NEW MERCURY PRODUCER

Laurence Roba, Canyon City, Oregon, is reported to have shipped a number of flasks of quicksilver from his recently discovered property near Murderers Creek in southern Grant County. Retort Capacity is said to be about 10 tons of ore per day.

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NEW SAMPLING EQUIPMENT INSTALLED AT CHROME DEPOT

According to the Grants Pass Courier the government chrome depot on the Redwood Highway near Grants Pass is completing installation of new sampling equipment including small crusher, rolls, vibrating screen, and electric drying oven. The personnel at the depot consists of Dan Beyer, manager; Harold Deming, sampler; M. M. McClelland, inspector; Lawrence Bryant, clerk; and Bill Mason, heavy-equipment operator. Practically all of the chrome mines have been closed because of heavy snow but the depot has received several shipments of concentrates in the last few weeks.

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BRISTOL SILICA COMPANY MAKES NEW PRODUCTION ARRANGEMENTS

Harbison-Walker Company, large, well-known refractories concern, has entered into an arrangement with Bristol Silica Company for joint operation of the Bristol silica quarry in Jackson County. The Bristol Silica Company will continue to quarry quartz in order to supply its crushing plant at the town of Rogue River from which shipments are made for poultry grit and for metallurgical and other special uses. Harbison-Walker will also quarry quartz and ship to a plant in the San Francisco Bay area where silica brick will be made.

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OIL TEST ABANDONED

Lile No. 1 oil test drilled by the Union Oil Company of California in Coles Valley northwest of Roseburg has been abandoned at 7,002 feet. It is reported that further study of the general area will be made by the company.

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MINING LAW BULLETIN ISSUED

"Mining Laws of the State of Oregon" - a bulletin in its third edition (revised) - has just been issued by the State Department of Geology and Mineral Industries. This new edition of the Department's Bulletin No. 1 contains some additional material on federal mining regulations and brings the record of laws affecting assessment work up to and including the assessment year 1950-1951. The bulletin also contains the State's oil and gas law enacted by the 1949 Legislature. The Department has sold more than 3500 copies of Bulletin No. 1 since publication of the first edition in 1937.

Bulletin No. 1, third edition (revised), may be obtained from the Portland office of the Department at 1069 State Office Building, or from the field offices at Baker and Grants Pass. Price postpaid, 40 cents.

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BASIC MATERIALS LIST

The Defense Production Administration has issued a revised "List of Basic Materials and Alternates" to serve as a guide to industry and the Government in purchasing materials and in the use of alternates and substitutes for materials that are scarce. . . .The list classifies approximately 400 items into three groups: Group I - materials in insufficient supply to meet defense and civilian demands; Group II - materials in approximate balance for defense and civilian demand; and Group III - materials in fairly good supply.

Group I includes aluminum, beryllium, copper, lead, magnesium, selenium, titanium, tin, zinc, platinum, cobalt, columbium, molybdenum, nickel, tantalum, tungsten, asbestos, beryl ore, bort, acid grade fluorspar, graphite, kyanite, mica (muscovite), rare earths, sulphur, sulphuric acid, talc, and certain types of steel and chemicals.

Listed in Group II as being in approximate balance with demand are antimony, bismuth, cadmium, calcium, germanium, chromium, manganese, vanadium, titanium pigments, corundum, diatomite, metallurgical fluorspar, artificial graphite, magnesite, mica (phlogopite), quartz crystals, ground talc, and refractories of high alumina, magnesite, silicon carbide, and sillimanite.

DPA said that in fair to good supply are mercury, gold, palladium, rhodium, silver, boron, tellurium, ferrotitanium, zirconium, certain gray iron castings, soda ash, bentonite, celestite, ball and china clays, diatomite, emery, feldspar, flint, Fuller's earth, garnet, pumice, pyrophyllite, refractories of dolomite, fire clay and silica, rutile, topaz, tripoli, and zircon.

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BLUE CHIP METALS

This atomic age is dependent on metals, and their importance is constantly being brought home to us. This is a development hastened by war and war preparation, but in any case, seemingly, it is an industrial evolution along the course set by the demand for more and improved machines and the inventions of new and more intricate instruments. A greater quantity of the common metals is continually demanded; and "new" metals - new in their practical applications - are becoming increasingly necessary in the ever-expanding industrial field. Cobalt, titanium, columbium, tantalum, germanium, and the so-called rare-earth metals are among those which have become essential to modern industry. Because of price, domestic needs, and metallurgical characteristics, they are the "blue chips" of present-day metallurgy.

Cobalt is one of the most useful of the new-old metals. Nearly everyone is familiar with the beautiful cobalt blue color which comes from some cobalt salts, and the main use for the metal for many years was in the arts. Cobalt metal had very little application as a metal until research pointed to cobalt alloys having outstanding characteristics. It was found that cobalt when alloyed with other metals such as nickel, chrome, tungsten, and some others, takes on incomparable qualities, one of which is withstanding elevated temperatures and this quality is now utilized in jet engines. Cobalt forms nearly indispensable alloys for permanent magnets and magnetic steels. Some other industrial uses, besides ceramic, are in forming high speed and other steels, cemented carbides, and hard facing welding rods. Our needs have expanded tremendously in the past few years. Consumption in 1950 was 8,283,408 pounds compared to about 2,893,000 pounds in 1941. Price of the metal is now about $2.40 per pound compared to $1.50 in 1941. Up to the present we have been dependent on imports, principally from the Belgian Congo and Northern Rhodesia. However, one mine in central Idaho owned by Howe Sound Mining Company is now getting into production and will reportedly have a capacity of about 3 million pounds of metal annually. The old silver district of Cobalt, Ontario, is taking a new lease on life and can produce a substantial amount of cobalt along with the silver. If the large demand continues and the market price provides sufficient incentive, new domestic deposits will probably be found and developed.

Titanium is best known in oxide form for use in pigments. However, titanium metal is becoming more and more in demand because of a very desirable combination of qualities of strength and light weight. The application of titanium to aircraft is a natural development and will probably find an expanding demand as the metal becomes cheaper and more available. Because of chemical characteristics, reduction to metal from titanium compounds is attended with much difficulty, hence the current high market price of about $5 a pound. If the history of production of titanium metal runs true to form, and it surely will, there will be a progressive reduction in cost of production which will mean a wider use in industry.

Columbium and tantalum, usually closely associated in nature, are in strong demand for specialized uses, many of which are for military needs. The principal use of columbium is not as a metal by itself but rather in improving the quality of stainless steels and in giving superior strength to alloys used in jet engine and gas turbine construction. Because our own production of columbium is inconsequential and imports are insufficient for our actual and potential needs, concentrated efforts have been made with some success to develop substitutes. However, under present conditions columbium is in insufficient supply to meet both defense and civilian needs and we are trying to increase imports and develop domestic sources.

Tantalum is used mainly as a metal in which form it has a variety of valuable uses. It is corrosion resistant, has a high melting point, and is readily worked. It is used for many surgical supplies and for electronic tube parts. Tantalum carbide is a component of some cutting tools, and cemented carbides of tantalum and columbium have special uses.

U.S. Bureau of Mines Minerals Yearbook reports that in 1949 imports of columbium ores for consumption largely from Nigeria amounted to 1,557,479 pounds valued at $561,945, a large reduction compared to 1,973,728 pounds in 1948 and 2,821,634 pounds in 1947. The decline in columbian production has been due to the exhaustion of the richer tin placers of northern Nigeria from which the bulk of columbite production has been derived. Imports of tantalum ores mostly from Belgian Congo amounted to 136,664 pounds valued at $237,292 in 1949, 127,688 pounds in 1948, and 418,753 pounds in 1947.

Germanium is another metal which has been brought into the industrial limelight during the past few years because of unique qualities. These qualities have caused a great increase in the demand for the metal in the electronics field. A "transistor" has been developed by Bell Laboratories for use in long-distance circuits and rectifiers. The "transistor" is a minute object, smaller than a pea, which operates like a vacuum tube. The rectifying characteristics of germanium have led to the development of a germanium diode, a very small compact device which has allowed construction of tiny wrist-watch type radios having no glass tubes. Many other interesting things about germanium are being developed. Germanium is produced from zinc ores of the Tri-State district which contain 0.01 to 0.1 percent Ge. The market price of germanium is reported to be about $180 a pound.

The rare-earth metals were interestingly described by Barnett Ravits in Barron's, December 17, 1951, and the following is abstracted from his article:

Today the rare-earth metals are increasingly in the news because of their use in atomic energy developments and to a limited extent in the metallurgy of high quality steels and light metal alloys. In order of their relative abundance rare-earth minerals include: cerium (31%); neodymium (18%); lanthanum, samarium, dysprosium, ytterbium, and gadolinium (7% each); erbium (6%); praseodymium (5%); lutecium (1.5%); terbium, holmium, and thulium (1% each); and europium (0.2%).

The main derivative of rare earths is misch metal (mixed metal), consisting mostly of cerium. Misch metal (flints) is the essential element in cigarette lighters, but it also has a number of other uses. It adds intensity and brightness to miners' lamps, gas mantles, carbon arcs for searchlights and motion picture projectors. It is an important ingredient of flashlight powder. Manfacturers of stainless and super-alloy steels employ misch metal to prevent flakes (fine internal cracks) and to remove oxygen and other gases, thereby creating denser steels with improved rollability when heat treated.

Current prices reflect the varying availability of the rare-earth metals. Fairly pure cerium, for instance, is valued at around $50 per pound. Lanthanum, neodymium, and praseodymium fetch prices of $175, $200, and $750 per pound, respectively. High-purity europium oxide and thulium oxalate bring the extremely high prices of about $700 and $1,500 a gram, respectively. Misch metal, the crude and presently main commercial form of the rare-earth metals, currently sells for around $4.50 per pound.

Up until recently, the major raw material from which the rare earths are derived was monazite sand. Low-grade monazite is found in Idaho, Florida, and North Carolina, but these deposits are uneconomic at current domestic prices. Monazite's scarcity has shot import prices up from $245 a ton in 1949 to $360 a ton at present - when it can be obtained.

Recently the Molybdenum Corporation acquired an acreage of several square miles in California containing an exceptionally large and rich deposit of bastnäsite, a new source of rare earths. Drilling on 50 percent of the property already has outlined about 1 billion pounds of the rare-earth minerals. At depth, the company estimates that its deposit contains 3 billion pounds.*

Despite the commercial strides made in the use of the rare earths, the metallurgy and chemical separation and purification of rare-earth metals are still in their infancy. The Atomic Energy Commission is undertaking a most intensive investigation into the history of these minerals and the scientific problems surrounding them, especially in its Ames Laboratory at Iowa State College. Similar experiments are being conducted at the University of Idaho.

From what has been revealed about the AEC's work on and interest in the rare earths, the results of its research mark a considerable advance in knowledge of separating the difficult-to-isolate component metals, and thus stand to enhance their future industrial consumption.

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*E&MJ Metal and Mineral Markets for December 20, 1951, reports that a deposit of bastnäsite owned by William Heim in the Callinas district of New Mexico is being developed by Lindsay Light & Chemical Company and General Chemical Company. The deposit, discovered by Heim while mining fluorspar in 1950, contains 14 rare-earth minerals. Current production amounts to several carloads of concentrate a month. Ed.

F.W.L.

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PETROLIFEROUS GEODE

A. W. Hancock, mineral and fossil collector, Portland, has presented the Department with a slice of a chalcedony geode which shows an irregular segregation of crude oil. This geode was picked up by Mr. Hancock about 1 mile northeast of the Clarno oil test well in sec. 34, T. 7 S., R. 19 E. The outside of the geode showed no evidence of petroleum, although Mr. Hancock had previously found a large piece of gilsonite at this locality.

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NEW MINERAL LOCALITIES MAP

The State Department of Geology and Mineral Industries has just issued a revised edition of its Mineral Localities Map published first in 1946. This map, on a scale of about 1 inch equals 16 miles, is printed on a 22 by 34-inch sheet. Locations of mineral deposits are marked in red. The legend of the map includes brief descriptions of all commercial minerals produced in the State. It also describes some potentially important economic minerals not yet in production, such as the ferruginous bauxite deposits in northwestern Oregon and the nickel deposits in the southwestern part of the State. This map has had a wide demand in schools throughout the State and by investigators who desire to plan examinations of particular mineralized areas. The map is for sale at the Portland office of the Department, 1069 State Office Building, and at the field offices in Baker and Grants Pass. The price is 30 cents.

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PITY THE DOMESTIC GOLD MINER

Statistics taken from reports of the U.S. Department of Commerce and Standard and Poor's comparing changes in the national economy between 1939 and 1951 are given in the January 20 issue of Numismatic Scrapbook Magazine. These figures quoted below were assembled by G. A. Willard, Chicago. They show that, although indexes giving a measure of our national economy have all increased strikingly over the past 12 years, the price of gold in the United States has remained static by government fiat.

Changes in the National Economy

	1939	1951	Percent change
United States Population (millions)	129	154	+ 19
Total Civilian Employment (millions)	44.6	62.5	+ 40
Industrial Production (phys. volume)	100	214	+ 114
Gross natl. production (billions)	$84	$326	+ 288
Disposable personal income (billions)	$66	$223	+ 238
Weekly Earnings (mfg. workers)	$22.42	$ 64.56	+ 188
Commodity prices (wholesale)	81	177	+ 119
Commodity prices (retail)	100	206	+ 106
Farm product prices (wholesale)	76	189	+ 149
Consumers' price index	100	185	+ 85
Money supply (adjusted deposits all banks, and currency outside of banks, in billions)	$57	$174	+ 205
U.S. Gov't debt (billions)	$35	$257	+ 634
U.S. Gov't Price of gold per ounce (dollars)	$35	$ 35	00

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OREGON GEOLOGY DESCRIBED BY FORMER DEPARTMENT GEOLOGISTS

The lead article in the January issue of the Bulletin of the Geological Society of America has the title "Late Cenozoic Geology of the Lower Columbia River Valley, Oregon and Washington" and was written by W. D. Lowry and E. M. Baldwin, both former staff members of the Oregon Department of Geology and Mineral Industries. Dr. Lowry is associate professor of geology at Virginia Polytechnic Institute, Blacksburg, Virginia, and Dr. Baldwin is associate professor of geology at the University of Oregon, Eugene.

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UNCERTAINTY REGARDING APPLICATION OF MINING LAWS TO SOME GOVERNMENT LANDS

January 29, 1952

Senator Guy Cordon
U.S. Senate Office Building
Washington, D.C.

Dear Guy:

I am again suggesting to you and urging the introduction and enactment of a bill to clarify the mining laws of the United States, or more properly the question of the applicability of the mining laws to certain lands owned by the United States.

You will recall that a few years ago I suggested to you legislation which was enacted and which confirmed the applicability of the mining laws as to the O & C revested lands. As a result of this legislation the extensive aluminum deposits in cut-over lands in Washington and Columbia Counties have been made available for entry and disposition under the mining laws.

The United States has acquired through purchase from former owners and in other ways at least thirty million acres of lands under various depression-day and social schemes such as the Emergency Relief Appropriation Act of 1935. See U.S. Code Congressional Service First Session 1947 p. 1661. These lands are generally worthless except possibly for a little grazing and for the mineral wealth thereof.

By the act of August 7, 1947, (61 Stat. 913 c. 513 § 2; 30 U.S.C.A. § 351-359) Congress extended the mineral leasing laws of the United States to these acquired lands, making them available for leasing for coal, phosphate, oil, etc.

The same year the Congress by the act of July 31, 1947, c. 406, 61 Stat.681 (43 U.S.C.A. § 1185-1189) provided that the Secretary of the Interior might dispose of materials such as sand, cactus, etc., on public lands of the United States by sale of such materials. This act, however, apparently applies only to public lands and not to any acquired lands.

Under the present law the right of citizens to locate and develop valuable minerals upon a large part of the lands of the United States is either non-existent or extremely doubtful. The mineral leasing laws have been extended to these lands as above stated but the mineral leasing laws have reference only to such things as phosphate, sulfur, and oil, and have no reference to copper, zinc, lead, and other much needed minerals. Consequently, there is a genuine and pressing need for a law which will extend to the acquired lands the mining laws of the United States. I would urge the early introduction of a bill to take care of this need.

Copies of this letter are being sent to F. I. Bristol, President of the Oregon Mining Association, and F. W. Libbey, Director of Oregon State Department of Geology and Mineral Industries.

With kindest personal regards,

Sincerely yours,
/S/ Irving Rand

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OREGON EXPLORATION LOANS

According to newspaper reports, government loans have been granted to Oregon mining groups as follows: $26,045 to E.E. Stauffer for exploration at the Coyote antimony mine 14 miles west of Brogan, Malheur County; $15,000 to Waite Minerals, Inc., for exploration at the Cowboy copper mine, southern Josephine County; and $15,345 to Owen Pigmon for exploration at the Platner mercury mine 31 miles south of Prineville, Crook County, Oregon. This last amount is the government's share or 75 percent of a $20,460 exploration program.

"FREE" GOLD STEADY

The market for "free" gold was quiet in January. Prices realized in the Far East were moderately higher. In Paris the tendency was easier.

The following prices for "free" gold, per fine ounce, were compiled by Pick's World Currency Report:

	Bars (12.5 kg.)	
	Dec.31 1951	Jan.31 1952
New York, transit	$39.00	$38.75
Manila	39.83	41.75
Hong Kong	42.00	42.75
Bombay	48.00	49.50
Tangier	39.00	38.85
Beyrouth	38.83	39.00
Paris	41.63	40.75
Buenos Aires	43.00	43.25

(From E&MJ Metal and Mineral Markets, February 7, 1952.)

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STRIP-LAND USE RULING

An Illinois Circuit Court, on January 9, ruled a Knox County zoning resolution unconstitutional as it pertained to regulations, restrictions, and prohibitions of the use of land for the mining of coal by the open-cut or strip method. The court held that the resolution violated both the 14th Amendment to the United States Constitution and sections of the Illinois State Constitution.

The circuit court also permanently enjoined the county from enforcing or attempting to carry out any of the provisions of the zoning resolution against the Midland Electric Coal Corporation, which brought the case before the court.

(From The American Mining Congress Bulletin Service, January 21, 1952.)

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OREGON TUNGSTEN PROPERTY ACTIVE

Mining operations have been started by the Ashland Mining Company at the Mattern Tungsten Deposit located on the Southern Pacific Railroad right-of-way one mile northwest of Ashland, Oregon.

Tungsten, as scheelite, is found in contact-metamorphic rocks (tactite) adjacent to a granitic intrusive. The ore zone, as now exposed, has a maximum width of about 12 feet. The initial mining is by open-cut methods. The ore will be concentrated at the company mill on the Ashland mine road one mile west of Ashland.

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OREGON ACADEMY OF SCIENCE MEETING

The annual meeting of the Oregon Academy of Science was held at the Erb Memorial Union, University of Oregon, Eugene, February 22-23. The meeting of the council, council dinner, and a meeting open to the public were held in the afternoon and evening of February 22. At the open meeting a lecture was given by Pierre Van Rysselberghe, professor of chemistry, University of Oregon, on "Sabbatical Activities in Italy and Neighboring Countries under the Auspices of the Fulbright Law." On February 23 section meetings, at which papers were presented, occupied most of the day.

Officers of the Academy for 1952 are: President, John L. Boling, Linfield College; President Elect, Ira S. Allison, Oregon State College; Secretary, F. A. Gilfillan, Oregon State College; Treasurer, A.A.Groening, Lewis and Clark College. New officers of the Geology and Geography Section are Lloyd L. Ruff, Portland, Chairman, and Mrs. Ted Gordon, Salem, membership representative.

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March 1952 Portland, Oregon

STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
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State Governing Board
Niel R. Allen, Chairman, Grants Pass
H. E. Hendryx, Baker
Mason L. Bingham, Portland

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Ralph S. Mason, Mining Engineer
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Lenin Ramp, Geologist
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Harold D. Wolfe, Field Geologist

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AN EXPANDED OREGON CERAMIC INDUSTRY

By

C.W.F. Jacobs*

The accompanying informal report was written by Mr. Jacobs at the request of the Department. Making electrical insulators as a possible new industry for the Portland area was discussed several times with Mr. Jacobs while he was on the Department's staff. Such a project should be preceded, of course, by a market survey to determine possible outlets for insulators in this area. If the survey proved encouraging, a small plant employing eight or ten men could be established and expanded into making specialty electrical items including, possibly, high-tension ware as future demand warranted. The other industries listed in the report are presented as potential ones that ought to be given consideration. Bringing natural gas into the area would be an important element in interesting capital to establish new ceramic industries. Growth in population is always an important factor in demand for ceramic products.

Editor

Introduction

The ceramic industry in the United States has an output of approximately three billion dollars annually. It is closely associated with our everyday living, both in the home and in industry, since it provides us with glass for windows and utensils; brick and tile for building; vitreous enamels for sinks, tubs, stoves, and refrigerators; chinaware, pottery, and tile; electrical and chemical porcelain; refractories and abrasives.

The following graph shows the relative order of production of specific ceramic products based on approximate dollar sales (average since 1947):

$$$$$$$$$$$$ Processed ceramic minerals

$$$$$$$$$$$$$$$$$ Abrasives

$$$$$$$$$$$$$$$$$$$$ Common clay products

$$$$$$$$$$$$$$$$$$$$$ Refractories

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$ Vitreous enamels

$$ Whitewares

$$ Cements, limes, gypsum

$$ Glass

0 2 4 6 8 10 12

Hundreds of Millions of Dollars

*Formerly ceramic engineer with the State Department of Geology and Mineral Industries; now engaged research for Titanium Alloy Manufacturing Division, National Lead Company, Niagara Falls, New Yor

The essential requirements for the establishment of a plant which will manufacture a ceramic product or process a ceramic material are listed in order of importance.

1. Low-cost fuel (natural gas, oil, electricity).
2. Raw material supply - local supply or low-cost transportation to make material accessible.
3. Ready market for product.
4. Ready supply of labor.

In the east, where most of the large manufacturers are located at the present time, the above requirements are becoming less and less easily fulfilled.

1. Fuel supplies are becoming short. This is particularly true of electric power.
2. Cost of raw material transportation by rail is increasing.
3. Labor is becoming difficult to obtain due to expanded industrialization.

Thus the Portland area, due to its excellent harbor facilities, enlarged power supply, and increased labor pool, is a logical place for the ceramic industry to develop.

Present industry in Oregon

While the manufacture of common clay products such as brick, tile, etc., is rather well established in the State of Oregon, especially in the Willamette Valley, the quality of some of the products produced could be improved. This is not the fault of the raw material but rather the methods of production. Therefore in the field of common clay products the development of more modern methods of manufacture should be investigated to try to improve the product as well as to decrease the cost by increased production.

Future ceramic industries in Oregon

From the standpoint of commercial supplies of raw material within the State and raw materials accessible to the Portland area by ocean freight as ballast or cargo, the most likely industries to be considered first are refractories, abrasives, and whitewares.

Deposits of refractory clays, described in Wilson and Treasher's report "Refractory Clays of Western Oregon,"[1/] could supply a manufacturer with sufficient raw material to produce a very good grade of firebrick or fire-clay products which could be used throughout the Pacific Northwest and would find new markets as industry developed in that area.

The abrasive and refractory industry is already established, in part, at Vancouver, Washington, where the Carborundum Company has built a plant for the production of silicon carbide grain for abrasive and refractory use. The abrasive industry is producing at the present time more than ever before. However, they cannot meet the huge industrial demands. (The Carborundum Company has announced plans for doubling the present capacity. Ed.)

With the potential of more electric power from the new installations in the Columbia River Basin area, the electric furnace operation for the manufacture of silicon carbide and alundum grain could provide a real incentive to other manufacturers to move into the Portland area and not only produce the raw material (as is Carborundum at the present time) but also manufacture abrasive wheels, coated product refractories, etc.

The whiteware industry is one of the most varied branches of the ceramic industry and includes the following products (not necessarily in order of importance).

1. Sanitary ware
2. Vitreous floor tile
3. Wall tile
4. Dinnerware
5. Electrical porcelain (low and high tension)
6. Chemical stoneware and porcelain.

1/ Wilson, Hewitt, and Treasher, Ray C., Preliminary report of some of the refractory clays of western Oregon: Oregon Dept. Geology and Min. Ind. Bull. 6, 1938.

Considering the growth of power in the Pacific Northwest, one of the most essential needs at the present time seems to be a local supply of electrical insulators both of low- and high-tension type for use in the many power projects now under construction including the REA program. Raw materials used for this industry are various clays, talc, and more recently zircon and rutile (or titania) products.

At the present time a small plant equipped to produce a line of low-tension insulators would probably succeed in the Portland area. Low-tension ceramic insulators may be considered as those which are used in homes, on farms, and for routine power loads in factories, mines, and similar establishments. Such units are powered with voltages not exceeding 440 volts. A few of the products which a plant of this type would produce are as follows: unglazed nail knobs, tubes, cleats, outlet boxes, sockets, and switches.

If a specialty item is possible, the manufacture of appliance parts is very suitable to this type of plant. Other items could be glazed products such as farm fence insulators, telephone and utility outlets, neon sign parts, and radio receiver parts.

After a firm market is established in the low-tension field, the plant could develop a line of high-tension insulators for transmission purposes.

Chemical porcelain can also be produced in a plant which is equipped to manufacture electrical porcelain, although the production of chemical ware is usually a specialty type of production involving a very high-grade type of ware and very pure raw materials. However, there is a very good profit possibility in the production of this type of ware.

Due to the competition from California the development of a tile, dinnerware, or sanitary-ware industry would not be wise at this time. Recently the Crane Company and Universal Rundel Company, Inc., both manufacturers of sanitary ware in the past, have built new plants in the Los Angeles area to produce for the western market.

The manufacture of glass containers is another part of the ceramic industry which has possibilities in the Portland area. Bottles for milk and other beverages can be produced from readily available raw materials that can be obtained from local sources or shipped in by boat from outside sources. Also with proper research and development a use could be made of the locally obtainable volcanic ash as a raw material for brown or green bottle glass.

Manufacture of ceramic raw materials

There are many products which are considered raw materials for the ceramic industry. We have mentioned silicon carbide and alundum for abrasive and refractory uses; others are as follows: zircon, zirconia, chromite, rutile, pigment-grade titania, and titanium and zircon chemicals for use in the manufacture of radio and television parts.

With the development of Oregon beach sands plus the tremendous supply of zircon and rutile obtainable from Australia, the manufacture of electric furnace products of zircon and rutile, the grinding of zircon for opacifiers and zircon porcelains, and the manufacture of fluxes from rutile for welding rods would be practicable.

The establishment of a ceramic industry in the Portland area can be accomplished in two ways:

1. Procurement of local capital to establish a manufacturing plant which would compete with the eastern manufacturer on the western market.

2. Interesting eastern firms in the development of a West Coast manufacturing area that would produce and supply their wares to a western market without the need of shipping the finished product across the country thus providing slightly lower costs to the consumer due to decreased transportation costs.

Raw materials

The raw materials available within the State seem to be of relatively low grade as far as kaolins or clays of whiteware type are concerned. However the lack of pure clay material has not prevented the industry's development in California. With the port facilities that are available in Portland, clays can be shipped in from the east as well as from England very cheaply as ballast, or payload if there is a sales market for them in the form of an industry using them to manufacture ceramic products.

Feldspars are available from Montana, Idaho, and possibly British Columbia; and the local volcanic ash, perlite, and other volcanic products could be used as low-cost substitutes in many products.

A new locally organized industry would have to compete with the pressure of established trade names in addition to having problems connected with the development of a product from new material sources. This combination of a new product plus the development of a new market could defeat an organization which is not in excellent financial condition and possessing good technical assistance so that it could weather the first years of development.

The matter of interesting eastern firms to establish ceramic plants in the development of a new western manufacturing area means a selling job. It means pointing out what Oregon has to offer so as to make an eastern manufacturer want to establish a plant in Oregon rather than in Washington or California.

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DEPARTMENT GOVERNING BOARD MEETS IN BAKER

The Governing Board of the State Department of Geology and Mineral Industries held two meetings in Baker on March 1. These meetings were planned so that the Board could meet and become acquainted with people interested in mining and receive suggestions regarding Departmental work and methods. A Chamber of Commerce luncheon meeting had been arranged and the luncheon Chamber President, Herbert Chandler, welcomed the Board. He asked Mr. Hendryx to make the introductions following which Mr. Allen outlined briefly the Department's functions. Mr. Libbey gave a picture of Oregon's mining industry including important exploration projects. He described the government's chromite buying program now in effect in southwestern Oregon. Mr. Bingham described the Department's part in discovery and development of high-iron bauxite in northwestern Oregon.

In the afternoon the Board held an open meeting in the Circuit Court Room of the Court House. At this meeting about 40 people attended. Members of the Board stated that they wished to become acquainted with the mining people and to hear first-hand their problems in order to determine how the Department might be of assistance. Mr. Hendryx, who was in charge of the meeting, asked for statements from the floor by anyone who wished to make comments, and a round-table discussion developed. Many comments were made regarding the difficulties manganese property owners have in attempting to produce and sell manganese ore. High freight rates prevent economic shipment and the principal problem appeared to be that of obtaining a local government ore purchasing depot. Miss Nadine Strayer, President of the Eastern Oregon Mining Association, had discussed the situation with the Spokane office of DMPA and stated that that office had promised to follow up with field investigations in order to determine whether or not exploration loans as well as a purchasing depot were warranted. This examination work will be done as soon as snow conditions permit. Mr. Norman Wagner, field geologist for the Department stationed at Baker, outlined the geological mapping work in which he was engaged during the 1951 field season and which will be continued mainly in southern Umatilla County in 1952.

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NIEL ALLEN REAPPOINTED

Governor McKay has reappointed Mr. Niel R. Allen, Grants Pass, as a member of the Governing Board of the State Department of Geology and Mineral Industries for a four-year term beginning March 17, 1952. Mr. Allen, a prominent attorney, has long been connected with the mineral industry of the southwestern part of the State. He has also been directly concerned with reclamation and recreational activities, and has been very active in American Legion work both locally and nationally. He has served on the State Board since 1944.

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NEW DEPARTMENT GEOLOGIST

Lenin Ramp, a graduate of the University of Oregon in geology, has joined the Department's staff. During the field season of 1951 Ramp assisted Hollis Dole in geological mapping work in the Dutchman Butte quadrangle in southwestern Douglas County. This project by Dole and Ramp will be continued in 1952. Mr. Ramp, a Navy veteran, is from a pioneer Roseburg family and was prominent in track athletics both at Roseburg High School and at the University.

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ORR ENGINEERING COMPANY GETS NAVY CONTRACT

Mr. James Orr of the Orr Engineering and Chemical Company has been awarded a contract amounting to $217,000 by the Navy to supply for Korea petroleum coke produced by the Portland Gas and Coke Company. The coke is pushed from storage to the dock with a bulldozer and then loaded on a barge by means of a clam shell. A portion of the river had to be dredged to allow the barge to dock. The barge is moved to an ocean-going steamer in another part of the harbor for cargo transfer.

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HEARING ON SNAKE RIVER DREDGING PROJECT

On Saturday, March 1, a hearing was held before the Idaho State Land Board at Boise on the application of Mr. S. K. Atkinson for a lease on the bed of the Snake River for a dredging project. As reported in the **Baker** Record Courier, some opposition developed from fish interests and also from the Idaho Hells Canyon Association interested in promoting the Hells Canyon dam. A representative of the Corps of Engineers testified by letter that such a project would need to be approved by the Engineers. The Idaho Power Company reportedly did not protest the application but asked the State of Idaho to protect its dam sites. The Secretary of State for Idaho proposed that a disinterested agency make an examination before application is granted. Representatives of small mining groups testified that they thought dredging might be done without hindering dam developments.

Mr. Atkinson had stated that he proposed to recover values in the river sands from an estimated 528 million yards. He reported that preliminary testing work had shown, besides gold, magnetite, chromite, ilmenite, garnet, zircon, monazite, and uranium minerals. Over a period of 18 years he said that $4 million in royalties could be returned to the states of Idaho and Oregon, and $31 million in local and federal taxes would be paid. About 50 miles of river bed is involved in the application.

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CUBAN NICKEL PLANT REOPENED BY GOVERNMENT

Government officials have announced the reopening of the U.S.-owned Nicaro (Cuba) nickel plant. Four of the twelve furnaces are now working 24 hours a day. Each has a capacity of over 200,000 pounds of nickel a month. The remaining furnaces are to be brought into production during the next four months. The plant is being operated by the Nickel Processing Co., a joint enterprise of N. V. Billiton Maatschappij of The Hague, Netherlands, and the National Lead Company.

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ORIGIN OF PETROLEUM

Petroleum geologists have always been in doubt as to just where and when organic matter is transformed into petroleum. It has been assumed that a long period of time following deposition in marine or brackish water sediments, pressure and perhaps heat, and possibly radioactivity have been required. This line of reasoning is logical since all known petroleum-bearing strata are of considerable geologic age. Recent studies[1] have shown, however, that liquid hydrocarbons do occur in very recent sediments in the Gulf of Mexico. The percentage of the hydrocarbons is small, but on the basis of results obtained by the Standard Oil Company of New Jersey a cubic mile of these sediments would contain 13,000,000 barrels of a paraffin-naphthene, aromatic, and asphaltic mixture resembling crude oil.

Having established the presence of these hydrocarbons in recent sediments, Mr. Smith[1] discusses their origin. Three sources are possible: (1) by contamination of the sediments during collection and analysis, (2) by migration or diffusion, or (3) by deposition or genesis in the sediments themselves. Of these three theories the last seems the most credible since analysis of the hydrocarbons by means of the Carbon 14 method indicates the recent origin of the hydrocarbons. Further work must be done before it can be definitely stated that liquid hydrocarbons are generated in recent sediments, but it seems likely that one of the geologists' most debatable questions will be answered at last.

Editor's note: Biochemical action very probably starts soon after time of deposition and continues throughout a long period of time during which increasing effects of pressure and heat come into play.

The conclusion (last sentence) of Smith's article does not disprove the traditional conception that the formation of petroleum involves a rather long period of time. It simply states that "liquid alipathic and aromatic hydrocarbons, similar to those found in crude oil (very possibly the earliest stage under the traditional conception), have been extracted from recent marine sediments for the first time."

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[1] Abstract from Preliminary notes on origin of petroleum by Paul V. Smith, Jr., Bulletin of the A.A.P.G., vol. 36, no. 2, February 1952.

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GOLD

H.R. 6470 - GOLD STANDARD ACT, 1949 - Reed (Rep., N.Y.). Committee on Banking and Currency. Stated purpose to restore right of American citizens to freely own gold and gold coin; to return control over public purse to the people; to restrain further deterioration of our currency; to enable holders of paper money to redeem it in gold coin on demand; to establish and maintain a domestic gold coin standard.

Declares standard monetary unit of United States shall be gold dollar of fifteen and five twenty-firsts grains nine-tenths fine. Gold coins of not less than $10 denomination, as Secretary of Treasury finds desirable, shall be minted and issued upon demand. Nothing in Act shall be construed to change size, weight, or fineness of present lawful silver coins. Standard gold coin and gold certificates shall be full legal tender. All other money of U.S. shall be maintained on a parity with standard gold dollar by freedom of exchanges at par with standard gold.

Standard gold bullion and coin as well as gold certificates shall be lawful money for reserves against deposits in Federal Reserve banks and in the 5 percent redemption fund against Federal Reserve notes. Standard gold bullion and coin as well as gold certificates shall count as part of minimum reserve of 25 percent to be held by Federal Reserve banks against their Federal Reserve notes in actual circulation.

All legally issued Treasury currency, except (a) fractional silver and minor coins (permissible up to $10), and (b) bank notes and Treasury notes in the process of retirement, shall have quality of full legal tender. Specifically, following shall have quality of full

legal tender: Gold coin and gold certificates, silver dollars and silver certificates, and U.S. notes. Federal Reserve notes shall be receivable for all debts, public and private, but they may not be counted as reserves against other notes or deposits of issuing banks.

All provisions of law authorizing President to alter size, weight, or fineness of gold and silver coins would be repealed. Mint charges for assaying and coining gold and silver, limits of tolerance, and alloys in gold and silver coins shall be those in effect in 1932.

(From The American Mining Congress Bulletin Service, Washington D.C., February 21, 1952.)

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IDEAL CEMENT COMPANY APPROVES STOCK EXCHANGE PLAN

Stockholders of the Ideal Cement Company of Denver have approved the plan for reorganization involving an exchange of stock with the Pacific Portland Cement Company of San Francisco, a recent issue of the San Francisco Examiner reveals.

Ideal is expected to file a registration statement with the Securities and Exchange Commission. The transaction has been approved by the directors of the Pacific Portland Cement Company, which numbers among its holdings the plant at Gold Hill, Jackson County, and the Marble Mountain quarry operations in Josephine County. Ideal stockholders also voted to increase the board of directors to 13 from 9 and to add Pacific officials.

Under the plan the Ideal Company will offer to Pacific stockholders the right to exchange two shares of Pacific stock for one share of Ideal stock.
(From Daily Courier, Grants Pass, Oregon, October 25, 1951.)

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CHROMITE IN FOURTH QUARTER 1951

Consumption of chromite in the United States reached an all-time high of over 1,200,000 short tons in 1951, a 24-percent rise over the former record established in 1950, according to the Bureau of Mines, U.S. Department of the Interior. Production from domestic mines - highest since 1945 - was less than 7,000 tons, Receipts from foreign sources, although dropping drastically in the fourth quarter, totaled 1,435,000 short tons in 1951, second only to the 1,542,000 tons imported in 1948. Four countries - the Union of South Africa, Turkey, Philippines, and Southern Rhodesia - accounted for over 86 percent of total imports. The Union supplied 350,000 short tons in 1951, slightly less than in 1950, but during the same period, the other three countries increased their shipments to the United States by 29 to 50 percent. Imports from the Philippines and Turkey in 1951 were the highest on record and receipts from Southern Rhodesia were the largest since 1943.

The tonnage of chromite used in the United States in the fourth quarter (303,000 tons) was about the same as in the three previous quarters. Production from domestic mines increased sharply towards the end of the year following the opening of a General Services Administration Purchase Depot at Grants Pass, Oregon. The entire output was from the states of Oregon and California.

Salient statistics of chromite in 1950-51, in short tons

	Domestic production	Imports	Total new supply	Consumption
1950	404	1,303,713	1,304,117	980,369
1951				
1st Quarter	74	359,474	359,548	1/ 303,259
2nd Quarter	576	319,371	319,947	300,694
3rd Quarter	637	477,463	478,100	1/ 305,107
4th Quarter	2/ 5,610	278,761	284,371	303,420
Total 1951	6,897	1,435,069	1,441,966	1,212,480

1/Revised figure.

2/Includes some chromite produced earlier.

(From U.S. Department of the Interior Bureau of Mines Chromite Report No. 24.)

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OREGON NATIVE STONE FOR ROOSEVELT MEMORIAL MUSEUM AT WARM SPRINGS, GEORGIA

As requested by Governor Douglas McKay, the State Department of Geology and Mineral Industries has prepared an Oregon stone for presentation to the Franklin D. Roosevelt Memorial Foundation museum at Warm Springs, Georgia. Typical stones from each state in the United States will be placed in the walls of the museum building. The Oregon stone is made out of a rectangular block of gray Ashland granite approximately 18 inches by 13 inches by 4 inches. One polished face, on which OREGON is etched, outlines the boundaries of the state. The stone, which has been on display in the Department's museum in the State Office Building, Portland, will be shipped in a few days to Warm Springs where a simple presentation ceremony has been planned.

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WESTVACO CHEMICAL FORMS MINERAL DIVISION

Westvaco Chemical Division of Food Machinery and Chemical Corporation has formed a Mineral Development Department with headquarters in Pocatello, Idaho. The new department will be managed by O. A. Power, formerly manager of the J. R. Simplot Fertilizer Company. Associated with Mr. Power are a number of men well known in intermountain mining circles, including geologists H. B. Fowler, Ace Allen, and W. C. Peters and mining engineers E. L. Spencer and W. A. Young.

Food Machinery is becoming an increasingly important factor in Western mining operations. Its first mining venture was the development of magnesite deposits near Porterville, California, in the early twenties. Today its Westvaco Division operates barite, magnesite, and dolomite properties in California and Nevada; a fifteen million project is under construction at Westvaco, Wyoming, to develop the large trona deposit there, and the company uses large tonnages of phosphate shale from the Fort Hall deposits in its expanding phosphorus production near Pocatello, Idaho.

In addition to developing raw materials for present operations, the Mineral Development Department will conduct a diligent search for mineral deposits on which new industry may be based.

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SALEM MANGANESE - AMMONIUM SULPHATE FERTILIZER PLANT TO CONTINUE

As announced by the Oregonian in its March 20 issue, the Continental Chemical Company plant, which has been operating in Salem to make high-grade manganese dioxide for dry batteries and ammonium sulphate fertilizer, will not close April 1 as previously announced. It was stated by D. W. Tyrell, President of the Ray-O-Vac Company which controls Continental, that an arrangement has been made with General Services Administration so that the plant could continue operation.

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TO ALL CHROME MINERS IN OREGON AND CALIFORNIA

The Oregon Department of Geology and Mineral Industries brings to the attention of all chrome producers the following:

A. The DMPA wants to know how much chrome you can reasonably expect to produce (1) this year and (2) over the next three years.

B. What would be the result in your opinion if total purchase of chrome was raised from 200,000 tons to 500,000 tons?

C. What would be the effect in your opinion if each individual quota was raised from 2,000 tons to 5,000 tons maximum per annum?

This Department is eager to make representations to the proper department in Washington as to facts and prospects regarding chrome. However, in order to do so we must have information from men who are in the business of getting out chrome as well as milling it. We want to help you but you must cooperate as we have neither the money nor the staff to carry this out alone. Please reply to Department office at Portland or field offices at Grants Pass and Baker.

STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
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State Governing Board

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METEORITES*

1. Introduction. Meteorites are scientifically important and worthy of study and preservation. They are commoner than is generally thought, knowledge and interest of people being great factors in finding them. The institutions named below* are anxious to add specimens of meteorites to their collections and to get facts about the falling and finding of meteorites.

Consider the tests and the descriptions given in this circular, prepared with the assistance of Dr. H. H. Nininger of Arizona and Dr. Oscar E. Monnig of Texas. If you think you have a meteorite, send it in. We will make an offer for its purchase or return it, and any tests will be without charge. If the possible meteorite is too large to send cheaply, write us a description and we will arrange to test a sample of an ounce or so.

Stray pieces of matter from unknown sources, moving through space at high speeds, often meet the earth. At about 75 miles above the ground, friction between these particles and the air makes them so hot that a light is produced and we see a "falling" or "shooting" star. These are properly called "meteors" and the extremely bright ones are known as "fireballs." Ordinary meteors are very small, and are reduced to gas or dust in their dash through the air. Fireballs may be as bright as the moon or even the sun. They are larger pieces of matter, and while even such fireballs may seem to "go out" at least several miles above us, they are often not actually "burned up" but only slowed down to relative coolness and may drop to the ground. These pieces of stone or iron that fall on the earth from outer space are called "meteorites."

2. Appearance and sound of fall. When the fireball seems to reach the earth or end low in trees, the meteorite (if any remains) has generally fallen from 150 to 300 miles away. When a fireball "ends" (goes out) high in the sky, a meteorite from it may fall nearby. Thunderous noises made by its disturbing passage through the air are often heard up to 50 miles from where the meteorite "lands." Persons within a fraction of a mile of the place of fall are likely to hear also a different kind of sound -- a whizzing or whirring noise, like an airplane with the meter cut off. Meteorites may fall at any time of the day or night, or year, or in any kind of weather; if it is cloudy, the fireball from which they come may not be seen, being entirely above the clouds. On clear days, especially in twilight, the fireball may leave a white cloud of dust in the sky; this sometimes remains visible for many minutes. Photographs of these dust trails are important and desirable.

3. Material. Some meteorites are metal; these are almost entirely iron, with about 5 to 10 percent of nickel. Most meteorites are stony, with a sprinkling of metallic iron granules or patches in them. The stony materials are mostly of various kinds known as

* Prepared by the Brown Foundation, Walla Walla, Washington, in cooperation with the American Meteorite Museum, Winslow, Arizona, and the Texas Observers, Fort Worth, Texas.

"silicates." Some few meteorites are types "in between" the iron and the stone kinds, consisting of about equal parts of iron and certain stony minerals, generally gray, yellowish, or greenish in color. No meteorites are intrinsically valuable, as the metals and minerals found in them are mostly common. Reported cases of such items as gold or diamonds refer to very tiny quantities, insufficient to be of commercial value. The real value of meteorites is their scientific importance, and the prices paid for them are rewards to stimulate interest and search. On this basis, we will pay liberal prices for any meteorites submitted to us.

4. Test. The best single test for any suspected meteorite is to grind a small area on a clean carborundum or emery wheel. A square inch or less is generally enough. As iron meteorites, and some stony ones are very hard, it is best to select a small surface already nearly flat. If the grinding reveals a stony interior, look closely at the surface uncovered and see if any metal patches or specks have appeared. A small magnifying glass is a help in seeing these, but they can generally be easily noticed as a scattering of irregular, silvery-appearing flecks. If metallic iron occurs in a stony mass, the piece is almost certainly a meteorite. An all-metal (iron) meteorite when ground, will show the fresh, iron interior at once; in cases like this, try a magnet on the mass as a confirming test, as any iron meteorite will be attracted by a magnet.

5. Size. Meteorites vary in size from pieces barely large enough to recognize to huge masses of 50 tons or more. What the average person is likely to find is one weighing from a fraction of a pound up to 50 or 100 pounds.

6. Weight. Meteorites are generally heavier than ordinary rocks, but this is not always or noticeably true. Extra heaviness alone is not a conclusive test. Iron meteorites are extremely heavy, weighing almost three times as much as ordinary rocks of the same size. Stony meteorites are, as a rule, less than $1\frac{1}{2}$ times as heavy as ordinary stone, and a very few are even lighter than common rock.

7. Shape. Meteorites may occur in almost any form, but they are generally very irregular in shape, and are rarely symmetrical. None are known which are round or ball-shaped, and any such objects are generally terrestrial "concretions" of a common nature. Meteorites are often cone-shaped, but square angles on them are surprisingly frequent.

8. Crust. Freshly fallen meteorites are covered with a thin, melted crust which is more often dull than shiny; it is always thin, and generally black. Fresh crusts are often "threaded" or in small ridges, showing flowlines of the material which melted. The effects of the weather change the crust quickly, making it dull or changing the color to gray or even brown (caused by the rusting of the metal) and later tending to wear away and destroy the crust. Old, weathered meteorites will generally show a rusty-brown, outside appearance, not very different from some ordinary rocks, especially certain sandstones. Fairly smooth pits or "thumb-marks" of varying size are sometimes present on the surface of meteorites. The crustal appearance is a guide principally for experienced persons.

9. Interior. It is not advisable to break or cut open a possible meteorite, as this lessens its value for scientific study by destroying some of the material and the original form, as well as injuring the crust. Iron meteorites resist efforts to pound them open or to chisel pieces off and are cut with hacksaw blades only with the greatest of effort; no such treatment should be given them. Whenever an iron meteorite is ground or cut so as to expose the inside material, it will be seen to be fresh, metallic iron, looking like silver. Stone meteorites, broken open, vary considerably in appearance, from dense, grainy, orelike rocks to very broken-looking mixtures of materials, and the general, interior color may be anything from white to black, greenish or brown; the usual interior color of the stone meteorite is light to dark gray. The free iron present will soon rust on exposed surfaces. Stony meteorites range from very hard to soft or even crumbly material. Meteorites never show gas bubble holes like artificial slag, and are never frothy or honeycombed like some lavas or volcanic rocks. They are always solid or compact.

10. Temperature. Contrary to popular opinion, meteorites are not extremely hot or flaming when they strike the ground. They do not make "glowing craters" or "burn for days." They have been out in space and are very cold; their flight of a few seconds through the air strips the thin surface material which is heated only by friction, and the remnant which hits the ground will be solid and only mildly warm if not actually cool to intensely cold. They do not spatter on striking. The only sign of melting on a meteorite is in its thin, fusion crust. Ordinary rocks which have been lying in the sunshine for some hours and are naturally quite hot are often picked up by mistake for meteorites.

11. Where found. There is no sure way or place to find meteorites. As they generally fall in groups, sometimes as much as 10 miles or more apart, others are likely to be found in a region after one has been picked up. Small ones up to several pounds in weight may bury themselves only partially or a few inches when they hit, or bounce and stay on the surface of the ground. Very large ones may penetrate into the earth for several feet, scattering some dirt outside the hole and covering the meteorite with loosely packed soil. Such holes are generally not very conspicuous. People who are outdoors a great deal and have a good idea of the ordinary or natural rocks of a country are very likely to find them. Farmers plowing often discover them. As land weathers away or is changed on the surface by working, meteorites formerly buried are likely to come to the surface.

12. Things mistaken for meteorites. Earthly nodules of iron compounds, especially "hematite," a dark-red, heavy, iron oxide which is very common, are frequently mistaken for meteorites. When one of these is ground, it will not show free metal, and even though the ground surface shows a metallic luster, it will not be silvery, and the piece will generally not be magnetic. Artificial slags or cinders sometimes contain free iron, but it is often in round pellets or drops in such formations. It never occurs so in meteorites. Slags or cinders will generally be very porous or spongy, and meteorites never are. Pieces of old, artificial, iron tools are sometimes mistaken for meteorites; a simple, chemical test for nickel distinguishes these. Rocks showing conspicuous or well-shaped crystals are not likely to be meteorites. Meteorites are solid, not porous; irregular in shape; heavy for size; black or brown; show metallic iron when ground; are different from the usual kinds of rocks found in that country. Coincidence of your specimen with these points may indicate that you have a genuine meteorite.

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PORT ORFORD METEORITE

This issue of the Ore.-Bin is principally concerned with meteorites, and the following description of the Port Orford meteorite is taken from the July 1945 Ore.-Bin as originally written by Dr. Hugh Pruett and published in the Oregon Journal. The succeeding article describes the Willamette meteorite, one of the most famous of them all. The description, somewhat condensed, is from the Geological Society of the Oregon Country News Letter, March 25, 1943.

Ed.

In the year 1859 Dr. John Evans, government geologist for Oregon and Washington, was exploring the region near the coast in Southern Oregon. It was his habit to forward rock specimens to scientists in the East for laboratory analysis. One of these scientists was Dr. Charles T. Jackson of New York. While examining a package of new arrivals Jackson made a sensational discovery. In the lot was a piece of rock like nothing on earth. It consisted of a metallic network, inclosing stony material. Chemical analysis showed that the metal was principally iron containing about 9 percent nickel. This clue confirmed by other evidence, proved that the specimen was part of a meteorite of unusual characteristics.

When the discoverer, Dr. Evans, learned what he had found he furnished from memory a description of the meteoric mass from which he had taken it. He said that it was "in the mountains about 40 miles from Port Orford and easily accessible by mules." He estimated

its weight at fully 22,000 pounds and said that the exposed surface rose about three feet from the ground. When a Boston scientific society prepared a memorial to congress asking that search be made for the treasure, Dr. Evans recalled more details. He wrote: "There cannot be the least difficulty in finding the meteorite. The western face of Bald Mountain where it is situated is, as its name indicates, bare of timber, a grassy slope without projecting rock in the immediate vicinity of the meteorite. The mountain is a prominent landmark, seen for a long distance on the ocean, as it is higher than any of the surrounding mountains." But in 1860, before arrangements for the expedition to find and unearth the strange meteorite had been completed, Dr. Evans died. No one else had his exact knowledge of its whereabouts. The missing meteorite has never been found. It is mentioned among the who's who and where's where of meteorites in scientific catalogs with the location given as "latitude 42 degrees, 46 minutes north and longitude 124 degrees, 28 minutes west." This would be about right for Port Orford, but it doesn't help to spot the meteorite. The conservative and scientifically skeptical Smithsonian Institution offers a reward for its discovery and plenty of scientific bodies would pay a good price for it.

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THE WILLAMETTE METEORITE

By
J. Hugh Pruett
GENERAL EXTENSION DIVISION, UNIVERSITY OF OREGON

> "Meteorites, though not imbedded in the earth, are real estate, and consequently belong to the owner of the land on which they are found. . . .Seeing there is no error in the record, the judgment of the circuit court will be affirmed."

Speaking was Chief Justice Wolverton of the supreme court of Oregon in the case of the Oregon Iron and Steel Company vs. Ellis Hughes. The date, July 17, 1905.

Three years earlier on a wooded hillside (property of the plaintiff) near Willamette, Oregon, the defendant had discovered a curious mass of metal - almost 16 tons of it. Later he moved it onto his own land. When the real nature of this find became known, the plaintiff brought suit to recover it and won a decision in the lower court. The defendant appealed to the higher court but was there finally forced to abandon his claims to the huge chunk of nickel-iron which later became famous as the Willamette meteorite, the largest object of its kind ever found throughout the vast expanse of the United States and Canada.

To the day of his sudden death, December 3, 1942, at the age of 83, Mr. Hughes considered this decision an inglorious and unjust defeat. This sturdy intelligent Welsh woodsman who lived his last 50 years within less than a mile from the spot of the Willamette's discovery, likely never realized that his lasting honor in scientific circles far overbalanced the loss of the mere material possession of the meteorite.

In July 1938, a party from the University of Oregon visited the scene of discovery, interviewed Mr. Hughes and others familiar with the early history of the event, and obtained many valuable photographs. At that time Mr. Hughes seemed in good health and very graciously related to Miss Betty Jane Thompson, the journalist of the visiting group, many details not found in earlier published accounts.

> "I was coming home," said Mr. Hughes, "from where I had been cutting wood for the Willamette school. I noticed this big rock for the first time but didn't think anything of it. The next day I saw a very rusty broken saw near it. I sat down on the rock which was very flat and about 18 inches above the ground. Bill Dale came along.
>
> "Then I picked up a white stone and started to hammer on the rock. It rang like a bell. Dale said he bet it was a meteor. It would probably be there yet, but my wife - you know how women are - had ideas. She was afraid somebody would go up and get it the next day."

After months of urging by his wife, Mr. Hughes went to work on a crude truck with which to move the huge mass to a spot near his house three-quarters of a mile away. He trusted no one to help him aside from his wife, his 15-year old boy, and his horse. He made the truck of logs and mounted it on ungainly wheels sawn from a tree trunk. Long and tiring work with levers and blocking was required to get the object elevated above the ground level. Finally, when it was sufficiently raised, the meteorite flopped over and tumbled onto the truck flat side down. Mr. Hughes thrilled at the fond remembrance. "It couldn't have been done better if you'd laid it there with your own hands."

Mr. Hughes next set up a "Spanish windlass" which he securely anchored with a chain. One end of a 100-foot cable of braided wire connected with the truck; the other wound on the barrel of the windlass as his horse walked in a circle around it. Thus a relatively small force exerted by the horse resulted in an immense pull on the cable.

Then began the long haul. The ground was soft and board tracks had to be laid and relaid. The windlass had to be moved and re-anchored each time the 100-foot cable was wound on it. So great were the difficulties that some days the truck was scarcely moved more than its own length.

During the process of moving, a neighbor chanced by. The next day a newspaper reporter from the Portland Oregonian appeared but found the meteorite covered with burlap. He insisted on a view of the object but the covering was not removed. Mr. Hughes said with a twinkle in his eye, "When he asked why I wouldn't, I explained the sun might warp it."

After three months of hard work in the forest, during which time few outside the Hughes family knew what was taking place, the meteorite reached its desired destination. When it was at last safely housed in a wooden building on the Hughes' property, it was put on display for an admission fee of 25 cents. People from far and near flocked to see the curiosity.

As luck would have it, among those who paid admission was a lawyer from the company on whose property the meteorite was found. "He offered $50 for the whole piece," said Mr. Hughes, "and said he wanted to show it at the Buffalo World's Fair. I wouldn't listen to him."

Not long after the attorney's visit, suit was filed by the land owners for possession of the meteorite. Public sympathy throughout the trial was generally with Mr. Hughes. The defense advanced the claim that the mass had originally been the property of the Clackamas Indians, had finally been abandoned by them at the spot where found in 1902, and therefore was not necessarily part of the land. Two old Indians, one of the Wasco tribe and the other a Klickatat, appeared in court in substantiation of this claim. Their testimony ran as follows:

The meteorite, Temanowos, had originally fallen from the moon and was thought to possess magical powers. It was held in high regard by the Indians. Rain collecting in its hollows was considered "holy water," and into this the Clackamas tribe dipped their arrows before going to war. Their young warriors were initiated by being compelled on the darkest of nights to climb the hill and visit the lonely spot where the celestial visiter reposed.

The account of a somewhat similar litigation was well aired in court by the plaintiff. This was the case of the Wennebago meteorite in Iowa. The tenant on the property saw the meteorite fall - it was comparatively small - and bury itself three feet deep. The next day he dug it up and assumed ownership. Later he sold it. The land owner brought suit and after several years the court granted possession on the ground that such objects belong to the "owner of the soil upon which they fall."

The defense, however, held there was a marked distinction between the Iowa and Oregon cases. In the former, both sides agreed on the place of fall; in the latter, no one knew where it originally landed. The Indians might have moved the meteorite from some other spot in order to give it a place of preminence on the hill. In prehistoric times when water

covered the Pacific slope the metallic mass, together with granite boulders lying near it, might have floated from a distant region on an ice floe. In the language of geologists, it would thus be an "erratic," similar to many large granite masses now found in fields and other places where they do not seem to belong.

Finally the circuit court granted possession to the Oregon Iron and Steel Company. The latter soon hauled the contested object from the Hughes property but got no farther down the road than the Johnson house when Mr. Hughes' appeal to the supreme court stopped further movement. Mr. Johnson, father of Harold Johnson who still resides in the same locality, was then appointed to guard the meteorite against removal or theft of any parts of it.

Harold Johnson tells that during the many months the mass remained there, the family's sleep was often interrupted by souvenir hunters.

> "Today with acetylene torches it might be an easy matter to get a specimen without much disturbance, but in those days their only tools were saws and hammers, and the meteorite would ring like a bell when struck. Often in the middle of the night the 'bell' would clang. Then out of bed jumped Father, grabbed his gun and, muttering to himself, rushed outside to start the intruder on his way. I still have a small chunk which Father took from a fellow who almost got away with it."

Before the meteorite was placed under guard, small pieces were cut off by various persons. At the request of the National Museum at Washington, Dr. A. W. Miller, Oregon geologist, inspected the huge mass. In an article in the Portland Oregonian of June 2, 1912, he described his study of the celestial visitor and mentioned that he removed several pieces. Dr. Henry A. Ward, Rochester scientist, made a trip across the continent to study the object. He also obtained several specimens.

At last came the 3000-word decision of the Oregon supreme court in which the lower court was upheld. After this, the Willamette was taken by water to Portland. From the river it was hauled by twelve powerful horses to the Lewis and Clark Exposition grounds where it was exhibited during the few weeks remaining of this Fair.

Scientifically minded Oregonians hoped that this interesting meteorite might remain in the State. But a very tempting bid came from Mrs. William Dodge II of New York to whom it was sold on February 15, 1906. Mrs. Dodge presented it to the American Museum of Natural History of New York. It was delivered to this museum April 14, 1906, and placed on exhibition June 7 of the same year. One condition prescribed by the donor was that the main mass should be kept intact in one piece. This weighs 31,107 pounds according to the museum catalog. In addition the museum has four other pieces which were evidently removed before Mrs. Dodge's purchase.

In June 1938, the New York museum, through the kindness of Dr. Clyde Fisher, sent to the University of Oregon a beautiful etched slab of the Willamette on an open exchange "in order that your school may have a part of the great meteorite found in your state." In addition to this, small specimens are owned by various Oregon residents related to the Hughes and Johnson families and through purchase from them.

* * * * * * *

The composition of the Willamette is approximately 92 percent iron and eight percent nickel. . . .

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OREGON BLACK SAND OPERATIONS

Coast Minerals Company, Ltd., is reported to have started stripping operations on its black sand deposit near the coast north of Bandon, Coos County. Operations looking toward production from black sand deposits on Whisky Run beach are also reported. Probably Whisky Run was the scene of the first discovery of rich placer gold along the Oregon beaches.

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SNOW MEASUREMENTS

The presence of unusually great amounts of water in the hills this year means different things to different people. Foresters, farmers, and power companies welcome the predicted abundant runoff while lowlanders in some localities have cause for concern over the danger of floods. Chrome miners anxious to get back into the hills will be delayed. Not only will the above-average snow pack take longer to melt but roads and bridges will probably suffer unduly from the runoff and may require greater than normal maintenance.

The following snow-pack measurements of representative areas in the State have been abstracted from the April 1 report of the Federal-State Cooperative Snow Surveys and Irrigation Water Forecasts:

Snow Course	Location Sec.	T.	R.	Elev.	Snow Depth (in.)	Water content (in.) 1952	Years of record	Av. water content (in.)
Dooley Mountain (Baker County)	32	11S	40E	5430	38.3	14.8[bc]	13	8.6
Bourne (Baker County)	33	8S	37E	5800	56.3	20.1	16	15.5
Olive Lake (Grant County)	14	9S	33½E	6000	71.9	27.7	16	19.3
Ochoco Meadows (Crook County)	21	13S	20E	5200	43.1	17.5[b]	23	9.3
McKenzie (Lane County)	35	15S	7½E	4800	140.4	60.6	14	41.3
Willamette Pass (Lane County)	21	24S	5½E	5600	166.0	64.6[bc]	8	40.4
Diamond Lake (Douglas County)	29	27S	6E	5315	89.6	40.7[bc]	23	19.0
Wagner Butte (Jackson County)	1	40S	1W	6900	73.9	30.0[bc]	17	16.9
Park Headquarters (Klamath County)	8	31S	6E	6450	198.4	90.5[bc]	8	61.5
Scraggy Mountain (Siskiyou County)	9	47N	10W*	6200	123.7	62.3[bc]	10	26.0
Grayback Peak (Josephine County)	9	40S	5W	6000	109.4	50.5	16	24.5
Althouse (Josephine County)	17	41S	7W	4400	59.9	24.3[b]	15	6.7
Annie Spring (Klamath County)	19	31S	6E	6018	175.9	77.3[bc]	19	44.5
Sun Mountain (Klamath County)	22	32S	7½E	5350	114.9	47.4[bc]	15	26.9
Stinking Water (Harney County)	33	21S	34E	4800	25.1	9.2[bc]	13	0.5
Disaster Peak (Harney County)	8	47N	34E	6500	76.4	36.2[a,b]	3	10.8

[a]Telephonic.

[b]Greatest April 1 water content recorded.

[c]Greatest water content, regardless of date, since record began.

*Mt. Diablo Meridian.

STANDARD MINE CHANGES HANDS

Ray Summers, John Day, Oregon, has purchased the lease on the old Standard mine north of Prairie City, Grant County, Oregon, from Bert Hayes. As soon as weather conditions permit, Mr. Summers plans to start active underground development.

The Standard mine is one of the oldest lode mines in the State. Development of the property started about 1880, but the most active period was between 1900 and 1907. Waldemar Lindgren, then with the U.S. Geological Survey, reported on the mine in 1900. D. F. Hewitt of the Survey examined and mapped the property in 1915. Messrs. Gilluly, Reed, and Park reported on the Standard in 1933 (U.S. Geol. Survey Bull. 846-A).

The mine is noteworthy in that the ore contains cobalt and it reportedly shipped some cobalt ore to the Edison laboratory. Principal production has been copper, but vein minerals are unusually varied. Gilluly, Reed, and Park report pyrite, chalcopyrite, arsenopyrite, cobaltite, glaucodot, bismuthinite, native bismuth, galena, and sphalerite.

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DREDGING MONAZITE SANDS

The Wall Street Journal, March 20, 1952, contains an article on rare earth minerals which are being extracted from the Idaho sand deposits in Warren Valley about 80 miles north of Boise. The monazite sands are extracted by three dredges owned by Baumhoff-Marshall Company, Warren Dredging Company, and Idaho Canadian Dredging Company. The heavy sands are concentrated on the dredges and are then trucked to a separating plant at Boise. In this plant electromagnetic machines are used. Besides monazite, which is the real incentive for mining the sands, magnetite, ilmenite, garnet, and zircon are recovered. At present these by-products have little or no market, but are potentially valuable. Most of the Idaho output goes to the Lindsay Light and Chemical Company, Chicago. Shipments to this company are at the rate of about 1500 tons yearly and it is expected that additional dredges will be put into operation and that in another year the amount to be treated by the firm will be three times as much as at present. Rare Earth, Inc., Patterson, New Jersey, is another consumer of the monazite.

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PACIFIC NORTHWEST A.I.M.E. CONFERENCE

The Pacific Northwest Joint Conference of the Industrial Minerals Division and the Metals Branch of the American Institute of Mining and Metallurgical Engineers will be held at the Davenport Hotel, Spokane, Washington, May 8, 9, and 10. This is the first time that a joint meeting of the Industrial Minerals Division and the Metals Branch of the Institute has been held in the Northwest. It will be the fifth meeting of the Northwest Industrial Minerals Division which have been regularly rotated among Portland, Spokane, and Seattle.

Trips to the magnesium reduction plant of the Northwest Alloys Corporation; the aluminum reduction plant and aluminum rolling mill, both of the Kaiser Aluminum and Chemical Corporation; and the Northwest Magnesite Company operations at Chewelah, Washington, will be made.

The program of papers covers a wide field of industrial minerals occurrence and utilization as well as physical and extractive branches of metallurgy. Papers which are to be presented by Oregonians are as follows:

"Industrial Utilization of Iron Oxide" - J. M. Orr, Orr Chemical and Engineering Corporation, Scappoose, Oregon.

"The Propagation of Slip Lines in Face Centered Cubic Metals" - Harry Czyzewski, President, Metallurgical Engineers, Inc., Portland, Oregon.

"Electric Furnace Melting Practices for Low and High Alloy Steels" - James Gow, Electric Steel Foundry Company, Portland, Oregon.

The featured speaker at the banquet, which will conclude the sessions May 10, will be James F. Bell, Vice-President of the Portland Gas and Coke Company. The subject will be "Quartz and Mica Mining in Brazil."

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GOVERNMENT ALLOWS INCREASED CHROME TONNAGE

Change in government buying of chrome at the Grants Pass stockpile, access road planning, and formation of an executive chrome committee composed of California and Oregon miners as part of the Oregon Mining Association were accomplished when over 300 persons interested in chrome mining met with government officials at Grants Pass, Oregon, April 28. The meeting was held under the auspices of the Oregon Mining Association, with President F. I. Bristol presiding.

George B. Holderer, chief of the ferro-alloys division of DMPA, Washington, D.C., announced the raising of the amount of chrome that the government will buy from 2,000 tons to 5,000 tons per year from any one source. The change had been sought by the Oregon Mining Association since last August when the stockpile at Grants Pass was put in operation under a schedule limiting production. It was agreed by officials and miners alike that the raise would act as a great impetus to the mining of chrome.

The reason advanced by government for the restriction is that a certain amount of money must be allocated for purchase of chrome and a limit on the amount of chrome to be purchased must be set in order to obtain that money. Mr. Holderer announced that application has been made by his division for sufficient money to raise the total limit to be purchased at the Grants Pass stockpile in the present three-year program from 200,000 to 350,000 tons. He stated that he felt sure the application would be approved and the money alloted.

Officials from each of the national forests in the chrome area were at the meeting to discuss new access roads. Chrome miners were urged to present application for roads to Stanley M. Walker, DMPA, Washington, D.C., so surveys for new roads could be made as soon as possible. The majority of chrome properties are still not operating at this time because of exceedingly heavy snow fall the past winter in the chrome areas. National forests represented included Siskiyou, Rogue River, Klamath, Sixes River, and Umpqua.

Here also to discuss mining problems were members of the Bureau of Mines and U. S. Geological Survey from Spokane, San Francisco, and Albany. Among these were Glenn Reed, Spokane; George Walker, San Francisco; J. R. McWilliams and H. W. Jones both of Albany, Oregon. Also here for consultation were O. C. Bradeen and W. N. Grabill, General Services Administration, Seattle; John O'Brien, California State Division of Mines, Redding; and Eugene Peterson, Bureau of Land Management, Medford.

Bristol asked that chrome producers set up their own organization since the financial load and time required for care of chrome problems were heavier than his organization could stand.

Joe Holman, Los Angeles, shipper of chrome from Monterey County, California, was named chairman of the new committee. Also serving are Walter F. Hoppe, Auburn; Durand Hall, Monterey; C. F. Starr, Arcata; Dorothea Reddy Morony, Yreka; Paul Brunk, Crescent City, all of California; W. F. Robertson and F. I. Bristol, Grants Pass, Oregon.

The Governing Board of the State Department of Geology and Mineral Industries meeting concurrently named Mason L. Bingham, Portland, as board chairman for the current year. Other members are H. E. Hendryx, Baker, and Niel R. Allen, Grants Pass. F. W. Libbey, director of the Department, told of a survey recently completed by his office, conducted among chrome operators. Twenty percent of those contacted answered and estimated they could produce 67,500 tons in 1952 and 416,000 tons of chrome over the three-year period.

Esther Bristol

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GOLD MINES DAMAGED BY WAR PRODUCTION BOARD ORDER L-208 ACCORDING TO COURT RULING

Gold mines in the United States were ordered closed in October 1942 by War Production Board Order L-208 which contained no provision for recovering damages for injuries sustained by the closing order. Three gold mining companies, the Idaho-Maryland Mines Corporation, the Homestake Mining Company, and Central Eureka Mining Company, in a court action charged that the order violated their constitutional rights, that they had sustained loss, and petitioned to be allowed to sue for damages. It is reported that Idaho-Maryland sued for $5,000,000, Homestake for $10,000,000, and Central Eureka for $3,000,000. The United States Court of Claims decided that the companies are entitled to a trial for possible damages and threw out government attorneys' petition for dismissal of the charges made by the mining companies. The government has not appealed the decision to the Supreme Court and if it does not so appeal, a commissioner appointed by the Court of Claims will take evidence of the damage suffered by the companies because of the shutdown. Findings of the commissioner would be later considered by the Court of Claims.

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DANT AND RUSSELL PERLITE MINE SOLD TO KAISER GYPSUM

It was announced on May 13 that after many weeks of negotiation Kaiser Gypsum, division of Kaiser Industries, Inc., Oakland, California, had purchased the mine and plant of Dant and Russell, Inc., Dantore Division, on the Deschutes River 13 miles south of Maupin. The property includes the open-pit mine, processing and acoustical tile plants, residences for the staff, office building, warehouse, and living quarters for single employees.

Dant and Russell, Inc., pioneered in the processing of perlite. The company acquired the land at Frieda, a station on the Oregon Trunk Railway, in 1945. A camp was established and exploration of the perlite deposit started. A small experimental furnace was set up at St. Helens at the Dant and Russell Firtex plant and investigations on furnacing of perlite were carried on.

In order to produce a uniform raw product for furnacing it was decided to build a pilot mill at the mine to develop a flow sheet for properly sizing the perlite product. The pilot plant was designed by P. R. Hines of Portland and proved so satisfactory that with a few small additions it evolved into a commercial plant.

Open-pit mining was developed, a drying kiln installed, and a large plant for making acoustical tile built. This included installation of a large new "popping" furnace.

Perlite plaster aggregate under the trade name of "Dantore" became well known in the Northwest and the operation developed into one of the important nonmetallics operations in the State.

Perlite is rhyolitic volcanic glass containing a notable amount of combined water. When heated under certain conditions, it expands or exfoliates to several times its original bulk. The operation is described as "popping" because of similiarity to popping corn. The resulting porous product is desirable in the construction industry because of its light weight, inertness, and insulation qualities.

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SOME PROBABLE 1952 OREGON CHROME SHIPPERS

Josephine County

Mining area	Mine name	Operator	Location Sec.	T.	R.
Greenback	Mammoth	O.L. Moore, Wolf Creek	28	33S	5W
	Harold's	Harold Reed, Sunny Valley Earl Stanlake, Grants Pass Benny Whitmore, Wolf Creek	29	33S	5W
Lower Applegate	Munger Creek	Wm.C.Lind, Grants Pass	25	38S	6W
Grants Pass	Sally Ann	Southern Oregon Mines Inc.,	36	36S	8W
	Big Bear	Grants Pass	35	36S	8W
	Salt Rock	Pat Arnot, Grants Pass	6	36S	7W
Illinois River	Sordy	Dana Bowers, Medford	14	36S	9W
	Shady Cove	Ashland Mining Co.,	11?	36S	9W
	Chrome Monument	Ashland	11?	36S	9W
	Rocky Point		11?	36S	9W
	Midnight	Joe Inman	21	37S	9W
	Jim Bus	Jack Leonard, Grants Pass	21	37S	9W
	Black Nugget		21	37S	9W
	Oregon	W.S.Robertson, Grants Pass	21	37S	9W
	Twin Cedars	R.E.McCaleb, Selma	6	38S	9W
	Mockingbird	A.R.Strickland, Grants Pass	28	37S	9W
	Deep Gorge	J.N.Grissom, Selma	32	37S	9W
	Hammer	Roy Hillis	21?	37S	9W
	Shade	Wesley Pieren, Grants Pass	21	37S	9W
	Mohawk	Carl Stevens, Wolf Creek Olaf Berseth, Selma	Fork of Rancherie Creek		
	Gray Buck 1 & 2	E.K.McTimmonds, Grants Pass	16	37S	9W
	Clearwater		21	37S	9W
	Lone Pine	R.E.Williams, O'Brien	33?	37S	8W
	Horseshoe 1, 2, 3	Lennie Brooks, Takilma Peter Brooks, Takilma	33?	37S	8W
	Black King	Donald Foster, Kerby	24	38S	9W
	Eight-Dollar	Glen, Tom, and Murphy Young Kerby, Oregon	20	38S	8W
	Griffin		18	38S	8W
Waldo	Chapman Peak	Oregon Caves Lumber Co., Grants Pass	14	39S	8W
	Black Streak	Murphy Young, Kerby	19	39S	9W

Josephine County (cont.)

Mining area	Mine name	Operator	Location Sec.	T.	R.
Waldo (cont.)	Tennessee Pass	Murphy Young, Kerby	12	39S	9W
	Lucky Strike	Glen Young, Kerby	18	39S	8W
	Black Bear 1 & 2	Edwin N. Cook	18	41S	9W
	Last Drink	R. J. Nauve, O'Brien	7	41S	9W
	Chollard (Golconda)	M. E. Hughes, Murphy	17	40S	7W
	Althouse	C.C.Beck, Holland Gene Robinson, Cave Junction	23	40S	7W
	Esterly	R.F.Oliphant, Cave Junction G.G.Pepperdine, Los Angeles, California	22	40S	8W
	Black Nugget	Gordon Leonard D.D.Austin, Bridgeview	11	41S	8W
	Ali Baba	Rice Bros., Takilma	31	40S	7W
	Sowell	R.G.Sowell, Cave Junction	30	40S	8W
	Black Diamond	Marlin Williams, Grants Pass George Clark Tom, Jack, and John Speitzner	31	40S	6W
	Chrome King	Paul Fattig, Wonder	32	40S	9W
	God's Little Acre	Edwin Cook R.J.Nauve, O'Brien	32	40S	9W
	Rock Creek 1 & 2	Edwin Cook R.J.Nauve, O'Brien	3	41S	9W
	Molly 1-21	Colin B. Campbell Levi V. Campbell Carl H. Riblett Elmer D. Riblett, Grants Pass	29	40S	9W

Curry County

Chetco	Chetco Mining Company,	F.I.Bristol Ben Baker Ed Knox Gordon White } Grants Pass T.T.Leonard, Eugene	3	39S	10W
	Chetco Group	R.E.McCaleb, Selma	11	38S	10W
	Pearsoll Peak	R.E.McCaleb, Selma	2	38S	10W
	Hayes	Hayes and Peterson, Selma	11	38S	10W
	Inmans Pearsoll Peak	Joe Inman, Grants Pass	2	38S	10W

Jackson County

Upper Applegate	Glade Creek	Wallace A. Budden, Medford	29	39S	1W

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ASSESSMENT WORK

There appears to be no likelihood that Congress will give consideration to legislation designed to exempt mining claims from annual assessment work for the assessment year ending at noon of July 1, 1952. The Department has not been informed that such legislation has been introduced in this session of Congress; therefore holders of unpatented mining claims should do their work before that date and file their proofs of labor within 30 days after the work is performed. If claims are on O and C lands, proofs of labor should, in addition to the regular filing in county offices, also be filed in the office of the Bureau of Land Management, Swan Island Station, Portland, Oregon.

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GOVERNMENT CONTRACTS FOR MONTANA CHROME CONCENTRATES

According to an announcement by Defense Materials Procurement Agency, Washington, D.C., the government has signed a contract with the American Chrome Company, San Francisco, California, a subsidiary of Goldfield Consolidated Mines Company of Reno, Nevada, for purchase of chromite concentrates. The company agrees to equip and put into production the Mouat mines in Stillwater County, Montana. The government agrees to purchase 900,000 tons of chrome concentrates during an 8-year period following a year allowed the company for plant installation. Concentrates must contain a minimum of 38 percent Cr_2O_3 and the price to be paid is $34.97 per ton. Chrome-iron ratio is not mentioned in the press releases but if the concentrates run according to testing work done in the World War II period, chrome-iron ratio will be about 1.5 to 1. Assuming this ratio, the contract price would be equivalent to that which would be obtained by using the schedule allowed for Oregon and California concentrates purchased at the Grants Pass ore-purchasing depot except that the Grants Pass schedule does not allow purchase of ore below 42 percent Cr_2O_3 and 2 to 1 chrome-iron ratio.

It was announced that DMPA will provide $2,825,000 to get the mine into production. Goldfield Consolidated will supply operating capital of $1,000,000. It is proposed to install a plant to treat 1,000 tons of ore per day and reportedly 370 tons of chromite concentrates will be produced. After the contract is satisfied, the American Chrome Company has the option to purchase the mine and mill equipment at its appraised value or at the highest bid.

During World War II, Anaconda Copper Mining Company worked the Mouat mine for the government, developed a large reserve of ore, and built a mill capable of handling 2,000 tons of ore per day. After only 8 months of operation in 1943, the mine was closed down because foreign ore began to come into this country in sufficient amounts to take care of our needs. The mine and plant were turned over to the War Assets Administration which disposed of all the equipment. About $12,000,000 in government funds was spent in opening and equipping the mine. E. A. Julian of San Francisco is President of the American Chrome Company and Frank Eickelberger, well-known mining engineer of Spokane, is Vice President.

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NEW URANIUM PROSPECTORS MANUAL

A new edition of "Prospecting for Uranium" has just been issued by the U.S. Atomic Energy Commission and the U.S. Geological Survey. The first edition was published in 1949. The new edition, pocket size like the first, contains some added material of value to anyone who wishes to prospect for radioactive materials. Some colored plates are included mainly to show coloring which some oxidized uranium minerals take on. Of course reliance may not be placed entirely on color for identification as some other elements produce similar colors in their oxidized compounds. The new edition of the handbook may be obtained from the U.S. Government Printing Office, Washington 25, D.C. The price is 45 cents.

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KEY TO DEPARTMENT'S MINERAL DEPOSITS MAP ISSUED

A list of mining properties numbered to correspond with numbers used on the Department's Mineral Deposits Map, revised edition (1951), has just been issued by the State Department of Geology and Mineral Industries. The list, titled "Key to Oregon Mineral Deposits Map," is designated Miscellaneous Paper No. 2 and represents the source material used in compiling the map. Both list and map were compiled by Ralph S. Mason, Department mining engineer. The selection of deposits was arbitrary and many more deposits are known than are listed. A great many reports of mineral deposits not listed or shown on the map are recorded in Department files. For the most part only those properties having known ore of sufficient tonnage and grade to make them economically important were included.

Miscellaneous Paper No. 2 may be obtained at the Department's office in the State Office Building, Portland, and the field offices at Baker and Grants Pass. Price is 15 cents. Price of the map to which the paper refers is 30 cents.

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ROBA QUICKSILVER PROPERTY RESUMES

Lawrence Roba has reactivated his mercury prospect near Murderers Creek in Grant County after closure last winter by heavy snow. The road to the property is reported to be open.

****

LOOKING AHEAD IN THE MARKETS

The drop in lead marks the first market acknowledgment that world-wide scare-buying of metals is ended. Hereafter one can expect more normal markets for most metals (if there is such a thing as normalcy any more), and gradually easing prices.

Consumers of metals have had little chance to build big inventories; hence there's less likelihood of another 1949 slide in prices.

Prime western zinc is moving well, but the higher grades are not. Uncertainty over the stability of the zinc price shows up in all quarters.

The halt in stockpiling lead touched off the price decline. After buying over 100,000 tons of foreign lead in recent months, the stockpilers had done about all they could. They'll probably resume when, and if, they get a new appropriation.

The tariff on lead could go back on (1.06¢ per lb.) as early as June or as late as July, if the E&MJ May average for lead stays under 18¢.

Chile's problem is basically the same as Bolivia's: How to balance a high budget on an unbalanced economy. But Chile isn't likely to seek as drastic a solution. Negotiation on sale of Chile's copper will continue. A higher price for Chile could come out of it, but rash action on her part could muddle world copper markets badly.

You can ship manganese ore from India for $10 per ton, June charter, the lowest level of freight rates since Korea. The recent high was $16.50 per ton. Shipowners are looking for cargoes. All bulk shippers should benefit.

Tungsten ore prices abroad are weakening. Though the ceiling in this country continues at $65 a short ton unit, foreign offerings have been increasing. In recent weeks even our government has not paid more than $57 f.o.b. vessel, port of shipment. Offerings have been noted at $53 on ore for future delivery. Historically, current tungsten ore prices are very high. (From E&MJ Metal and Mineral Markets, May 8, 1952.)

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GEM WEIGHTS

5 carats = 1 gram

155 carats = 1 ounce troy

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June 1952 Portland, Oregon

STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
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****

CATLOW VALLEY CREVICE

By

N. S. Wagner*

On May 4th, it was reported in the press, that a large, open and newly formed crevice in the earth in Catlow Valley, Harney County, Oregon, had been discovered. The report indicated the crevice to be of great length and depth. This was confirmed by the writer on the occasion of a hurried visit to the area May 7th. A more extended examination was made on May 21st and the following paragraphs summarize the observations made at that time.

The crevice is located about a mile southeast of the Miller ranch and extends for a paced distance of somewhat in excess of 2 miles along a general northeast course. These relationships are indicated on the accompanying sketch. The area traversed represents valley bottom land which is essentially flat. This is made up of clays and silts with occasional interbedded lenses of sands and fine gravels. No information is available concerning the thickness of these sediments but the valley as a whole is underlain by basaltic lavas of Tertiary age.

The crevice was discovered about May 1st; how much earlier it may have existed is problematical. For readers unfamiliar with the area it can be stated that the country is semi-arid and very sparsely populated. Random travel is severely restricted during the winter and spring thaw seasons. The crevice could therefore have been in existence for quite some time before its announced discovery despite its proximity to the Miller ranch.

It is difficult to make an effective verbal picture of the crevice in a few words because visible characteristics vary over a wide range. The northeast third of the crevice is narrow and often only a couple of inches wide over a running length of several yards. It is further characterized by an abrupt, precipitous descent from the surface. By contrast, the southwest section of the crevice, extending from the meadow to a point about 200 feet east of the well, has a surface width of 8 to 12 feet, with occasional wider areas. Here, however, the surface width is a trenchlike enlargement which surmounts a narrow, vertical crevice. This surface trench has vertical sides and either a V- or U-shaped bottom. The depth is irregular, due to erratic accumulations of debris, but appears to be generally 6 to 8 feet. The narrow crevice coincides with the low point of the upper trench. It is similar to the narrow crevice occurring in the northeast section except for its exposure in the trench bottom rather than at the level of the land surface.

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*Geologist, Department of Geology and Mineral Industries, Baker, Oregon.

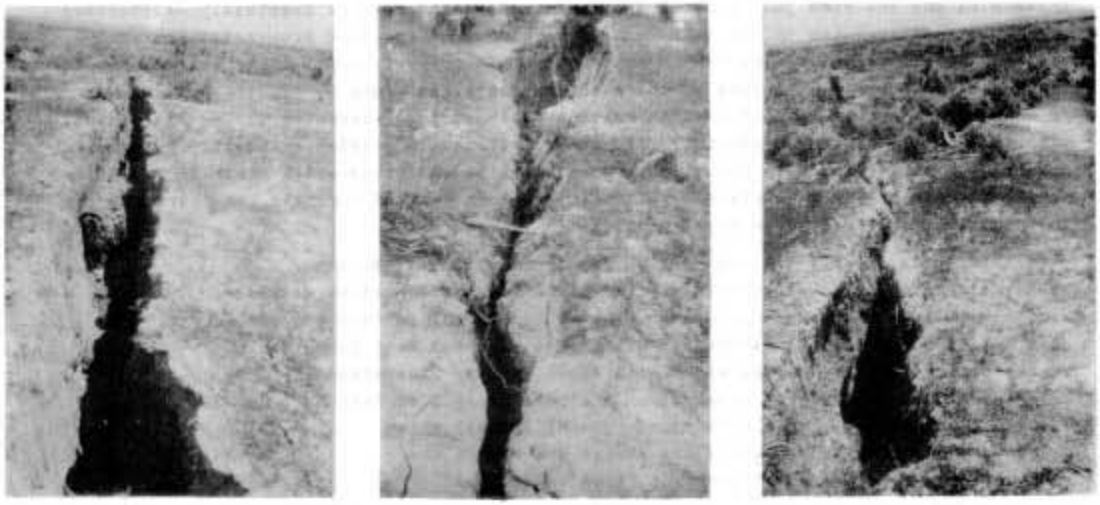
The foregoing paragraph describes the two different states of surface expression occurring at opposite ends of the crevice traverse. The intermediate section is characterized by a series of abrupt alternations between wide and narrow types of surface manifestation, with the wide, trench-capped stretches becoming narrower and less frequent to the northeast. The entire crevice exposure may be summed up as a gradual change from its narrow, clean state of occurrence on the northeast end to the wide, trench-capped condition on the southwest end. In this connection it may also be noted that what little slope there is to the land surface is to the south and southwest. The narrow northeast end of the crevice is therefore at its highest elevation; the southwest terminus at its lowest.

Two roads, two dry wash channels, and a fence cross the crevice and none shows evidence of malalignment or offset. Of these the fence is doubly important in that it shows no evidence of tightening, and hence no evidence of tensional movement at right angles to the crevice walls. Additional evidence of the lack of movement occurs in the form of short natural bridges in which the surface earth capping the crevice is wholly undisturbed, yet the open crevice can be seen to extend in an uninterrupted manner under the bridged area. There are several of these bridges. All are situated in the narrow section of the crevice. Most are only a few feet in length and the earth thickness from the ground surface to the top of the underlying cavity often appears to coincide with the depth level of the sage and grass root systems. In fact, vegetation itself serves to indicate lack of movement in that there are numerous instances of bushes straddling narrow widths of the crevice with their roots bare above the crevice, yet embedded in the earth of each wall with no evident pull or disturbance of any kind.

One of the most interesting features of the crevice is the way it cuts directly through an old dug well. The well was circular, with square lagging for about 12 feet below the collar. The original depth was 65 feet, according to local informants. In its present state the dug, circular portion is neatly bisected by a crevice 12 to 14 inches wide, and the upper timbered portion is exposed on all four sides by the surface trench. The well appears to be about 20 feet deep, with a tightly packed, level bottom composed of sediments, and at this level the crevice bottom continues as far as could be seen laterally. The circular portion of the well is still completely circular when viewed from above, or in other words, there is no distortion of the pattern despite bisection by the open crevice. Also noteworthy is the fact that the crevice continues persistently wide and clean-cut beneath the level of the debris-filled bottom of the upper trench.

Much emphasis has been placed on the lack of evidence of wall movement. In this connection it can also be said that no earthquake is known to have been felt in this portion of Harney County during the late winter and spring. There was, however, a severe flood which occurred about three weeks prior to the discovery of the crevice and was due to breakage of a large reservoir dam in the Hart Mountains. The floodwaters were sudden and catastrophic in their action. They inundated a wide area surrounding the ranch house, and swept over the area traversed by the crevice. It is to be noted also that this flood occurred at a time when the ground was well saturated by the spring melt.

While evidence of wall movement is absent, evidence of erosion is abundant in all sections of the crevice traverse. This ranges from scouring and debris on the land surface to differential erosion in places along the trench walls. Of particular interest are little water channels cut in the land surface and leading to the crevice on the side from which the flood came, but not crossing it. Even though these channels are only a few inches in width and depth, they show conclusively that the flood waters fed into the crevice. Little channels such as these occur only on the higher ground where the crevice is narrow and least extensively developed. They represent isolated intake sites which lingered on during the period when the floodwaters were otherwise receding from this section of the crevice exposure. In the lower sections where the trench occurs, such intake sites are marked by erosional embayments of appreciable size. Like the channels, these embayments



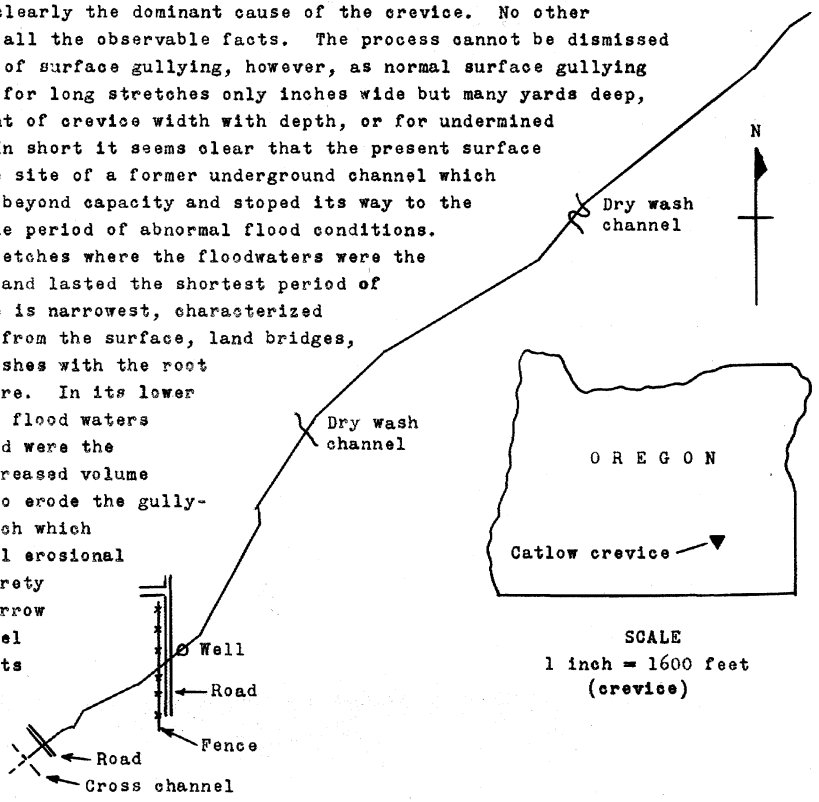
Typical views of the narrow (eastern) portion of the crevice.
Note geologist's pick in center picture. (Photos by N. S. Wagner)

Wide phase of fissure between well and fence with narrow crevice
at bottom of V-shaped section. (Photo by Eleanor McCormick)

CATLOW VALLEY CREVICE

are always situated on the side from which the floodwaters came. The best developed of these took out the road just east of the fence. Here the road is completely obliterated on the surface approach to the embayment, yet car tracks and road boundaries are clear and well defined right to the trench drop-off on the opposite side. This was well shown in the Oregon Journal's picture of the road and fence line (May 8, 1952) and it stands as another graphic example of how the crevice absorbed the floodwater during at least the last portion of the flood time. Yet other evidence of erosion exists in the crevice itself. Of particular note are circular, potholelike undercuts which occur in the walls at intervals where intake waters were concentrated in defined channels, or where changes in crevice direction favored development.

Erosion is clearly the dominant cause of the crevice. No other explanation fits all the observable facts. The process cannot be dismissed as a simple case of surface gullying, however, as normal surface gullying does not account for long stretches only inches wide but many yards deep, or for enlargement of crevice width with depth, or for undermined bridged areas. In short it seems clear that the present surface crevice marks the site of a former underground channel which became saturated beyond capacity and stoped its way to the surface during the period of abnormal flood conditions. In its higher stretches where the floodwaters were the least in volume, and lasted the shortest period of time, the crevice is narrowest, characterized by abrupt decent from the surface, land bridges, and straddling bushes with the root systems washed bare. In its lower reaches where the flood waters lasted longest and were the heaviest, the increased volume of water served to erode the gully-like capping trench which resembles a normal erosional gully in its entirety except for the narrow fissurelike channel descending from its bottom.



Sketch Map of Catlow Valley Crevice

Whether or not the subsurface waterway postulated here represents the trace of an early fault long since healed over on the surface, or the reflection of a joint pattern from the underlying lavas, is not important in explaining the origin of the present crevice.

Support for this theory of abnormal erosion of a subterranean waterway was observed in active operation at the time of the field examination. The loss of a large volume of irrigation water to the crevice in the meadow had been going on continuously for about two weeks according to local informants, and it was still continuing actively even though the portion of the trench that traversed the meadow had been since filled in by dozing. At best all that had been accomplished by the fill was a limited backing up of water for a few hundred feet in the lower end of the trench adjacent to the meadow and a shallow flooding of a local area adjacent to the filled portion of the trench. At the time of the writer's visit the water could be observed discharging into a series of little holes

along the line indicated on the accompanying sketch as a cross-fracture. Many of these holes were no larger than gopher holes, but at one which couldn't be approached nearer than 50 feet without wading, the water entered in such amounts, and with such velocity, that it could be distinctly heard from a considerable distance.

Because of a lack of time and of usable maps, no attempt was made to determine where all this water might be reappearing, but the fact that it was disappearing as just described is proof that a regional subsurface channel-way exists and leads away from the area. Thus the present setting is comparable to that postulated prior to the formation of the subject crevice; that is, comparable, except for possible details of gradient and the excess of water necessary for active up-cutting to the surface.

One more observation bears mention in conclusion. For those who may inquire as to where all the sediment from the crevice has gone, it is to be pointed out that the flood crest occurred in the approximate neighborhood of the point where the crevice trench debouched into the meadow. The bulk of the sediments from the crevice above could have discharged into this flood and have been carried away in a normal manner by the surface flood waters up until the time when the receding flood volume decreased to the point where all subsequent flow was handled by the newly opened subterranean escape route. By that time the upper reaches of the crevice had already been swept clean so that the floodwaters continuing in the meadow were free to concentrate upon the enlargement of the subterranean access points.

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CHROME MINING NEWS

The road to the Cyclone Gap mine in northern Siskiyou County, California, has been partially cleared of snow and a small crew began work at the property June 4 according to W. S. Robertson, Grants Pass, operator. Drifts of snow as much as 20 feet in depth were encountered on the road to the property.

* * * * *

Lou Robertson is reported to be mining at the Mary Walker chromite claim on Red Dog Creek south of Galice, Josephine County. A road was recently completed extending to the property from the Old Chrome road.

* * * * *

Hayes and McCaleb, Selma, Josephine County, have completed construction of a chromite concentrating mill at the McCaleb ranch, 12 miles west of Selma. Equipment includes a rod mill and jig. Ore will come from properties in the Pearsoll Peak area and in the Upper Chetco area. Operations are expected to begin in the near future.

* * * * *

Carl Anderson is doing exploration work at the Red Dog Mining Company property in the Briggs Creek area northwest of Selma.

* * * * *

E. K. McTimmonds, Selma, has exposed a new lens of chromite on the Lucky Star claim which is near the Oregon chrome mine northwest of Selma.

* * * * *

Ben Baker is installing a small concentrating mill at the Sourdough chromite mine on Baldface Creek in southern Curry County. Baker and Bristol are the owners of the property.

* * * * *

Josephine County is making improvement on the Galice road between Hellgate bridge and the Chrome Road junction in preparation for heavy ore and log hauling.

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STAPLES TAKES SABBATICAL LEAVE

Dr. Lloyd W. Staples, professor of geology at the University of Oregon, will take sabbatical leave for the academic year 1952-53. He has received an appointment as research associate at the University of California at Berkeley in the Department of Geological Sciences. His principal work will be in connection with X-ray studies of minerals using the new Philips apparatus which Dr. Pabst has installed in the Mineralogy Department. In addition Dr. Staples will make field studies of many mineral deposits of the Southwest.

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GOLD PLACERING RESUMED IN BAKER COUNTY

Pedro Bros., Huntington, have resumed placering operations on Connor Creek, a tributary of the Snake River in southern Baker County, Oregon. Their equipment includes a 3/4-yard power shovel, a bulldozer, truck and sluices. The gold is coarse and it is reported that it is found only on bedrock.

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BAKER COUNTY MANGANESE SHIPPER

According to the Baker Record Courier, manganese ore at the Sheep Mountain mine near Durkee, Baker County, is being produced. A company headed by Paul W. Wise, Boise, has leased the property from Bailey and Johnson who did exploration work on the Sheep Mountain vein during 1951. The ore, it is reported, will be shipped to Geneva, Utah. A new road 2-3/4 miles long has been built to the mine, a large bunker at the mine and a loading ramp at the railroad siding at Durkee have been constructed.

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DEPARTMENT AFTER-HOURS TELEPHONE NUMBER

The State Department of Geology and Mineral Industries has secured after-hours telephone connection CApital 5400. This number may be used to reach the Department when the State Office Building central telephone exchange is closed as on Saturday forenoons.

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BONANZA MINE ACTIVITIES

The Bonanza mine, Douglas County, is producing quicksilver metal and at the same time prosecuting a development program as rapidly as conditions permit. New work is being done at both the north and south ends of the ore body. A new stope has been developed above the 700 level at the north end. A new condensing system is being installed without any shutdown in production.

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DEPARTMENT GEOLOGIST RETURNS TO MAPPING PROJECT

Hollis Dole who has been on leave from the Department doing graduate work at the University of Utah during the academic year 1951-52 has resumed his mapping work for the Department in the Dutchman Butte quadrangle, southern Douglas County.

****

OREGON STATE SUMMER SCHOOL IN GEOLOGY

The Oregon State College summer course in geological mapping under Dr. W.D.Wilkinson will begin in the last week of June. Camp will be established near Mitchell, Wheeler County, and mapping work started last summer in the Mitchell quadrangle will be continued during this field season.

* * * * *

UNIVERSITY OF OREGON SUMMER FIELD COURSE

Summer field courses conducted by the Geological Department of the University of Oregon will be held in July at the Horseheaven mine in Jefferson County followed by stratigraphy studies at Coos Bay, Coos County. Field instruction will be given by Dr. L.W.Staples and Dr. E.M.Baldwin.

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METAL PRICES

Domestic price of lead has been reduced from 19 cents to 15 cents per pound New York. The price of zinc has dropped from 19½ cents to 16 cents a pound East St. Louis.

The price of copper remains in a somewhat cloudy position. The domestic ceiling is normally 24½ cents but the government has allowed a large increase in the government price for Chilean copper, and is pressing its allocation plan of 60 percent domestic and 40 percent foreign for the third quarter. According to the E&MJ Metal and Mineral Markets, June 12, 1952, several important domestic consumers have stated that they will not pay 35½ cents f.a.s. Chilean ports for copper when the metal was offered and sold at 33 cents f.a.s. New York equivalent to European buyers. Foreign consumers turned down fourth quarter copper at 32 cents.

Quicksilver is unsettled and has been available at $195-$198 per flask. The price has been consistently weakening over the past several weeks. Domestic production of quicksilver in the first quarter of 1952 totaled 3,050 flasks compared to 3,270 flasks in the last quarter of 1951. Imports for the January-March quarter, 1952, totaled 13,309 flasks. Consumption was 10,100 flasks.

General Services Administration has increased the base price of acceptable manganese ore at the government's purchase depot at Deming, New Mexico, from $2 to $2.30 per long ton unit. Other specifications remain the same.

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PROGRESS OF MINING LEGISLATION

H. R. 7956 - CHANGE DATE FOR BEGINNING ASSESSMENT WORK--MINING CLAIMS - Wood (Rep., Idaho). Committee on Interior and Insular Affairs. Would change date for beginning annual assessment work on mining claims in U. S. and Alaska from first day of July to first day of October. Also provides that on claims where assessment work for year beginning July 1, 1951, had been completed by 12 o'clock noon on July 1, 1952, assessment work required for year ending October 1, 1953, may be commenced immediately following noon on July 1, 1952.

H. R. 472 - MINING CLAIMS RIGHTS RESTORATION ACT - Engle (Dem., Calif.) (Leg. Bull. No.1, p. 4). In Committee on Interior and Insular Affairs. Would open to mining, development and utilization of mineral resources all public lands withdrawn or reserved for power development.

H. R. 4916 - DISPOSAL OF SAND, STONE, GRAVEL, ETC. -- PUBLIC LANDS - Regan (Dem. Tex.) (Leg. Bull. No. 15, p. 6). Mines and Mining subcommittee has under consideration an amendment brought back by Rep. Engle from California, which carries proviso that language of H. R. 4916 "shall not prevent the location and patenting under the United States mining laws of lands containing such materials, if such locations are based upon the discovery in said lands of other minerals, specifically named in the notice of location, which are now subject to location under the mining laws. Rights acquired under such mineral location and any subsequent patent issued thereto, however, shall be subject to and shall not interfere with the rights of any purchaser to purchase and remove materials which have been sold under the terms of this Act where such contracts of sale are made pursuant to notice of sale first published prior to the date of the recordation of said mineral location."

The bill, H. R. 4916, would remove deposits of sand, stone, gravel, pumice, pumicite, and cinders from acquisition under mining laws, and in National Forests permit their disposal by Secretary of Agriculture.

H. R. 6386 - MINERAL INTERESTS ACQUIRED UNDER BANKHEAD-JONES FARM TENANT ACT - Burdick (Rep., N.D.) (Leg. Bull. No. 12, p. 4). On May 28 Mines and Mining subcommittee held hearing but took no action. Bill is companion to S. 2563 by Langer (Rep., N.D.) et al. See STATUS OF BILLS - SENATE.

(From American Mining Congress Bulletin Service, June 16, 1952.)

ASSESSMENT WORK

It is unlikely because of the short time remaining before the end of the assessment year, that Congress will give attention to the bills in committee designed to exempt mining claims from annual assessment work. To conform with the federal law, annual assessment work must be completed by noon of July 1 ending the assessment year. If such work is under way but not completed, it must be prosecuted "with reasonable diligence" until completed. Proofs of labor should be filed with the County Recorder within 30 days after completion of the work. If claims are on O and C land, proofs of labor should also be filed in the office of the Bureau of Land Management, Swan Island Station, Portland, Oregon.

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RICE BROS. CHROMITE MILL IN OPERATION

The chromite concentrating mill near Takilma, southern Josephine County, built by Rice Bros., has started production. Concentrating equipment includes hydraulic classifiers, a jig, and two concentrating tables. Chromite ore for the mill is coming from the Chollard mine near Takilma.

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CHETCO MINING COMPANY OPENS ROAD TO MINE

The Chetco Mining Company owned by F. I. Bristol, Ed Knox, T. T. Leonard, and Ben Baker, has opened the road to chromite properties in the Upper Chetco River area of Curry County and mining operations are now under way. F. I. Bristol reports that deep snow was removed from 6 miles of road constructed last fall. An average depth of 7 feet was encountered with a maximum depth in drifts of 42 feet.

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HAROLD WOLFE RESIGNS

It is with regret that the Department announces that Harold Wolfe, Department geologist stationed at Grants Pass for several years, has resigned to go into other work. He will be succeeded by David White, now geologist in the Portland office of the Department.

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HUGE CAPITAL INVESTMENTS GO TO CANADA

As reported by Graham Towers, governor of the Bank of Canada, in the 1951 Annual Report of the Foreign Exchange Control, new mining ventures and the oil boom in western Canada were the principal factors in attracting more than $1,500,000,000 in foreign investments into Canada during the past two years. Direct investments from the United States in 1951, exclusive of reinvested earnings of foreign branch plants and affiliated companies, amounted to $259,000,000, with the greatest proportion, possibly nearly half, invested in western oil, iron ore in Labrador, other mining ventures, and pulp and paper. Canada's official reserves of gold in United States dollars increased $37,000,000 to $1,778,600,000 at the end of 1951. (Taken from Wallace Miner, June 5, 1952.) Currently the Canadian dollar is worth about $1.02, American dollars.

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

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SEMIPRECIOUS GEMS IN OREGON

By Ralph S. Mason*

A large and growing demand for information concerning agate and semiprecious gem localities in the State has prompted the publishing of the accompanying map. Of necessity the areas shown are generalized, and many more places than those indicated may be known. More specific information on many of the areas is obtainable from the publications listed below. Nearly every city in the State has an agate club or at least a "rockhound" or two who can supply information on local areas. Although common agates are found in abundance over wide areas, the better stones are difficult to find and the exact locations where gem-quality material has been found is usually a closely guarded secret known only to the discoverer. Luck plus diligence is the price of finding a really good stone. Most of the rhyolite areas of central Oregon are potential gem stone source beds.

Local inquiry should be made to determine ownership of land that is to be prospected. Ranchers and farmers are understandably hostile to "rockhounds" who trespass without permission, leave deep holes unprotected, damage crops, leave road ditches blocked, and tamper with gates.

In the Ochocos a mining claim containing "thunder eggs" has been opened to the public by the Prineville Mineral Society. The Friday Ranch in northern Jefferson County charges admission to its famous plume agate beds. The Oregon beaches are open to everyone, but vagaries of storm and tide cause continual changes which make hunting unpredictable. Probably agate hunting is best immediately following a storm which may have uncovered a hidden stratum. The spring of the year is an excellent time to prospect in central Oregon. New material is often uncovered by winter erosion and not yet reburied by windblown sand or hidden by vegetation.

By far the greatest proportion of Oregon's semiprecious gems belongs to the quartz family. Agates, chalcedony, opals, jasper, petrified wood, "thunder eggs," and crystallized quartz have all been found in large quantity. Oregon is famous for its "thunder eggs." These rounded masses of rock weather out of the rhyolites of central and eastern Oregon and, to the uninitiated, a "thunder egg" looks much like any other rounded rock. Only after it has been sliced with a diamond saw can the beauty of a good "egg" be determined. "Thunder eggs" commonly consist of agate which may be of any color and often intricately banded or figured. At a locality east of Burns they may contain a pink band of cinnabar, while in the Mutton Mountains of Wasco County cavity linings of the "eggs" are sometimes thinly coated with a uraniferous salt which fluoresces a beautiful greenish-yellow color. Some agates in the Clarno area in Wheeler County have a gilsonite filling.

Statewide interest in semiprecious gems is evidenced by the numerous agate and mineral clubs scattered over the State. The 1952 directory of the Northwest Federation of Mineralogical Societies lists 22 active member organizations and the number is growing steadily. The value of semiprecious gems produced in Oregon is large, having been estimated by some authorities to be as much as $1,000,000 annually.

The following publications contain much useful information on gem localities and the identification, cutting, and polishing of stones.

Dake, H. C., Gem Mining, a New Oregon Industry: Oregon Dept. Geology and Min. Industries Ore.-Bin, vol. 9, no. 7, July 1947.

" " " Northwest Gem Trails: Mineralogist Publishing Company, Portland, 1950.

" " " Mineralogist Magazine: Mineralogist Publishing Company, Portland.

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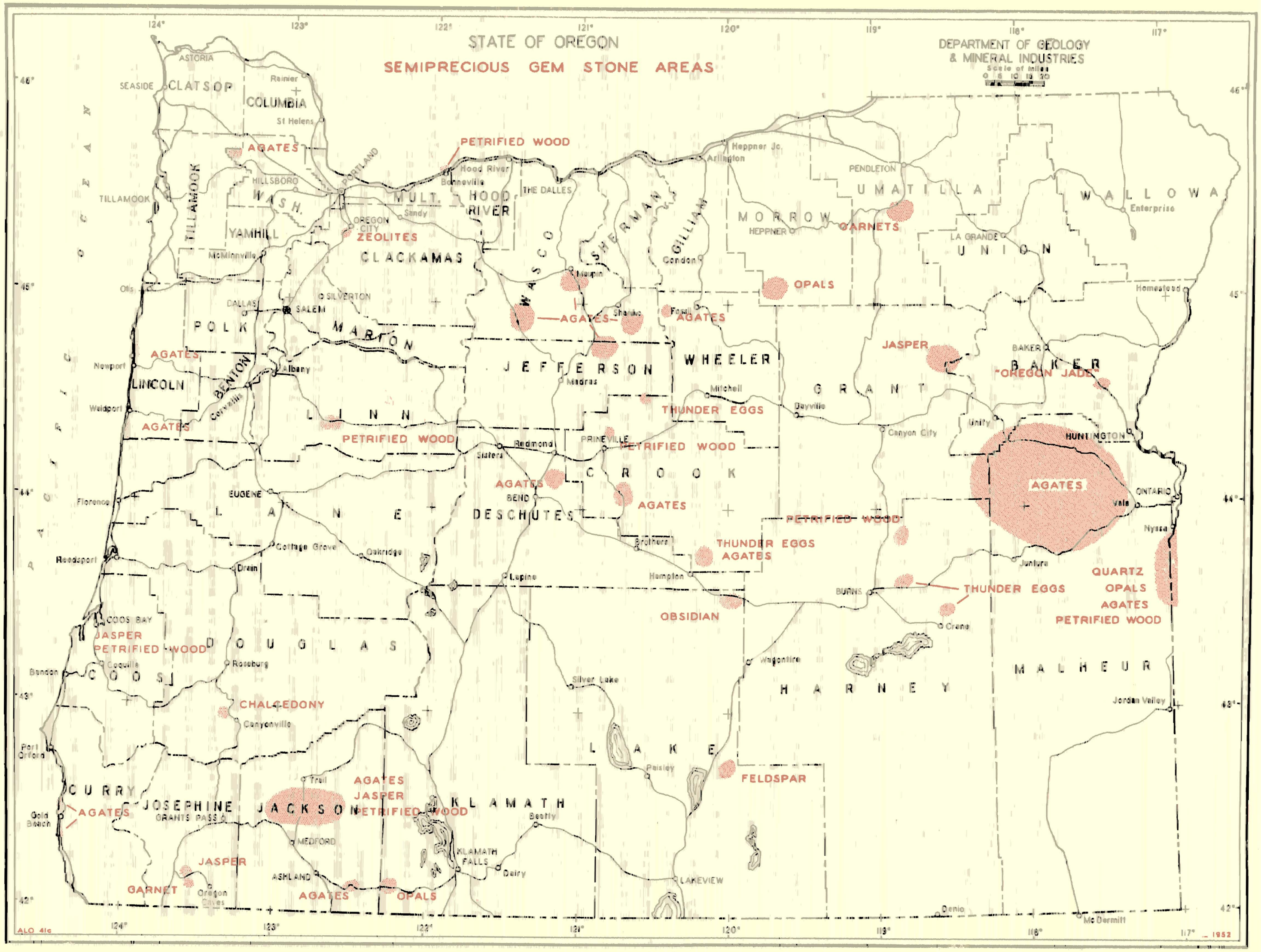
* Mining Engineer, Oregon Department of Geology and Mineral Industries.


STATE OF OREGON
SEMIPRECIOUS GEM STONE AREAS
DEPARTMENT OF GEOLOGY & MINERAL INDUSTRIES
PACIFIC OCEAN
CLATSOP
COLUMBIA
TILLAMOOK
WASH.
MULT.
HOOD RIVER
YAMHILL
CLACKAMAS
WASCO
SHERMAN
GILLIAM
MORROW
UMATILLA
WALLOWA
UNION
POLK
MARION
LINCOLN
BENTON
LINN
JEFFERSON
WHEELER
GRANT
BAKER
CROOK
LANE
DESCHUTES
DOUGLAS
COOS
CURRY
JOSEPHINE
JACKSON
KLAMATH
LAKE
HARNEY
MALHEUR
AGATES
PETRIFIED WOOD
ZEOLITES
GARNETS
OPALS
JASPER
"OREGON JADE"
THUNDER EGGS
QUARTZ
OBSIDIAN
CHALCEDONY
FELDSPAR
GARNET
ALO 41c
1952

GOVERNMENT EXPANDS MANGANESE PROGRAM

A new manganese ore buying depot has been established at Wenden, Arizona, by the General Services Administration. Three other manganese depots had previously been established at Butte and Phillipsburg, Montana, and Deming, New Mexico, respectively. The Wenden depot will buy manganese ore containing a minimum of 15 percent manganese. Ore will be accepted in lots of a minimum of 5 tons for a single shipment. One of the specifications is that ore will be purchased only from producers who have notified the government in advance of their intention to take part in the program. Prices to be paid are based on $2.30 per long ton unit of recoverable manganese less handling and treatment costs delivered at Wenden. Complete specifications may be obtained by writing the G.S.A. regional office, Building 41, Denver Federal Center, Denver 1, Colorado.

A completely new departure in the manganese buying program has been announced by Jess Larson, Administrator of General Services Administration and of the Defense Materials Procurement Agency. Under the new plan the government will buy carload lots of acceptable ore from small producers, and a small producer is defined as one whose total annual domestic output is less than 10,000 long dry tons. Prices and specifications are announced as computed on a basis of $2.30 per long ton unit of contained manganese on ore meeting the following specifications: 48 percent manganese, 6 percent iron, 11 percent silica plus alumina, and 0.12 percent phosphorous. This program will run to June 30, 1956, or for a total of 19,000,000 long dry ton units of Mn, whichever occurs first.

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NEW CHROME COMMITTEE

The Cal.-Ore. Chrome Producers is the new committee of the Oregon Mining Association organized to further the interests of the chromite producers of California and Oregon. Bill Robb, who has been active in chrome mining, is the Secretary of the Committee and will give full time to the work. His office is in the Grants Pass Chamber of Commerce. The Committee has published the initial issue of The Stockpile, the official news letter. The plan is to publish The Stockpile twice a month. Sub-Committee members are as follows:

Extension of program -

Dorothea Reddy Moroney, Yreka Inn, Yreka, California
F. I. Bristol, 1040 Washington Blvd., Grants Pass, Oregon
Durand Hall, 400 Montgomery Street, San Francisco, California

New stockpiles -

Walter Hoppe, Rt. 1, Box 1075, Auburn, California

Publicity -

Joe Holman, 2980 Allesandro, Los Angeles 39, California
Bill Robb, Secretary, Grants Pass

Mining -

W. S. Robertson, 1245 N.W. Washington, Grants Pass, Oregon

Ways and means -

All Committee members in their own districts

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NEW PHONE NUMBER

The telephone number of the State Office Building is now COlumbia 2161. The Department's extension is 488 as before.

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GOLD, SILVER, COPPER, LEAD, AND ZINC PRODUCTION IN OREGON IN 1951

According to a release by the U.S. Bureau of Mines, Albany, Oregon, total value of gold, silver, copper, lead, and zinc production in Oregon in 1951 amounted to $290,181. The total in 1950 was $417,765, a decline of more than 30 percent. The 1951 value may be compared to $4,148,271 in 1940 of which gold accounted for $3,969,040. The comparison shows the very low state that lode mining has reached in Oregon, and the almost complete eclipse of gold mining. Other western states show the same trend, although they generally have a large production of base metals to take the place of the lost gold production. The only dredge operating in Oregon at the present time is the bucketline dredge of the Powder River Dredging Company in Sumpter Valley.

The production figures for 1951 are as follows:

Gold	7,927 ounces
Silver	6,218 ounces
Copper	22,000 pounds
Lead	4,000 pounds
Zinc	6,000 pounds

A large proportion of the gold came from placer mining. Most of the copper, lead, and zinc production came from Lane and Josephine counties.

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NEW OREGON TUNGSTEN PROSPECT

Tungsten as scheelite in a contact-metamorphic rock, tactite, has been discovered on the Hall property in the SE¼ sec. 7, T. 39 S., R. 1 E., about 1½ miles southwest of Ashland, Jackson County. A small open cut on the property exposes an ore zone that has a maximum width of 2½ feet. About ten tons of ore has been mined and is being milled to determine if an acceptable grade of concentrates can be produced.

The prospect is about 1 mile northeast of the Bratcher mine and about 2 miles south of the Mattern mine.

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TUNGSTEN AND QUICKSILVER

The E&MJ Metal and Mineral Markets comments in the issue of July 10, 1952, that tungsten ore for future delivery has been weakening despite support through the United States purchasing program. In the United Kingdom the price has been lowered to about $52.80 per short ton unit compared to the ceiling in the United States of $65.00. Tungsten products have encountered increased competition which points to lower prices.

On June 30, 1952, Spanish producers abruptly lowered the price of quicksilver to $165 per flask f.o.b. Spanish ports equivalent to about $186 duty paid in New York.

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WOULD ALLOW GOLD COINAGE

A bill, H.R. 6470, was introduced in the 82nd Congress "to restore the right of American citizens to freely own gold and gold coins; to return control over the public purse to the people; to restrain further deterioration of our currency; to enable holders of paper money to redeem it in gold coin on demand; to establish and maintain a domestic gold coin standard; and for other purposes."

Any interested persons can obtain literature on the subject by writing the Gold Standard League, 1 Lloyd Avenue, La Trobe, Pennsylvania. (From Numismatic Scrapbook Magazine, July 1952.)

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NEW METALLURGICAL PROCESS

Most of the technical magazines which cover mining, metallurgy, and chemical engineering have had articles in recent issues on what is described as a new step in treatment of metallic sulphides. The process has been under study and in pilot plant operation for several years. The Chemical Construction Company, a subsidiary of the American Cyanamid Company, along with Sherritt Gordon Mines, Ltd., have worked together on application of the process for the treatment of copper-nickel-cobalt ores, and a commercial plant will be installed at the Sherritt Gordon property at Lynn Lake in northern Manitoba. The Howe Sound Company will use the process in the cobalt refining plant built on Great Salt Lake, Utah, to treat the cobalt concentrates produced at the Blackbird mine in Idaho.

An outline of the process is reported as follows: concentrates are dissolved with acid or ammonia within a sealed stainless steel autoclave having agitating equipment under high pressures from 500 to 1000 pounds per square inch and at high temperatures. Metals are recovered from the leached solution by reducing agents in an autoclave and the precipitate is in the form of a fine powder. Different metals in the concentrates may be recovered separately by varying the treatment and in addition some of the reagents may be regenerated as desired. It goes without saying that each ore must have variations in treatment as shown necessary by testing work.

It is reported that in the Sherritt Gordon plant, ammonia will be used for leaching nickel-copper-cobalt concentrates. The pilot plant which has been treating 3000 pounds per day has operated satisfactorily to recover the metals separately and a by-product of ammonium sulphate fertilizer has been made. High purity metals are produced.

The new process appears to hold great promise and is in the nature of a completely new development in the economic treatment of sulphide ores. In order to be successful in ore treatment, chemical processes must be simple and contain only a few steps from the initial dissolving to the precipitation of the commercial metal. Such processes have a way of developing "bugs" which do not show up in laboratory scale testing. A minimum of handling of solution is a requisite. These specifications are the reason that fire methods have been dominant in sulphide metallurgy over the centuries. Perhaps we shall see the furnace methods of treating nonferrous ores become less and less important in future treatment plants. For many years the only commercial chemical plants built to treat some of the common sulphide ores have been cyanide plants for gold, and sulphuric acid and ferric sulphate leaching plants for copper ores. This, of course, does not mean that chemical processes have not been used in metal refineries or that some wet processes have not supplemented fire methods.

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MANGANESE ORE SHIPPED

A car of manganese ore was shipped July 8 from the Sheep Mountain mine in Baker County, Oregon, to the Ray-O-Vac Company at Salem. Shipper was Paul Wise, Boise, Idaho, who has a lease on the mine. Manganese ore is treated at the Salem plant to make high-grade manganese oxide used in dry batteries.

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OSC GEOLOGIST ON STATE MAP WORK

Dr. Lehi Hintze of the Geology Department of Oregon State College is doing special field work for the State Department of Geology and Mineral Industries during the current summer. Dr. Hintze's work is concerned with the preparation of the State geologic map.

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CHROMITE IN APRIL 1952

According to the U.S. Bureau of Mines Mineral Industry Service, consumption of chromite in April dropped 16 percent to 100,000 short tons from the record established in March. For metallurgical uses the decrease was 10 percent, for refractories 18 percent, and for chemicals 44 percent. Imports, although one-seventh smaller than in March, exceeded consumption and were slightly higher than the 1951 monthly average. Salient statistics for chromite during 1951 are as follows: domestic production 6,897 short tons; imports 1,435,069 short tons; total new supply 1,441,966; consumption 1,212,480.

Turkey supplied the largest quantity of imports amounting to 28 percent of the total, all of metallurgical grade. The Philippines supplied 26 percent, all refractory; the Union of South Africa, 21 percent metallurgical, refractory, and chemical; Cuba, 12 percent metallurgical and refractory; Southern Rhodesia, 9 percent metallurgical; and Sierra Leone and Afghanistan together, 4 percent. Of total imports, about one-half was metallurgical grade averaging 46 percent Cr_2O_3, one-third was refractory grade averaging 35 percent Cr_2O_3, and one-sixth was chemical ore averaging 44.7 percent Cr_2O_3.

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REGAN BILL PASSED BY HOUSE

H.R. 8341, originally H.R. 4916, by Mr. Regan of Texas, passed the House July 2 and went to the Senate Committee on Interior and Insular Affairs.

The bill amends Materials Act of July 31, 1947 (61 Stat. 681 - Public Law 291, 80th Congress), which authorizes Secretary of Interior to dispose of sand, stone, gravel, common clay, etc., on public domain, so as (1) to prohibit location and patenting of mining claims under United States mining laws where such locations are based upon discovery of deposits of sand, stone, gravel, pumice, pumicite, and cinders, and (2) to provide that such deposits when situated on public lands of U.S. shall be disposed of exclusively under Materials Act; also provides that when situated in National Forests such materials may be disposed of by Secretary of Agriculture.

Included in the bill is an amendment by Mr. Engle of California which states that lands containing minerals named in the bill would continue to be subject to location and patenting under U.S. mining laws, where such locations are based upon discovery of metalliferous ores or other minerals, specifically named in location notice, and which are subject to location and patenting under mining law. (From Bulletin Service, American Mining Congress, Washington, D.C., July 10, 1952.)

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BILL TO CLARIFY STATUS OF SOME GOVERNMENT LAND

Some government lands acquired by the government in recent years have been in sort of a no-man's land in regard to their status in the public domain. In order to clarify the position of such lands Senator Cordon introduced a bill in the Senate on June 27, 1952. The bill after reading was referred to the Committee on Interior and Insular Affairs. The title labels it a bill to permit exploration, location, entry, and disposition under the mineral-land laws of the United States of certain lands acquired by the United States. These lands are stated to be all those acquired except where lands (1) have been acquired by the United States for the development of the mineral deposits, (2) have been acquired by the United States by foreclosure or otherwise for resale, (3) are surplus property under the provisions of the Federal Property and Administrative Services Act of 1949, (4) are situated within incorporated cities, towns, and villages, or national parks and monuments, (5) are set apart for military or naval purposes, or (6) are tidelands or submerged lands.

Except for these exceptions, lands acquired shall be open for exploration, location, entry and disposition under the mineral-land laws of the United States and if the requirements made by this act with respect to such claims are properly fulfilled, shall be considered valid to the same extent as if such lands were open to exploration, location, entry, and disposition under such laws from the date of acquisition by the United States.

Certain rules are set up for filing and recording of mining claims located under this act. It is expected that the bill will be reintroduced in the next Congress.

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A CENTURY OF MINERAL PRODUCTION

The Department assisted in providing Mr. Stanley A. Easton* with some production figures used to prepare his address on mine development in the Northwest during the last 100 years, given at the Northwest Engineering Centennial in Portland on August 9, 1952. Mr. Easton was concerned only with a grand total and it seemed to the writer that some of the detailed figures which were assembled to get the total would be of interest as a record. In addition, the figures show the striking growth of the mineral industry and point to its value as a creator of new wealth.

The California State Division of Mines, the Idaho Bureau of Mines and Geology, the Montana Bureau of Mines and Geology, the U.S. Bureau of Mines, Albany, Oregon, and the Washington Division of Mines and Geology cooperated in assembling the production figures given below (to the nearest million dollars):

Total Value of Mineral Production
California, Idaho, Montana, Oregon, Washington - 1852 to 1951 (inclusive)

Gold		Silver		Copper	
California	$2,339,000,000	California	$ 92,000,000	California	$ 203,000,000
Idaho	188	Idaho	416	Idaho	37
Montana	392	Montana	576	Montana	2,024
Oregon	130	Oregon	5	Oregon	5
Washington	67	Washington	11	Washington	30
Total	$3,116,000,000	Total	$1,100,000,000	Total	$2,299,000,000

Lead		Zinc		Nonmetallics (Including coal, but excluding oil and gas)	
California	$ 39,000,000	California	$ 26,000,000	California	$2,700,000,000
Idaho	789	Idaho	327	Idaho	100
Montana	107	Montana	376	Montana	524
Oregon	,(91,800)	Oregon	,(22,860)	Oregon	364
Washington	22	Washington	43	Washington	1,011
Total	$ 957,000,000	Total	$ 772,000,000	Total	$4,699,000,000

Grand Totals

	Metallics	Nonmetallics	Total
California	$ 2,699,000,000	$ 2,700,000,000	$ 5,399,000,000
Idaho	1,757,000,000	100,000,000	1,857,000,000
Montana	3,475,000,000	524,000,000	3,999,000,000
Oregon	140,000,000	364,000,000	504,000,000
Washington	173,000,000	1,011,000,000	1,184,000,000
Totals	$ 8,244,000,000	$ 4,699,000,000	$12,943,000,000

Value of metallic aluminum produced in the Northwest since 1940, the year of initial production, through 1951, would add in excess of $800,000,000 to the grand total, although

*President, Bunker Hill and Sullivan Mining and Concentrating Company, Kellogg, Idaho.

the aluminum oxide from which the metal is reduced must be brought in from the East.

Estimates for production of mercury, chromite, manganese, and iron ore are not included. Value of mineral production for the first quarter of the period was practically all from gold, and the records are incomplete. Records of production of nonmetallics are generally good only for the last 50 years. Organized collection of mineral production statistics by the government began about 1883, but many years elapsed before reliable figures, as we know them today, were assembled and published annually. Undoubtedly the real value of production is much greater than that recorded.

F.W.L.

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PERRY WICKHAM

Perry B. Wickham, well known mining engineer and mine operator in southern Oregon, died at Oakland, California, July 21, 1952. He had been in failing health for the past few years.

Mr. Wickham was born in Minnesota in 1884. The family moved west to Colorado, Idaho, and Washington, as Perry's father, a miner and mine manager, worked in several of the western mining camps. Around the turn of the century the elder Mr. Wickham examined a prospect near Galice, Oregon, and was attracted by the large bleached outcrop, later called the Big Yank Lode, at the Almeda mine near Galice. After reporting on his trip, he returned with his son, Perry, to the Almeda and organized the Almeda Consolidated Mining Company. This company did a large amount of development work under Perry Wickham as superintendent. A small matting furnace was installed and production started. Difficulties arose due to litigation and the property was finally closed down. Perry Wickham then became a field man for Western Metals Company and did development work on several prospects in southwestern Oregon. In 1928 he decided to start out on his own and bought the Ashland gold mine, famous for its high grade ore, situated a short distance out of the city of Ashland in southern Oregon. He operated this mine and a nearby property called the Shorty Hope mine and also, later on, the Greenback mine in northeastern Josephine County. These mines comprised some of the larger lode mining operations in the State. The Ashland mine was closed because of Order L-208. Mr. Wickham moved to Portland where he engaged in defense plant work during World War II. After the war he moved back to his home on the Rogue River near Rand. He attempted to resume operations at the Ashland mine but was unable to overcome the opposition of capital to gold mining. His health failed largely from frustration of his attempts to reopen the Ashland mine. He moved to Oakland, California, in 1951 and remained there until his death. Mrs. Wickham, two sons, James and Philip, and a sister, Mrs. George Harrison, survive. James Wickham recently graduated in mining engineering from the University of Arizona.

Probably no mining man knew southern Oregon lode mines better than Perry Wickham. His activities resulted in a substantial production from mines which he operated and this production was important to the economy of southern Oregon. His passing will bring sadness to his many friends in the West.

F.W.L.

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ANTIMONY MINE CLOSES

The E&MJ Metal and Mineral Markets, July 31, 1952, reported that as a result of slackening demand and lower prices Bradley Mining Company, Stibnite, Idaho, the only major antimony mine in the United States, will close down. The property produces about 90 percent of the domestically mined antimony.

(The big handicap of the Bradley antimony mine is that it is not situated in a foreign country where solicitous attention would probably be given by ECA. Ed.)

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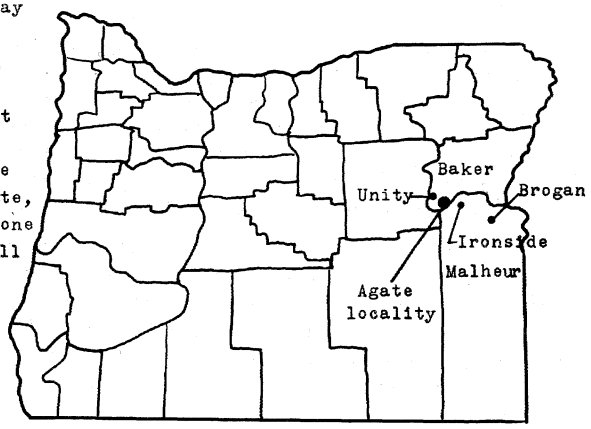
A NEW AGATE OCCURRENCE

Petrified wood, together with some fine agate, has been found over the years at random places in the country surrounding Brogan, Ironside, and Unity in northern Malheur and southern Baker counties. This region has never been noted, however, for any special source areas such as attract the attention of the rockhound fraternity elsewhere in eastern Oregon. For this reason the recent discovery of occurrences from which some very excellent banded agate and jasper have been recovered may be of more than passing interest.

The occurrences are situated about midway between Unity and Ironside. They consist of jasper bodies in an acid volcanic rock that can be roughly classified as rhyolitic. The jasper is typically light brown in color, but commonly grades into a whitish semi-agate phase. Seams and nodulelike bunches of agate are interspersed throughout the mass. To date, an insufficient amount of cutting has been done to evaluate properly the potentialities of all the agate variations present, but some very attractive settings have been made from banded agate and jasper. The banded jasper comes in both red and brown hues, and the pattern is close and intricate. The bulk of the pure agate is dense and light blue to colorless. A small percentage of this is obviously of cutting grade, and possibly some of the less obvious phases will prove attractive for jewelry purposes in the future. There is also a considerable abundance of mixed agate and jasper in which the components grade into each other and occur in rather large irregularly shaped forms without banding or individual internal pattern. Some exceptionally attractive sets have been made from select pieces of this material.



Index Map of Oregon

There is evidence that the Indians found and mined these occurrences years ago. All of these occurrences are in natural caves that have been enlarged by mining as indicated by the presence of crude "drifts," "raises," and "stopes," all of which follow seams of agate and jasper. Dumps of agate and jasper fragments occur outside near the portals. These are quite clean-cut in their bounds, showing that like material is not present everywhere in the area outside of the portals, and it seems quite obvious that they represent sites where larger chunks were cobbed down. A few jasper arrow points have been found, but in general the dumps are composed of rather large (2- to 3-inch) fragments, which suggests that the actual task of arrow making was conducted elsewhere. Why much of the material in the dumps was not considered as suitable and packed off accordingly, is not clear, and the absence of larger stone implements, or tools, is also a mystery unless they have already been picked up by collectors.

What may be found by future exploration is of course problematical, but it can be depended on that the discoverer, Mr. W. R. Parker, of Unity, will be on the lookout for Indian artifacts as well as agate, and if finds of unusual merit are made the information will be published in a future edition of the Ore.-Bin.

N.S.W.

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OIL TEST AT SUMPTER

The Baker Democrat-Herald in the July 28 and July 29, 1952, issues reports oil test drilling operations at Sumpter by Mr. L. H. Williams under the supervision of William D. Hostetler and Associates of Pasadena. The first drill hole bottomed at 410 feet and a second test was started. Leasing of land in Sumpter Valley is reported.

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SURVEY CONTINUES STUDIES IN MARSHALLS*

The U.S. Geological Survey announces that it has sent a two-man field party to explore the uninhabited Taongi and Bikar atolls as a continuation of a reconnaissance of the geology, hydrology, and vegetation in the Marshall Islands.

Sixty islands in the Marshalls were examined by the Survey between November 1950 and April 1952, and probably the most significant data obtained dealt with the types of sediments deposited on atolls and the conditions that determine the growth and stability of islands.

The islands thus far visited range in size from tiny sand bars to islands nearly 3 miles long. They are very transitory features, compared with the reefs on which they rest, for they are largely products of storms and are ultimately destroyed by them. The size, shape, and composition of the islands are controlled by a number of variables, such as seasonal changes in strength and direction of wind and waves, but storms are responsible for the greatest single accumulations of detrital materials as well as for the greatest destruction, and their effects are entirely unpredictable.

A rather delicate balance exists between the width of an island and the intensity of any given storm, it being possible for a narrow island to be swept away or at least denuded of all unconsolidated materials, whereas a large island might have a considerable amount of storm-cast detritus added to it. The effects of typhoons can hardly be overestimated. On many islands the changes caused by typhoons that happened before the memory of living inhabitants are still much more in evidence than the total changes caused by all subsequent events.

Many islands in the atolls visited are built on platforms of indurated rubble rock which stand 1½ feet to 3 feet above the present high-tide level, and which are composed of several distinct layers of flat-lying rubble that accumulated during a period of rising sea level. The upper surface of such raised platforms appears to be an erosion surface, similar to the present reef flats, and is attributed to wave planation which took place during minor pauses in a general lowering of the sea level.

Hydrologic studies indicate that a lens of fresh or relatively fresh ground water exists in each of the large islands of the atoll. This fresh-water lens in maintained by the accumulation of rain water in the clastic and reef deposits forming the island, and because of its lesser specific gravity, floats on the sea water that saturates the rocks below it. The thickness, areal extent, and relative freshnessof the lens are governed by the size of the island, the amount and distribution of rainfall, and the nature of the rocks containing the lens.

Examination of soils shows little alteration of the original sediments, the foraminiferal sand, the coral, and the algal fragments which make up the surface layers of the islands. An interesting phenomenon often noted is that of humus layers buried to some depth by wind or wave-transported sand or rubble. The frequent occurrence of these buried soils together with areas of completely fresh, unaltered coral sand and gravel, showing recent deposition or denudation, is an indication of the general instability of the islands and their domination by the sea.

As for vegetation the greatest part of the area visited has been planted to coconuts, obliterating evidence of original plant life. However, some undisturbed spots show that, before the advent of man and coconuts, the older parts of the islands supported forests of great trees a hundred feet tall. On newer areas and those exposed to strong winds, vegetation is scrubby, tangled, and difficult to penetrate.

*Condensed from U. S. Geological Survey Information Service.

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PACIFIC COAST EARTHQUAKES

The latest publication of the Condon Lecture Series by the Oregon State System of Higher Education is titled "Pacific Coast Earthquakes" by Perry Byerly, Ph.D., Professor of Seismology, University of California.

The publication is a compendium of earthquakes recorded in the Pacific Coast area and contains a large amount of descriptive material. It is an expansion of Prof. Byerly's lecture in the Condon Series presented in Eugene, Corvallis, and Portland in 1951. Other Condon Lecture publications were in limited supply and were out of print much too soon. It is not known what the supply of "Pacific Coast Earthquakes" is but anyone interested should write to Oregon System of Higher Education, Eugene, Oregon. Price is 75 cents a copy.

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BAKERSFIELD-TEHACHAPI EARTHQUAKE

As described in the Newsletter of the Pacific Section, American Association of Petroleum Geologists, August 1952, three geologists, John Crowell, Vern McMath, and Ed U'ren, made a survey of conditions following the southern California earthquake which occurred in the early morning of July 21, 1952. One part of their description which has to do with the effect of the earthquake on construction is as follows:

> "The three geologists were impressed with the fact that distress from the earthquake was related directly to the type of construction. Old brick-faced buildings, without adequate reinforcing, for example, collapsed in heaps of rubble in Tehachapi and Arvin, whereas nearby well-braced frame buildings came through essentially undamaged. In the middle of Tehachapi a new concrete and steel building was apparently undamaged, and its floor-to-ceiling plate glass window was not even broken."

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RECLAIM DREDGED LAND

Dredge operators, working in the Cascade Basin near Boise, Idaho, have announced plans to level tailing mounds, plant range grass, and try to eliminate discolored waters on the north fork of the Payette River. It has been reported that dredge operators have been successful in testing grass seeds best suited for growth on tailings and seeking means to eliminate discolored waters. Reclamation work will proceed with the coming of warm weather.

(From Mining Congress Journal, Washington, D.C., July 1952.)

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STEEL SCRAP

According to a publication of the American Iron and Steel Institute, about as much scrap as pig iron is used in the making of steel. Scrap is defined as worn out, broken, or discarded items containing iron or steel; pieces which remain after automobiles, refrigerators, or other products are made; and croppings produced by the steel mills themselves during the rolling of steel. More than half of the scrap consumed in steel plants is produced in the plants themselves during the manufacture of the finished product. Scrap is of great practical value. Its use helps save the country's resources of iron ore, coal, and limestone. It helps to quicken the steel making process. As scrap has been previously refined it is low in impurities.

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JOHN DAY CONCENTRATES SHIPPED TO GRANTS PASS

Bert Hayes, John Day, Oregon, has milled about 110 tons of chrome ore from the Dry Camp mine and produced 53 tons of concentrates which he has shipped by truck to the government depot at Grants Pass. The concentrates assayed nearly 48 percent Cr_2O_3 and had a chrome-iron ratio of about 2.6 to 1.

Mr. Curzon, who has recently built a chrome concentrating mill just east of the town of John Day, has shipped 9 tons of concentrates to the Grants Pass depot by truck and has another 9 tons ready to ship. The ore is coming from the so-called Potato Patch mine near John Day.

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COAST MINERALS, INC., ACTIVITIES

Messrs. Paul Littell and J. S. McKee together with the Idaho Canadian Dredging Company have built a mill on the Eagle property north of Bandon, Coos County, Oregon, and will treat the black sand deposit which occurs in the Eagle and adjoining Pioneer mine areas. The mill includes 14 tables, and a magnetic separator will be added. Gold, platinum, chromite, magnetite, ilmenite, garnet, zircon, and monazite fractions will reportedly be obtained. George Murphy is in charge of operations.

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NEW SOUTHERN OREGON CHROME MILL

A chrome concentrating mill is being built by Messrs. Paul Littell and J. S. McKee at the old granite quarry on N.W. "F" Street, Grants Pass. The mill includes a jaw crusher, hammer mill, and two tables with a third to be added. Capacity is said to be about 50 tons a day. Ore will be hauled from the Black Bird mine near the mouth of Swede Creek leased from Pete Neubert, Grants Pass.

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CHROMITE FLOAT SHIPPED TO GOVERNMENT DEPOT

Lew Robertson is sorting chromite from slide material near the old Nigger mine portal in Josephine County. A bulldozer is used and two men sort out chromite boulders from the slide material. About 2 tons of chrome per day is being sorted out in this operation. Exploration is being conducted in the tunnel of the old Nigger mine and near the top of the ridge above and west of the mine tunnel. Prospecting is also being done by Robertson on several other claims in secs. 14, 23, and 24, T. 36 S., R. 9 W.

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COMMENTS ON THE GOLD SITUATION

According to the Wallace Miner a French bond issue will be redeemable in gold at the free market price and is evidence that gold is again being established as a monetary base and standard of value in which people can have confidence. It is stated that the average Frenchman trusts gold and distrusts obligations payable in paper money which too often he has seen go down the drain of currency depreciation.

The Numismatic Scrapbook Magazine is the authority for the statement that when the new provision of the revised "Currency Act" becomes law, Canada will be able to set any appropriate value for a new gold coinage in terms of weight per dollar in coins of $5, $10, and $20 value. It is stated that the gold act provides for no new value for gold and also that the American valuation of $35 per ounce has been completely ignored and standard weights for the new coinage are left blank. The Finance Minister's words are quoted as follows: "The House will realize that because at the present time we are not making any fixed par for monetary unit, it would be impossible to lay down at this time any fixed standard weight for our gold coins - in other words, any parity for the dollar . . ." Is Canada preparing for a higher gold price?

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CONTRAVENING THE MINING LAWS

The Sunset Magazine, Menlo Park, California, published in its July 1952 issue an article listing methods by which families could obtain vacation homes in the West at a very small cost. Among the methods was one described under the heading "Mining Claims" which stated that anyone who wished to become an "amateur miner" could pursue his "hobby" and secure a cabin site at the same time by location of a mining claim. The article explained that it is a relatively simple matter to obtain a site by locating a mining claim and maintaining title by doing annual assessment work. It stated further that full information on federal mining laws could be obtained from the Director of the Bureau of Land Management, Washington, D.C.

The article caused Mr. Marion Clawson, Director of the Bureau of Land Management, to circularize people in the Bureau's mailing list as follows:

> "The relation between the mining laws and the non-mining uses of public land is a matter which has concerned us a great deal. Enclosed is a reprint of a book review which appeared in Sunset magazine for July 1952. Both the review and the book give prospective cabin builders specific advice on how to take advantage of the mining laws to obtain a cabin site. This is the most explicit published statement on this subject that I have seen. It puts into words what we have long felt was the general attitude of non-mining people toward the mining laws. I think you will be interested to read the brief section headed 'Mining Claims.'"

No evidence appears in Mr. Clawson's circular letter that the Bureau of Land Management offers any objection to the published statements in Sunset Magazine. There is even a suggestion of approval and congratulation that the matter was presented so explicitly. It seems to this writer that voicing of objections by the Bureau would have been quite in order since the location of mining claims for purposes other than mining is a violation of the mining laws to which those who administer the laws should definitely object.

The Editor of Sunset Magazine had undoubtedly considered that he was doing his readers a service by showing them an inexpensive means of obtaining land for a cabin site. In addition, he probably was not fully aware of the details of the mining laws and their administration. It therefore seemed to the writer that objections should be raised by those who want to prevent subversion of the mining laws and, especially, to preserve them for their original and stated purpose - that of discovering new mineral deposits and

promoting the mining industry, not recreation. Therefore the following letter was written to Sunset Magazine:

September 3, 1952

Editor
Sunset Magazine
Menlo Park, California

Dear Sir:

My attention has been called to the article titled "Ideas for Cabins and Beach Houses" which appeared in the July 1952 issue of Sunset Magazine. The part of the article under the heading "Mining Claims" contains information which I think is likely to be misunderstood by your readers unless they are well informed concerning both the spirit and the letter of the mining laws. In other words, the "Mining Claims" section may point the way to trouble for readers inexperienced in mining and this would, of course, be detrimental to your excellent periodical.

There has been a lot of publicity given out by the U. S. Forest Service and the Bureau of Land Management showing the large number of mining locations which have been made on public domain for purposes other than mining. This publicity advertises that free land may be acquired even though the spirit of the mining laws is violated. Very little in the way of publicity has appeared which shows the other side of the picture - that is, it is the function and the duty of the Bureau of Land Management to contest and if necessary take legal steps to dispossess the owner of a mining claim which is located illegally. If an invalid location is made, the Bureau of Land Management can and should contest the validity of the location at any period from the time of "discovery" up to the time of patenting. There are many pitfalls in the way of perfecting a mining location for uses other than real mining, and in the opinion of this writer such a location may not only be invalid but is fraudulent as well. One of these pitfalls is adequacy of "discovery," which according to court decisions must be sufficient to "justify a prudent person in expending money and work in exploration of it."

If, through your advice, a reader should file a mining location following the directions you outline, even to the extent of getting information from the Director of the Bureau of Land Management, and construct a cabin on his claim, he might be evicted from the claim, leaving the cabin in the hands of the government.

Some federal bureaus have been more concerned with getting the mining laws changed to give them complete control of the surface of public domain than in putting out complete statements regarding operation of the mining laws and the powers of the Bureau of Land Management to contest illegal mining locations, thus discouraging such locations. You may have misinterpreted some of this publicity. It seems to me that you owe it to your readers to caution them, even to the extent of advising them, not to locate a mining claim for the purpose of erecting a cabin or a beach house. Such a location violates the spirit, if not the letter, of the mining laws, and could result in your subscribers losing not only possession of their mining claims but all of their improvements as well.

Very truly yours,

/S/ F. W. Libbey
Director

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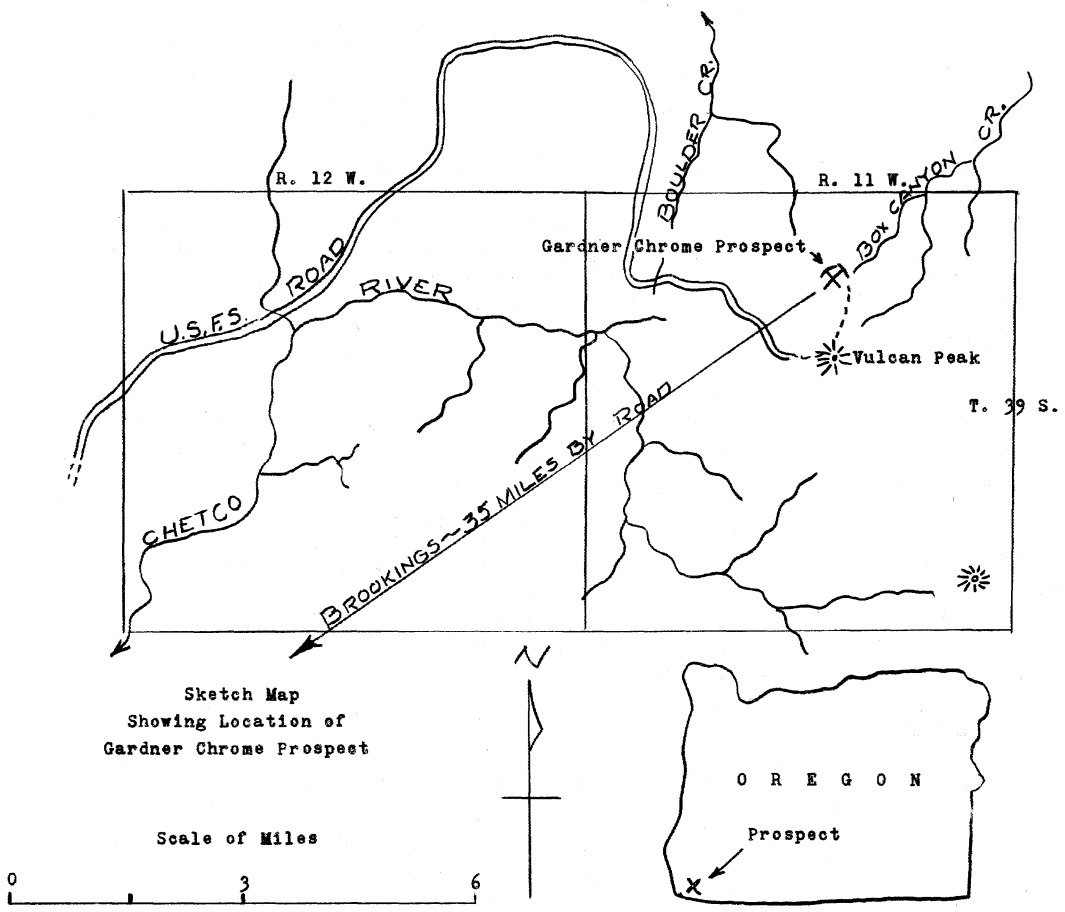
GARDNER CHROME PROSPECT

Chromite was discovered a mile and a half north of Vulcan Peak in Curry County, Oregon, by Fred Gardner of Harbor, Oregon, on the Fourth of July, 1952. He located three claims. Chromite was found in place on one, the Fourth-of-July claim. The legal description of the property is sec. 3 and 10 (? unsurveyed area), T. 39 S., R. 11 W.



A Forest Service road to the saddle west of Vulcan Peak is 35 miles from Brookings. Mr. Gardner intends to have the road extended to the workings, a distance of about 2 miles.

The deposit consists of stringers of high-grade chromite in sheared and serpentinized saxonite and dunite. The ore is in close proximity to a system of siliceous dikes, apparently rhodingite. Stringers as much as 4 feet in width are exposed in place on the surface. Most of the stringers, however, are from a few inches to about 1 foot wide.

The development consists of several small elongate open cuts which expose the ore in place. Less than ten tons of ore have been mined; but a greater amount was seen in place and the deposit looks promising.

A composite sample, taken by Mr. Gardner over the exposures, ran 50.2 percent Cr_2O_3 with a 2.99 chrome-iron ratio.

L.R.

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ACTIVITIES OF ASHLAND MINING COMPANY

Chromite is being mined from the Shady Cove prospect on Chrome Ridge(Sec. 11, T. 36 S., R. 9 W.) near Galice, Josephine County, Oregon, by the Ashland Mining Company. The ore is mined by open pit methods and is trucked to the Ashland Mining Company mill near Ashland, Jackson County, for concentration. Lenses of disseminated chromite in dunite about 50 inches in width and granular chromite and talc from 6 inches to 1 foot in width which is found in a fault gouge along the east wall of the disseminated ore are exposed in the main pit. The granular chromite from the fault zone assayed 45.31 percent Cr_2O_3 and 14.52 percent iron. A sample of disseminated chromite taken from the ore bin at the mill assayed 39.40 percent Cr_2O_3 and 12.83 percent iron. A sample of chromite concentrates ran 52.60 percent Cr_2O_3 and 14.28 percent iron.

This company has been mining some tungsten ore from the Mattern deposit on the Southern Pacific Railroad right-of-way 1 mile northwest of Ashland since February 1952. Scheelite was concentrated in the company mill and the concentrates were shipped to the U.S. Vanadium Company, Bishop, California, until chromite production was begun at the Shady Cove prospect last spring. Tungsten ore is being mined but is stockpiled and will be concentrated this winter when weather conditions prevent chrome mining operations.

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WILLOWDALE QUARRY OPERATING

Pacific Cut Stone Company of Seattle is shipping rough quarry blocks from the Willowdale quarry in northern Jefferson County on US Highway 97 about 17 miles north of Madras. Approximately 25 tons of stone are produced daily and shipped to the company's Seattle plant where they are cut up into brick and veneer. Mr. A. P. Sagmiller is in charge of the quarry. The Willowdale stone is a reddish-brown rhyolite tuff which breaks into large blocks. The tuff forms a low bluff just east of the highway one and a half miles south of Willowdale. Some of the blocks have a dark banding which adds interest to the stone. The stone has a crushing strength of from 3,200 to 5,000 pounds per square inch and an apparent porosity ranging from 23 percent to 32 percent.

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NEW AGSTONE PRODUCTION

Pacific Carbide & Alloys Company started the production of agricultural limestone in June 1952 at the company's north Portland plant. The limestone is obtained from the company-owned quarry near Enterprise in Wallowa County, Oregon. Only the material too small to be used in carbide furnaces is being prepared for agstone at the present time. This consists of minus half-inch material which is further reduced in a hammer mill to 90 percent through 8 mesh with 30 percent passing 100 mesh. The limestone averages better than 96 percent calcium carbonate and contains about $1\frac{1}{2}$ percent carbon. The presence of carbon makes the stone black which is in great contrast to most local limestones.

Production and distribution of the agstone is handled by the Greeley Lime Company, a subsidiary of Pacific Carbide & Alloys Company. The Greeley company has a delivery and spreading service direct from plant to field. At the present time there is a stockpile containing approximately 20,000 tons of undersized material at the Enterprise quarry. The Portland agstone plant will run on a 12-month basis, stockpiling the production during the period when spreading is not possible.

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MERCURY STATISTICS FIRST HALF 1952

Production of domestic mercury in the period January to June 1952 amounted to 6,050 flasks according to a report by the U.S. Bureau of Mines. Imports during the same period totaled 29,796 flasks. Consumption amounted to 19,600 flasks. The countries which shipped the metal to the United States during the first half of 1952 were: Italy, 14,767 flasks; Spain, 5,212 flasks; Yugoslavia, 5,761 flasks; Mexico, 3,906 flasks; and French Morocco, 50 flasks. In 1951 the countries from which the largest amount of mercury was obtained were as follows: Italy, 17,633 flasks; Spain, 13,604 flasks; Yugoslavia, 6,523 flasks; and Mexico, 4,988 flasks. Total imports in 1951 including small quantities from other countries amounted to 44,925 flasks.

Nine mines accounted for 96 percent of the total domestic production. These were: the Abbott in Lake County, Juniper and New Idria in San Benito County, Culver-Baer, Dewey-Buckman, and Sonoma in Sonoma County, California; Hermes in Valley County, Idaho; Cordero in Humboldt County, Nevada; and Bonanza in Douglas County, Oregon.

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GOLD PURCHASE REGULATIONS

The Treasury on August 28 issued, amended, and revised gold regulations for the purpose of modifying certain requirements for dealing in gold (Federal Register of August 29, page 7888). These changes incorporate certain administrative interpretations and rules, setting forth in great detail the existing law applicable to the acquisition, possession, holding and use of gold.

The Bureau of the Mint advises that the only change in the regulations affecting "gold in its natural state" is that persons who do not hold Treasury licenses may now acquire retort sponge gold from producers, -- "Provided that the aggregate amount of such retort sponge acquired and held . . . does not exceed at any one time 35 fine troy ounces of gold content." This is done to allow storekeepers and other purchasers in remote places to receive retort sponge from a small producer, without the necessity of holding a Treasury license. Such persons are authorized to dispose of such retort sponge only to the United States and to persons holding Treasury licenses.

The Treasury definition "Gold in its natural state" means gold recovered from natural sources which has not been melted, smelted, or refined or otherwise treated by heating or by a chemical or electrical process. (From American Mining Congress Bulletin Service, September 2, 1952.)

Editor's note: The revised regulations affecting "gold in its natural state" evidently liberalizes its definition, since retort sponge gold has been "otherwise treated by heating."

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BUREAU METALLURGIST TAKES PRIVATE INDUSTRY JOB

Mr. H. A. Doerner, metallurgist with the U.S. Bureau of Mines for many years, has accepted a position as metallurgist with American Chrome Company, Mouat, Montana.

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CHROME DEPOT EXTENDS WORKING HOURS

The General Services Administration chrome ore depot at Grants Pass has extended the time for receiving ore shipments and now is open from 7:00 a.m. to 7:00 p.m. from Monday through Friday except legal holidays. The extended time for receiving ore will continue as long as deliveries of ore warrant it.

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JAPANESE PROFESSOR VISITS

Professor Hisashi Kuno of the Geological Institute at Tokyo University, Japan, spent September 8 and 9 in the Portland area as a guest of the Department inspecting igneous outcrops. Professor Kuno has just completed a year's study at Princeton University on pyroxenites. He has done much work in Japan on volcanic rocks and is studying a large caldera there which resembles Crater Lake in many respects. While in Portland, Ralph Mason, Mining Engineer on the Department staff, showed Professor Kuno numerous exposures of basalt and andesite in the Columbia River Gorge, at Larch Mountain, the Parkdale lava beds, and on the slopes of Mount Hood. Professor Kuno was interested in the remarkable uniformity of the Columbia River basalts which he examined.

On his way to Oregon he sampled many other volcanic regions including the basalt flows of central and eastern Washington. After leaving Portland Professor Kuno visited Crater Lake to study the Caldera at first hand. One interesting sidelight developed after two large mule deer were observed on the Cooper Spur road on the north side of Mount Hood. In Japan it is illegal to hunt deer, Professor Kuno pointed out, but native nimrods get around this technicality by hunting for the same animal by another name, and this gentle subterfuge apparently works, for the deer population is steadily shrinking.

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TERMS AND CONDITIONS FOR SALE OF COLUMBIUM-TANTALUM

* * * * * * *

"The program is to terminate on December 31, 1956, or when the Government has purchased 15-million pounds of contained pentoxide.

* * * * * * *

"Specifications and price

"The Government shall pay the following price for columbium-tantalum bearing ores and concentrates meeting the following specifications, determined on a dry weight basis:

"(a) For columbium ores and concentrates containing not less than 35 percent combined Cb_2O_5 and Ta_2O_5 and having a Cb_2O_5 and Ta_2O_5 ratio of not less than one to one; impurities not to exceed the following maximum limits:

	Percent
TiO_2	8
SnO_2	8
FeO	25
MnO	13

$1.40 per pound of combined contained pentoxide, plus 2 cents per pound for each additional full percent of combined contained pentoxide above 35 percent.

"(b) For tantalum ores and concentrates containing not less than 25 percent Ta_2O_5 and less than 20 percent Cb_2O_5, and containing not in excess of the following maximum impurities:

	Percent
TiO_2	4
SnO_2	4

$3 per pound of contained Ta_2O_5 in ores and concentrates containing 30-40 percent Ta_2O_5, plus 3 cents per pound for each additional full percent of contained Ta_2O_5 above 40 percent, plus an additional 4 cents per pound for each full percent of contained Ta_2O_5 above 50 percent."

* * * * * * *

There are penalties for tantalum ores and for columbium-tantalum ores containing below certain percentages of the pentoxides and also containing percentages of TiO_2 and SnO_2 above 4 percent each. Bonuses are paid including a 100-percent incentive bonus for lots which meet specifications. Lots must be 2,000 pounds or more. Detailed information may be obtained from the Defense Materials Procurement Agency, Washington, D.C. Government purchasing agents under the program are the Fansteel Metallurgical Corporation, North Chicago, Illinois; the Wah Chang Corporation, New York, New York; and the Emergency Procurement Service of the General Services Administration, Washington, D.C. (Partially abstracted from E&MJ Metal and Mineral Markets, September 11, 1952.)

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GOVERNMENT STRATEGIC MINERALS POLICY*

By
S. H. Williston
Chairman, Strategic Minerals Committee, American Mining Congress
Vice President, Cordero Mining Company, San Francisco

What is the Government policy regarding the production of strategic metals within the United States? We cannot believe in their entirety the flowery words which come out of Washington. The only way we can judge what that policy is is by examining what Washington does, not what Washington says.

A year ago we produced a quarter of our requirements in antimony. Now we import all.

In 1943 we were self-sufficient, both for ourselves and our allies, in quicksilver. Now we import 80 percent.

Two years ago we were importing 91 percent of our manganese. Mr. James Boyd, of the old DMA, stated that with a price corresponding to a 50-cent a ton increase in steel, we could be self-sufficient in manganese. We are now importing 92 percent of our requirements.

In 1943 we produced 12,000 (S.T. 60 percent WO_3) tons of tungsten concentrates. Now we produce 6,000.

Two years ago we imported 100 percent of our chrome. Now we are only importing 99 percent and possibly we may reduce that under the present program to 95 percent.

Two years ago secret Government instructions were given to make no increases in production unless there were world-wide shortages. No significant increases have been made except where there were world-wide shortages. We may presume, then, that our Washington Government does not expect a war and never has.

The experiences of the last year and a half have shown conclusively that when we want and urgently need metals from abroad we do not get them and when we do not need them they come into the American market to depress price and close down domestic plants.

There is absolutely no reason why we should be surprised!!

In 1935 the Government declared its policy of increasing the raw material supply from abroad and consequently decreasing the need for minerals from domestic sources. Metal tariffs have directly, or indirectly by depreciation of the dollar, been decreased by 80 percent or more.

Ceiling prices have been placed on domestic production; none on foreign production. Materials for the stockpile have been obtained abroad and domestic producers have been refused the opportunity to supply metal at the same price.

Domestic mines are taxed at least 10 percent of gross and 65 percent of net; foreign mines almost always less.

The navy builds its armor plants in Turkey; the air force builds its jet engine plants in Africa; the steel industry, half in Africa, half in India. Our Defense Department doesn't know this but actually those plants could just as well be physically in those locations as to be wholly reliant upon them for their raw materials.

The same non-mining pseudo economists who have developed this policy over the last 17 years reissued that policy under the guise of the Paley Report. I am very sorry that

*Presented at the 1952 Metal and Nonmetallic Mineral Mining Convention and Exposition, The American Mining Congress, Denver, Colorado, September 22-25.

Mr. Paley, Mr. Brown, and Mr. Bunker permitted themselves to be hoodwinked by this same group of "Washington miners."

The domestic mining industry, strategic or critical, cannot compete in a free world market when their labor and operating costs are controlled by protective tariffs and politics, and their product has no price protection. So long as those Government policies continue, underground metal mining within the United States, with few exceptions, is faced with an unhappy and unhealthy future, if it has any future at all.

Lead prices, or possibly even zinc prices, might be supported artificially by stock-pile buying in an election year to save votes but there is not enough political importance in the whole strategic mining industry for the Government to keep it alive even though it means the safety of the country.

I would suggest, then, that those of you who were interested in mining because, unfortunately, you like mining, permit yourselves to be exported to Canada, to Mexico, to South America, or wherever else there is some possibility of success, continued or otherwise as the Government wishes, but I warn you that the State Department has made most of these places too "hot" to operate in.

EDITOR'S NOTE

The following extract from Carl Trauerman's News Letter of the Montana Mining Association, September-October, under the heading of "Copper Prices and Costs" appears to be quite pertinent to the foregoing statements:

> At a testimonial dinner given to Robert E. Dwyer, New York City, the new president of the Anaconda Copper Mining Company, at Anaconda, Montana, on September 3, C. F. Kelley, chairman of the board of the company, who was the principal speaker, pointed out in fighting words the disparity between the domestic and world copper prices, which, he said, pose a serious threat to the American copper mining industry. After several times quoting and praising parts of an editorial entitled: "Copper Needs Your Help," in the July 1952 number of the Engineering and Mining Journal, Mr. Kelley stated: "It is to be hoped that a time will come when the bureaucratic and unfair controls that now exist over the industry will cease and the manifest injustice under which the American copper industry is laboring today will be but an unhappy memory." He strongly emphasized that, while costs have gone steadily upward, the domestic price of copper is frozen at 24½ cents a pound and the world price in the latter part of August was 35½ cents. "Yet," he said, "the Government through the ECA is pouring millions of dollars into foreign countries to buy copper at 35½ cents a pound, while the domestic price is restricted to its present level. You men, both on the staff and hourly-paid employees, are vitally interested in the situation, because it is economically impossible to continue with advancing wages and the cost of practically every other item in the budget of production without obtaining some relief on price."

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PORTLAND GLASS PLANT SITE

According to the Grants Pass Courier of October 10, the Owens-Illinois Glass Company has purchased about 70 acres of land in the Parkrose district of Portland, Oregon, for a possible new site for a glass-container plant. The glass company has been investigating plant sites and raw material sources in Oregon and southern Washington since early in the 1940's. The company has plants in several cities in California as well as many other places in the United States.

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NEWS FROM THE CHROME MINES

G.M.C. Mill

The concentrating plant of the G.M.C. Mining and Milling Company located about 1½ miles west of Eagle Point, Jackson County, Oregon, has been purchased by the Laughlin Engineering Company of Los Angeles, California, and is now a part of the G.M.C. Division of this company. J. N. Laughlin is President and Dave E. Brundage, Vice-President of the Laughlin Engineering Company. Lester L. Sibley is the mill manager. Production is scheduled to begin about October 15. About 600 tons of chromite from the Sordy mine in the Briggs Creek area near Galice, Josephine County, has been stockpiled and chromite is being shipped to the G.M.C. mill from a mine located about 12 miles west of Mount Shasta. The Tyrrell manganese mine in the Lake Creek district east of Eagle Point has been leased. Although both chromite and manganese ore will be milled, the initial production will be chromite concentrates.

Bristol-Baker Mill

Production of chromite concentrates has begun at the concentrating mill installed at the Sourdough mine on Baldface Creek in southern Curry County earlier this summer by Ben Baker. F. I. Bristol, Ben Baker, and T. T. Leonard are owners of the mine and mill. The equipment includes an 8 x 16 jaw crusher, a ball mill and screen, and 2 concentrating tables. The capacity of the mill is about 1½ tons an hour.

Douglas County chromite occurrences

An occurrence of chromite in the farthest northeasterly extension of serpentine in southwestern Oregon is of considerable geological interest and possibly is of economic importance. Nearly 5 miles up Little River from Glide in sec. 27, T. 26 S., R. 3 W., Douglas County, chromite occurs as float on the steep hillside and in place near the ridge top about 700 feet above the road. Mr. O. W. Stuempges of Myrtle Creek has exposed small stringers of chromite in three shallow prospect pits on the "B-Mine" claim. Both disseminated chrome ore and high-grade are present in the area. A fairly uncommon occurrence of chromite in saxonite has been reported.

Freeman and Twombly Mill

Walt Freeman and LaVern Twombly of Cave Junction are setting up a small chrome concentrating mill in sec. 11, T. 38 S., R. 10 W., below Sourdough Flat. The mill will consist of a hammermill, a Gibson rodmill, and one table. They plan to concentrate ore from the Wonder group located partly in sec. 11 and sec. 14. Shallow workings show considerable chromite, some of which is high-grade shipping quality. Sourdough Flat is located about 1½ miles south of Pearsoll Peak which is on the county line between Curry and Josephine counties.

New chromite discoveries near John Day

A new lens of what is believed to be shipping-grade chrome ore has been found on the Haggard-New property near John Day in Grant County. This property is owned by William Gardner and Ray Summers and leased to Bert Hayes.

Another large lens of chrome ore has been found at the Dry Camp mine which is owned by H. R. Elliott. The Dry Camp was formerly leased to Bert Hayes, who milled some of the ore but sold his lease recently as well as his small mill at the Standard mine on Dixie Creek to Art Newman and Paul Romale. The new lens at the Dry Camp was uncovered by bulldozing. It is expected that the ore will be milled at the Tri-State concentrator just east of the town of John Day.

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MINING CONGRESS COMMENTS ON PALEY REPORT

At the American Mining Congress convention in Denver September 22-25, a resolution was adopted commending and at the same time criticizing the President's Materials Policy Commission report according to American Mining Congress Bulletin of September 29, 1952.

Commendations were: (1) urging acceleration of topographic and geologic mapping of the United States and Alaska; (2) recognizing and approving the principle of percentage depletion for minerals and metals; (3) advocating removal of the present limitation on the expensing of exploration costs applicable to minerals; (4) appreciating the necessity of encouraging participation of American capital in the development of foreign mineral resources; and (5) advocating the encouragement of small mining enterprises.

The criticisms were of the report's proposals to establish international buffer stocks as impracticable and the convention disagreed with many of the Commission's recommendations, conclusions, and beliefs as follows:

(a) Direct exploration activities by government should not be undertaken on private lands.

(b) The mining laws should not be revised to introduce a leasing system for metal miners or abolish extralateral rights.

(c) American taxpayers' funds should not be used to explore private lands in foreign countries.

(d) A Defense Materials Procurement Agency should not be established as a permanent instrumentality of the government.

(e) Successor government agencies should not be established when the present emergency agencies are dissolved.

(f) Business risks which the Export-Import Bank is unwilling to assume should not be transferred to the American taxpayer.

(g) Legislation should not be enacted to furnish government loans for foreign mineral enterprises, coupled with authorization for government to enter into management contracts.

(h) Permanent legislation should not be enacted authorizing the unilateral elimination of import duties by the Executive Branch wherever the United States is substantially dependent on imports of metals or minerals.

(i) The "Buy-American Act of 1933" should not be repealed.

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NIEL R. ALLEN REAPPOINTED TO NATIONAL OFFICE

The Grants Pass Courier through the Associated Press, October 13, reported the reappointment of Niel R. Allen, Grants Pass, as Chairman of the Civil Defense Committee of the American Legion. The announcement was made in Indianapolis by Lewis K. Gough, National Commander. Mr. Allen has been a member of the Governing Board of the State Department of Geology and Mineral Industries for several years.

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OREGON MEN ON BOARD OF GOVERNORS, AMERICAN MINING CONGRESS

At the Denver meeting of the American Mining Congress, Western Division, Board of Governors on September 25, the Oregon members, F. I. Bristol, S. H. Williston, and F. W. Libbey, were reelected to serve in 1953.

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CHROMITE REPORT - JULY 1952

According to the U.S. Bureau of Mines, chromite consumption in July was at a low rate because of the continued work stoppage in the steel industry. Chrome ore used for refractory purposes dropped 16 percent below June and metallurgical grade ore increased 12 percent. Ore consumed in chrome chemicals decreased 41 percent. The overall consumption of ore totalled 72,938 tons which was about the same as for June. The domestic output of chromium ores and concentrates from January through May 1952 is estimated to have been 3,200 short tons. Imports during the first six months of 1952 totalled 762,836 short tons. Consumption of metallurgical grade chromite in the United States for the year 1951 was 573,075 tons, with a total chromite consumption of 1,212,480 tons. Consumption of metallurgical grade chromite for the first six months of 1952 was 339,601 short tons with a consumption of total chrome for the six months of 600,179 tons. Total stocks at the end of 1951 amounted to 637,453 tons, a little less than half of which was metallurgical grade. Total stocks at the end of July 1952 amounted to 735,611 tons, of which 336,908 tons was metallurgical grade. Imports of metallurgical grade were supplied principally by Turkey, Southern Rhodesia, and the Union of South Africa. India, Parkistan, and the Philippines shipped a minor amount. The Philippines supplied 70 percent of the total refractory ore, Cuba shipped 22 percent, and Southern Rhodesia 8 percent. All of the chemical grade ore came from the Union of South Africa.

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GOLD PRICE INCREASE

The Value Line Investment Survey under date of September 29, 1952, makes an interesting prediction concerning an increase in the price of gold. Most responsible financial investment services refuse to make a firm prediction that the official United States price will advance. However, the Value Line has set the probable time as late 1953 or early 1954. The reasons given are that United States industrial plant capacity has been expanded greatly in the postwar period. Deferred consumer demand has been satisfied and the stepped-up industrial expansion is potentially far in excess of domestic demand. In order to keep the industrial machine operating, American producers will endeavor to expand foreign markets. In these markets there will be sharp competition from Japan and countries of Western Europe where industry is expanding also and the need for foreign markets is equally or even more pressing than in the United States. The stage appears to be set for another round of currency devaluations in Western Europe and such a move would reduce prices on our imports to a very difficult competitive level even after payment of duties. The United States would then be forced to devalue the dollar by means of an increase in the price of gold to allow this country to sell goods abroad competitively as well as to maintain its domestic markets.

In the past currency devaluation has taken place in a country not because of a realistic comparison of the relationship between gold and commodity prices but rather because of the need of that country to improve its competitive foreign trade position. Examples are the United States in 1934 and Britain in 1949.

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DEPARTMENT NEWS

Len Ramp, who has been mapping some of the active chrome operations in southwestern Oregon, has returned to the Portland headquarters for the winter. During November he will visit active chrome properties near John Day in company with N. S. Wagner, field geologist of the Baker office.

Hollis Dole finished mapping the Dutchman Butte quadrangle of southwestern Oregon in September and resumed his graduate work at the University of Utah, Salt Lake City, for which he has been granted a leave of absence from the Department.

N. S. Wagner, field geologist stationed at Baker, has been doing reconnaissance geological mapping in southern Umatilla County in continuing the mapping project started in 195[illegible]

"FREE" GOLD UNSETTLED ON REDUCED VOLUME OF SALES

Transactions in "free" gold markets during September declined in volume on general disappointment over the views of monetary experts expressed at the recent meeting of the International Monetary Fund, in Mexico City. It was admitted that the difficulties that stand in the way of a return to an international gold standard are as formidable as at any time since Bretton Woods. The U.S. delegation again objected to disturbing the official price of gold under prevailing conditions.

No major increase in the price of gold is expected in the near future. Prices realized during the last month in the "free" market were slightly lower.

Pick's World Currency Report quotes on "free" gold as follows, per fine oz., bars of 12.5 kg:

	Aug. 30	Sept. 30
New York (transit) . . .	$37.60	$37.30
Manila	36.75	36.85
Hong Kong	40.65	40.75
Bombay	46.00	46.00
Tangier	37.75	37.35
Beyrouth	37.80	37.40
Paris	39.35	38.75
Buenos Aires	41.25	40.75

Finance Minister Havenga of South Africa, one of the speakers at the Fund's meeting, said, in part:

> "We have now reached the end of the transition period envisaged by the Fund, and what do we find in practice? Instead of general convertibility of currencies and unimpeded international trade we find that the disequilibrium in the balance of payments of many countries is as serious as ever before. . . .In the modern state, economic factors have been subordinated to the overriding social objective of full employment, and the effective prosecution of this objective requires a flexible monetary standard. . . .
>
> "Short of a substantial increase in the volume of gold production, which can be ruled out under present price relationships, reserves could only be built up to an adequate level either by raising the price of gold or by deflation.
>
> "It would surely spell a major disaster if nations are to rely upon deflationary action to achieve an end which is so necessary to augment their international liquidity.
>
> "It is rather unfortunate, however, that a higher purchasing power for gold could only be realized through sales in the free market which deprive the central reserves of many countries of much-needed additions."

(From E&MJ Metal and Mineral Markets, October 9, 1952.)

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GOVERNMENT CHROME DEPOT CHANGES HOURS FOR RECEIVING ORE

The Grants Pass Bulletin of October 16 states that the General Services Administration chrome ore depot will return to the regular hours of 8:00 a.m. to 4:30 p.m. Monday through Friday beginning October 20. Since September 2 the depot has been receiving ore shipments from 7:00 a.m. to 7:00 p.m. Monday through Saturday. The advent of the winter season will mean reduction in ore deliveries to the depot.

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STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
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CHROMITE - AN IMMEDIATE NATIONAL NEED

(Reprinted from January 1942 issue)

Editor's Note:

The Ore.-Bin has been asked to print a table showing chrome-iron ratios obtained from given percentages of Cr_2O_3 and Fe, and it seems proper at the same time to reprint some extracts from the January 1942 issue which was devoted to chromite. After more than 10 years, the ideas expressed then on the need for producing chromite seem just as important now.

* * * * * * *

Tough, rugged, hard-bitten chrome steel will have a large share in winning the war. But chromite remaining in the ground will not make chrome steel. The chromite must be mined and transported long distances to steel mills or electric furnace plants in order to put it in fighting form. We cannot now depend on Turkey, South Africa, New Caledonia, and the Philippines to furnish the ore to us; we must produce it ourselves, and do it NOW. There isn't time for measured, long distance planning as to whether or not this and that are economic. This is an emergency and the essential thing is to get the chromite out.

The crying need is that those in authority should realize conditions under which lode chromite must be produced. They should realize that chromite occurs back in the mountains, far from a railroad; that access roads must be built; that the deposits vary in size over a wide range; that development is required; that encouragement must be given the prospector, for he, not the engineer for large operating companies, finds the ore; that the small operator has no capital for developing and mining his ore; and that he usually cannot prepay freight to a government stockpile, the location of which he does not know. Probably the most important of all the unique conditions governing production from these lenticular deposits - sometimes small discontinuous and remote - is the necessity of setting up machinery for buying ore in small lots. Only by providing such a market will maximum production be obtained.

Action is necessary if chromite is needed - and we believe it is. Delay will be translated into American lives lost. A rattlesnake doesn't wait for you to find a club of just the right size, or remain coiled without striking so that you may take some practice swings before deciding on the most effective method and posture for delivering the lethal blow. True, a rattlesnake usually gives some warning before it strikes; and in this regard it is one up on the enemies we are fighting now.

* * * * * * *

How and Where Can Chromite be Found in Oregon

Chromite is one of the few ore minerals which only occurs in certain very definite and easily recognizable types of rock. This means that unless one is prospecting in a region where these rocks occur, there is absolutely no chance of finding chromite deposits; and it therefore means that prospecting for chromite in Oregon is considerably simplified because regions of chromite-bearing rock are fairly well known and well defined.

Table for Finding Chrome-Iron Ratios Given Percentages of Cr_2O_3 (Chromium Oxide) and Fe (Iron)

Cr_2O_3 Percent	Fe (iron) percent below															
56	10.9	11.2	11.6	11.9	12.3	12.7	13.2	13.6	14.1	14.7	15.3	15.9	16.6	17.4	18.2	19.1
55	10.7	11.0	11.4	11.7	12.1	12.5	13.0	13.4	13.9	14.4	15.0	15.7	16.4	17.1	17.9	18.8
54	10.5	10.8	11.2	11.5	11.9	12.3	12.7	13.2	13.6	14.2	14.7	15.4	16.0	16.8	17.6	18.4
53	10.3	10.6	10.9	11.3	11.6	12.0	12.4	12.9	13.4	13.9	14.4	15.1	15.7	16.4	17.2	18.0
52	10.1	10.4	10.7	11.1	11.5	11.8	12.2	12.7	13.2	13.7	14.2	14.8	15.5	16.2	16.9	17.7
51	9.9	10.2	10.5	10.9	11.2	11.6	12.0	12.5	12.9	13.4	13.9	14.5	15.1	15.8	16.6	17.4
50	9.7	10.0	10.3	10.6	11.0	11.4	11.7	12.2	12.6	13.1	13.6	14.2	14.8	15.5	16.2	17.0
49	9.5	9.8	10.1	10.4	10.7	11.1	11.5	11.9	12.4	12.9	13.4	13.9	14.5	15.2	15.9	16.7
48	9.3	9.6	9.9	10.2	10.5	10.9	11.3	11.7	12.1	12.6	13.1	13.6	14.2	14.9	15.6	16.4
47	9.1	9.4	9.7	10.0	10.3	10.6	11.0	11.4	11.8	12.3	12.8	13.3	13.9	14.5	15.2	16.0
46	8.9	9.2	9.5	9.8	10.1	10.5	10.7	11.2	11.6	12.1	12.5	13.1	13.6	14.3	14.9	15.7
45	8.7	9.0	9.3	9.6	9.9	10.2	10.6	11.0	11.4	11.9	12.3	12.8	13.4	14.0	14.6	15.4
44	8.5	8.8	9.2	9.4	9.6	10.0	10.3	10.7	11.1	11.5	12.0	12.5	13.0	13.6	14.3	15.0
43	8.4	8.6	8.9	9.1	9.5	9.8	10.1	10.5	10.9	11.3	11.7	12.2	12.8	13.4	14.0	14.7
42	8.2	8.4	8.7	8.9	9.2	9.6	9.9	10.2	10.6	11.0	11.4	11.9	12.5	13.1	13.7	14.3
	3.5	3.4	3.3	3.2	3.1	3.0	2.9	2.8	2.7	2.6	2.5	2.4	2.3	2.2	2.1	2.0
							Chrome-iron ratio									

Example: To find chrome-iron ratio of ore assaying 46 percent Cr_2O_3 and 13.0 percent Fe. On horizontal line opposite 46 percent Cr_2O_3 find 13.0. At bottom of this column find 2.4, the chrome-iron ratio.

Note: This table gives approximate chrome-iron ratios. If it is necessary to have an exact ratio, multiply the percentage of Cr_2O_3 by 0.684 and divide by the percentage of iron, as for 46 percent Cr_2O_3 and 13 percent Fe, $\frac{46 \times 0.684}{13} = 2.42$.

If FeO (iron oxide) is reported in an assay of Fe, multiply the percentage of FeO by 0.777 to obtain Fe.

Chromite occurs only in serpentine, a dark green to brown, highly fractured, greasy-lustered rock, made up largely of iron and magnesium-bearing silicates, and in peridotite or "buckskin rock" (from which the serpentine is derived). Peridotite is light tan or reddish-tan on its weathered surface and dark green upon a broken surface; it usually contains small platy crystals of enstatite which stick out on the weathered surface to form rough knobs. When this "buckskin rock" lacks the crystals of enstatite and is uniform and fine-grained, it is known as "dunite." In several parts of the State chromite deposits are found surrounded by dunite areas, which in turn lie within peridotite areas. Consequently, the prospector, in certain parts of the State, looks first for peridotite, then for dunite areas in the peridotite.

* * * * * * *

Chromite is sought for by its "float." These hard, loose pieces of ore weather out of the solid rock and work their way down the hillside perhaps into a stream bed. Therefore, the prospector searches, first, for float, and then attempts to follow the float up to its source. It is suggested that the best chances of finding new chrome deposits are in seeking extensions of known chrome deposits or zones.

The chrome-bearing areas in Oregon are first, southwestern Oregon, particularly the western part of Josephine County, Curry County, and southern Coos County. It is also known to occur in parts of southern Douglas County and Jackson County. In this part of the State, the rocks in which chromite may be found occur in bands from a few hundred yards to ten miles in width and from a half mile to thirty miles in length. These bands nearly always run in a north-south direction, usually a little bit east of north. They are easily recognized by the fact that the only plant which flourishes on them is the scrub pine. Even buck brush, chaparral, and salal will avoid areas of serpentine or peridotite so that when open prairies of grass or bare yellow rock studded with pine are found, it is fairly certain that serpentine or peridotite underlies them. In southwestern Oregon, the largest chromite deposits seem to occur in the bands running from Briggs Creek on the Lower Illinois River, northwest of Selma, south and west into California. Another band lies farther west of this one, and also contains some very large deposits.

* * * * * * *

In central Oregon, chromite-bearing rocks are found in the central part of Grant County, south of the John Day River, just east and west of Canyon City. This area is outlined on a map published in U.S. Geological Survey Bulletin 922-D, and also in Bulletin 9 - "Chromite in Oregon" - by the Department. In the eastern part of the State, chromite occurs in several small areas; one of them is on Conner Creek, six miles northwest of the Snake River; another is on Willow Creek, ten miles east of Malheur; another just west of Sumpter, (see the geologic map of the Sumpter quadrangle, published by this Department, for the serpentine areas in which chromite might occur in this region); and another is near Bull Run Creek, southwest of Unity, Oregon. It is possible that other small patches of chromite-bearing rocks may be located in other areas, but it is not probable.

Along the coast of southern Oregon, the present beaches, as well as old beaches formed thousands of years ago and uplifted so that they now may stand several miles back from the present coastline, frequently contain lenses of "black sand" which, in Curry and Coos counties, contain appreciable amounts of chromite. These black chromite sands are derived from the wearing down of the rocks in the chromite-bearing regions drained by the Illinois, Rogue, and other streams, and the concentration of these heavy minerals is effected by the selective "panning" action of the waves

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CHROMITE CONCENTRATING MILLS IN OREGON

	Name	Location	Address
* 1.	Bowers	Galice Creek	Medford
2.	G.M.C.	Eagle Point	Eagle Point
* 3.	Rice	French Flat	Cave Junction
4.	Foster Ernest (Under construction)	Illinois River	Grants Pass
5.	Southwest Mines, Inc. Dale H. Franklin, Pres.	Wilderville	Medford
* 6.	Bristol-Baker	Sourdough Mine	Grants Pass
* 7.	Ashland Mining Company	Ashland	Ashland
8.	Strategic Mineral Corporation	Galice Creek	Galice
* 9.	Littell & McKee	Grants Pass	Grants Pass
10.	Hayes, J. S.	Rancherie Creek	Tillamook
11.	Bowser (Sold to R. E. McCaleb)	Peck Mine	Selma
*12.	Coast Minerals Co., Ltd. (Chromite sand is by-product and stockpiled)	Cut Creek	Randolph
13.	Freeman & Twombly	Sourdough Flat	Cave Junction
14.	Birdseye Creek Mill	Birdseye Creek	Rogue River
*15.	King, Franklin & Elmo	Dailey Creek	Grants Pass
*16.	Hayes, Bert (Sold to Art Newman)	Dixie Creek	John Day
*17.	Curzon (Tri-County Mining & Concentrating Co.)	John Day	John Day

*Active as of November 1, 1952.

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NEW MINING OPERATION NEAR DOUGLAS-JACKSON COUNTY LINE

The Grants Pass Bulletin, October 30, 1952, reports that Chester Flory, Harry Howren, and George M. Bronish, Glendale, Oregon, will start mining chrome near the Liberty asbestos property in northern Jackson County where white tremolite asbestos was mined during World War II. It is reported that both chrome and asbestos will be mined and that chrome will be shipped to the government purchasing depot at Grants Pass.

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RASMUSSEN LEAVES U.S. BUREAU OF MINES

Robert T. C. Rasmussen, metallurgist of the U.S. Bureau of Mines Electrodevelopment Laboratory, Albany, Oregon, has resigned to accept a position with Quebec Metallurgical Industries, Ltd., Ottawa, Ontario, Canada. While at Albany, Mr. Rasmussen specialized in smelting processes research including development of methods for making manganese-silicon alloy from manganese silicate minerals, aluminum-silicon alloys from high alumina clays, and ferronickel from nickel silicate ores at Nickel Mountain, Douglas County, Oregon.

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DR. ETHEL SANBORN - AN APPRECIATION

By
Ira S. Allison

Dr. Ethel Ida Sanborn, professor emeritus of botany and paleobotany at Oregon State College, died at Vancouver, Washington, October 31, 1952. She was graduated from South Dakota State College with a B. S. degree in 1903, received B. A. and M. A. degrees from the University of South Dakota in 1904 and 1907, and her Ph.D. degree from Stanford University in 1927.

Her life work was teaching and research. She taught botany at the University of Oregon from 1914 to 1932 and at Oregon State College from 1932 to 1948 when she was retired. Her publications in botany included studies mostly of algae, mosses, and liverworts. Her monographs on Hepaticae and Anthocerotes of western Oregon, on the moss flora of Willamette Valley (with Clara J. Chapman), and on the marine algae of the Coos Bay-Arago region (with Maxwell S. Doty) deserve special mention.

She early became interested in the fossil leaves exposed in the highway cut near Goshen, Lane County, Oregon, and in 1933 as joint author with Ralph Chaney of the University of California helped to prepare a monograph on the Goshen flora. This publication describes specimens belonging to 49 species (of which all but 5 species are new) based on about 1,000 specimens. The original plants were 2/3 shrubs, 1/5 trees, and 1/7 vines (lianas). These thick-leaved plants have their modern equivalents in Mexico, Central America, and other tropical areas. So it was inferred that the Goshen plants grew along streams in savannas associated with tropical or warm-temperate rain forests, when the Goshen area had a mean annual temperature of about 70° F. and a rainfall of about 70 inches or more, as compared with a temperature of about 62° F. and rainfall of 40 inches today. The deposits were thought to be upper Eocene or possibly lower Oligocene in age.

In 1937 Dr. Sanborn issued a similar study of the Comstock flora of middle Eocene age. This publication describes specimens from 25 species of dicotyledonous plants together with Equisetum and 4 species of ferns. Ten of the species are new to science. It is interesting that Cinnamomum makes up one-fourth of the flora and Magnolia one-tenth. About four-fifths of the species have tropical affinities; the others have temperate climate equivalents. Dr. Sanborn concluded that the Comstock flora indicated a warm moist temperate to subtropical climate.

In 1947 she described the Scio flora of upper Oligocene or lower Miocene age from Franklin Butte, Linn County. This flora of 1184 specimens includes 16 species, of which 7 are new. About three-fourths of the leaves are Prunus franklinensis, a cherry tree of Oriental affinity. Other plants are Equisetum stems, a fern, sequoia, willow, poplar, sycamore, basswood, huckleberry, and other genera characteristic of middle latitudes. The assemblage indicates a warm temperate climate in a moist coastal environment. Thus the Scio flora is intermediate between the Goshen and Comstock floras and that of the present, and illustrates the progressive change in the Tertiary succession of plants in western Oregon.

She also collected fossil leaves along Branch Creek near Pilot Rock, in eastern Oregon; at Crabtree Creek, Linn County; at the Molalla locality, Clackamas County; and elsewhere. The Branch Creek material resembles the fossil plants from the Clarno formation of central Oregon. Her studies of these florules were not complete and have not been published.

She was a member of many societies, including Sigma Xi, Phi Beta Kappa, Oregon Academy of Science, Pi Lambda Theta, Delta Kappa Gamma, A.A.U.W., D.A.R., and Alpha Xi Delta sorority.

As a teacher Dr. Sanborn was very successful because of her great interest in students and her unending patience with them. As a scientist and researcher her work likewise was

of a very high order. In recognition of her work the Oregon Academy of Science at its annual meeting on February 23, 1952, awarded her a Citation of Merit. Geologists owe to her a special debt of gratitude for her contributions to the paleobotany of Oregon.

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1944/47 (with Maxwell S. Doty) Marine algae of the Coos Bay-Arago region of Oregon. Oregon State College, Oregon State Monographs, Studies in botany, no. 8, 66 p.

1947 The Scio flora of western Oregon. Oregon State College, Oregon State Monographs, Studies in geology, no. 4, 47 p., 9 pl.

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VOLCANIC CINDERS PRODUCED

Deep red volcanic cinder chunks several feet in diameter are being shipped to Portland from Tetherow Butte in Deschutes County. Don E. Hurrle, Hermiston, and M. E. Roberts, Portland, are partners in the operation which is located in sec. 29, T. 14 S., R. 13 E., about 4 miles north of Redmond, Deschutes County, Oregon. The rough blocks are sold for wall construction and for use in rock gardens. They are very porous and have a bulk specific gravity of 1.21. The blocks can be shaped easily with simple tools.

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TWO LETTERS WHICH REFER TO THE SEPTEMBER 1952 ORE.-BIN ARTICLE "CONTRAVENING THE MINING LAWS"

United States
Department of the Interior
Bureau of Land Management
Washington 25, D.C.

October 29, 1952

My dear Mr. Libbey:

Mr. Bell, our Regional Administrator in Portland, has sent me a copy of The Ore.-Bin for September with your article about the Sunset article on how people could obtain homesites or cabin sites by use of the mining laws.

We have written the editor of Sunset explaining the errors in his statement. He has agreed to have an article prepared by one of his writers in collaboration with our San Francisco office, analyzing the matter further and correcting misimpressions from his former article. It seemed to me unnecessary and poor taste in sending out the reprint of the article to take issue with it. I do not hesitate to repeat my statement in that letter of transmittal that this is the most explicit published statement of a widespread attitude that I have ever seen. It is true that use of the mining laws in this way is contrary to the spirit and frequently to the letter of the mining laws, but it is also true that this is the way in which the mining laws are often used in practice, particularly by non-mining people.

It is true that if the Bureau had sufficient personnel we could investigate all mining claims and declare invalid those which were in fact invalid. Aside from the fact that we do not now have such funds it would be a large and unreasonable burden on the general public to pay for the costs of such investigations. Moreover, such investigations would necessarily have to consider all mining claims and I feel sure that the first people to object would be the mining industry themselves since many thousands of claims located by mining people are as invalid as many of the claims located by others. We certainly do not condone mis-use of the mining laws but we believe that any open-minded person who looks at all the facts will come to the conclusion that there are some shortcomings in the law.

Sincerely yours,
/s/ Marion Clawson
Director

Sunset Magazine
Lane Publishing Co., Menlo Park, California

October 30, 1952

Dear Mr. Libbey:

We have been in correspondence with the Bureau of Land Management, National Park Service, and the Forest Service in regard to an article that would correct the errors contained in the cabin article.

One suggestion is that we give particular attention to the constructive possibilities of the Small Tract Act as a means of aiding those people who in

the past have settled and built on invalid mining claims.

In your opinion would such an article bring out the points that need covering?

Sincerely,
/s/ Walter L. Doty
Editor

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HOMESITES AVAILABLE*

The federal government, through the Bureau of Land Management, is selling small tracts of the public lands, not exceeding five acres in extent, to qualified persons. Under the Small Tract Act of 1938, the Bureau is authorized to dispose of parcels of land scattered through the thirteen western states, and in Alaska, Florida, Louisiana, Mississippi, and Wisconsin.

The Small-Tract law allows occupancy and use of land classified as a home, cabin, camp, health, convalescent, recreational, or business site. After full compliance with the law and regulations, sale may be authorized to any person who is a head of a family or 21 years old and a citizen of the United States or who has filed declaration of intention to become a citizen.

A field examination is made by an officer of the Bureau and his report and recommendations are carefully considered and analyzed to determine whether the vacant public lands in the area may be classified for lease and disposal under the Small-Tract law.

The filing fee on each application is $10, returnable if lease is denied. In addition a $15 advance rental for a 3-year residence lease and $100 for a 5-year home and business lease is required.

Further information may be obtained from the Bureau of Land Management, Swan Island Station, Portland, Oregon.

*Abstracted from "How to Acquire a Small Tract" from Our Public Lands published by the Bureau of Land Management, October 1952.

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NEW MANGANESE ORE DEVELOPED IN BAKER COUNTY, OREGON

The Baker Record Courier of October 30, 1952, reports that Fred Ranes and Henry Spivey have mined manganese ore near Whitney, Baker County, assaying 34.45 percent manganese and are stockpiling it preparatory to shipment. It is reported that the Ray-O-Vac Company will use all the ore that this deposit can produce. The Ray-O-Vac Company, with plant in Salem, Oregon, is making manganese oxide for use in dry batteries.

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HANNA DEVELOPMENT COMPANY GETS TAX AMORTIZATION

The production of ferronickel from the nickel ore deposit near Riddle has moved a step closer to reality with the announcement (Oregonian, November 14, 1952) that DPA has certified a rapid tax amortization on the proposed $3,600,000 operation. Hanna Development Company, a subsidiary of the M. A. Hanna Company of Cleveland, Ohio, has been investigating the low-grade nickel-silicate ore body on Nickel Mountain for several years. The deposit represents the largest known body of nickel ore in the United States. Development has been hampered in the past by difficulty in treating the nickel-silicate mineral garnierite.

Construction of a proposed electric furnace, probably near Riddle, Douglas County, Oregon, would supply ferronickel which is used in alloying steels necessary for national defense and other purposes. The only domestic production of nickel comes from copper refining and

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SOME PHASES OF TAXATION*

By
John E. Kelly
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Taxation is both the strong right arm and the nourishment of government. Without taxation government could not exist, could not maintain armies and navies, deliver mail, construct public works, or perform any of the thousand services which constitute the functions of modern political administration. Because government is so dependent upon taxes, there has been throughout history a constant tendency of governments to increase taxes to have more money for official functions, a constant resistance of the taxpayers to increased levies. Faulty, excessive, or discrimnatory taxation has provoked violence and long-standing bitterness. Unjust taxation cost Britain her American colonies; lost Spain Central and South America. Discrimnatory levies early in our history caused Shay's Rebellion in Massachusetts and the Whisky Rebellion of 1794 which for a tragic moment threatened the stability of Washington's administration.

Taxation may be used as a political weapon. In 1876 Samuel J. Tilden was elected President of the United States and counted out in the Electoral College by an extremely shoddy maneuver. The victors, fearful that Tilden would be elected next time, sued him over his income tax -- yes, they had it way back then. Tilden had made millions from Georgia gold mines which he bought from U. S. Grant. The Administration dragged the case through the courts four years, until after the next election, keeping Tilden too busy and smeared to run again. He won finally and part of his Georgia stake built the New York Public Library. But he had been eliminated from politics. "The power to tax is the power to destroy."

Taxation wisely used may be likened, not wholly happily perhaps, to a lancet or scalpel in the hands of a surgeon. A small amount of blood may be drawn off without danger to a healthy body, but an inept practioner might bleed his patient until his resistance was so lowered that he succumbed to even a common cold, as George Washington did.

The doctrinaire economists, most of them without first-hand knowledge of business, who have managed our national economy since the private holding of gold was outlawed in 1936, talk glibly about "siphoning off" surplus private capital through taxation. Previously our concept of taxes was for needed Government revenue only; to this has been added the theory of taxation for control. If a man is broke or his wallet is thin, he is more amenable to government pressure. "Keep 'em poor and docile" might be the slogan of the money managers.

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Taxes are so high - $412 for every man, woman, and child in this country last year - because of unparallelled Federal spending. In the last 20 years the Washington Government has paid out over $703 billion. All former administrations, from 1790 to 1932, spent about one-seventh of that amount, $111 billion, which includes the First World War and all previous conflicts. Tax collections in 1951 were three times as high as in the peak war year of 1942, and will be higher next year, according to the Census Bureau. That figure of $412 represents only visible taxes, those that come in an "or else" letter from the

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* Abstracted from an address before the annual convention of the New Mexico Mining Association, Albuquerque, New Mexico, November 7, 1952.

collector. There are thousands of others. The gasoline that brought you here gathers a hundred taxes from the well to the filling station. Your shirt is woven with 102 taxes; your cigarette is about 40 percent tobacco, the rest is taxes.

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There can be little rebuttal to the proposition that taxes are too high, so high as to shrink investment capital below the minimum required to keep America's industrial plant serving our growing population and scale of living. What to do about it? Since a frontal assault upon the total jerry-built tax structure is beyond the capacity of all but a majority of an aroused Congress, industries must concentrate their efforts upon manifest inequities in their own fields. Lest it be thought that the odds against such individual or group effort are so great as to be hopeless, let me cite two case histories.

In the last tax bill, which generally increased or at least maintained the high tax levels, two exceptions stood out. The percentage depletion on coal was doubled - from 5 to 10 percent of the gross - and the royalties of coal land owners were changed from income to capital gains. These changes, representing a saving of many millions of dollars to the hard-pressed coal industry, were effected by a much smaller group than those assembled here. I saw the changes in the making for I have Washington offices with James W. Haley, former General Counsel of the National Coal Association and now Vice President of a leading Southern producer, Jewell Ridge Coal Corporation, who took a leading part in planning the successful arguments. Mr. Haley is well known to the Tax Committees of the House and Senate for his factual presentation of coal's case over many years. The combination of personal contacts, a sound case clearly presented and work literally around the clock won the uphill battle.

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The crushing weight of corporate taxes leads to the search for loopholes in the law. These permit legal tax avoidance rather than illegal tax evasion. As soon as a loophole becomes frequently used, the Bureau of Internal Revenue seeks to plug it with regulations or new legislation. Then the legal beagles of industry sniff out another loophole and the Bureau gallops up with a new plug.

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Percentage depletion might be classed as a loophole, although specifically authorized by Congress. Ever since its passage, persistent efforts have been under way to abolish or reduce this allowance. The Paley Report which must be considered as stating Administration policy, since by Presidential Directive the National Security Resources Board has formed a committee of the interested Executive Departments to implement the Report's conclusions, gives only lip service to the principle of percentage depletion. The Commission writes that "Application of the percentage depletion device should be confined to those minerals for which the hazards of exploration are great, a principle that apparently did not govern selection of most of the minerals added to the percentage depletion list by the Revenue Act of 1951." Is there any mineral produced in the United States today whose exploration and production are not great hazards, not only by the whims of nature, but because of the policies of the national administration with its multitudinous controls and preference for foreign ores? The Paley Commission apparently would rule coal off the list, yet if coal producers were denied percentage depletion today, a great part of the industry could not operate. Further, the Paley group would prevent any increase in the present rate of percentage depletion. Yet it is evident that the percentages must be increased to keep pace with inflation.

Critics of taxes are often challenged to present a better program. Rescue of a would-be suicide does not require the lifesaver to solve the unfortunate's problems. Bureaucrats will literally spend any given amount; reduce their appropriations and they will find means to live within them. We need not submit a detailed budget to call attention to the parlous state of the taxpayer and point out where relief is particularly required.

While relief is required in every field of taxation and scale of income, among the most urgent needs are:

a) The excess profits tax. Unworkable, as admitted by the Secretaries of the Treasury and Commerce, this ill-conceived levy costs to administer probably nearly as much as it yields. Each case must be fought over separately. Leads to sloppy, padded work and unnecessary expenditure. Should be abolished entirely.

b) High corporate income tax. The legislatures of 16 states have passed resolutions supporting a limit on Federal income taxes (except in case of actual war) of 25 percent compared with the present levy of 57 percent. When 36 states have acted favorably the limit will take effect as a Constitutional amendment.

c) Double taxation, taxing dividends of a corporation which has already paid income tax. The sum of such double taxation, amounting in many cases to 77 percent of the earnings, freezes risk capital, for there is no advantage in buying shares in an enterprise wherein the Federal Government, that bears no part of the risk, takes three-quarters of the profit. Section 102 of the Revenue Act was designed to force corporate earnings out as dividends, thus subjecting them to double taxation that is virtual confiscation. Section 102 favors monopoly, for small companies with few stockholders often find themselves forced to sell at far less than book value or surrender their cash to the tax collector. Double taxation destroys the source of new investment capital upon which the well-being of our national economy depends. It costs about $11,000 today to provide a new job; nearly $7 billion to absorb into gainful employment the net balance of those who seek work each year. They must be provided for, in useful private industry with incentive and content, or we must support them by further taxes in boondoggling. We have the example of Great Britain. That nation has been so bled by taxation that last year less than 50 persons had earned incomes of $25,000 after taxes. All new investment capital must be sought from the Government. Some New Deal economists planned to bring about that result here. Government money means Government control. "The man who pays the piper is the one who calls the tune." Under Hitler the German Government closed the investment market and supplied industrial capital - and a manager for each company along with it. When private capital ceases to finance American industry, totalitarianism will have taken over. There can be no political liberty without economic liberty.

d) Return all possible tax power to the states. This would be the greatest brake upon Federal extravagance which began when the Federal income tax of 1917 all but destroyed state sovereignity.

e) "Pay as you go" has been overdone. The Government should capitalize long-term improvements as it requires taxpayers to do. Whenever possible public projects should be self-liquidating, financed by revenue bonds that impose no burden upon the taxpayers.

f) Abolition or drastic reduction of the capital gains tax. This is a capital levy and a deadly threat to private investment capital. Canada, a young nation with much greater proportionate need for public funds, has no capital gains tax and partly as a result thereof, the soundest currency in the world today.

g) We should also follow Canada's lead in granting tax exemption to new mines for three years after they get into production.

h) Overseas economic aid, especially under Point Four, should not be assessed against the American taxpayer. Miners, with whom these foreign developments are planned to compete, have a right to demand that if they are embarked upon at all, they be

financed by bond sales, not taxes, and the interest and sinking fund of such bonds be derived solely from the income of the ventures. The bonds could be sold to those advocating the Point Four program, sparing the American miner his tax cash to invest in his own property.

i) On the personal level, the taxpayer should have the right to deduct the expense of creative work. And since his home represents often all he can save from the tax collector, single-family owner-occupied houses should be tax free.

If the above suggestions were put into force, far from shrinking the national revenues would rise, buoyed on the upsurge of industry supplied with adequate reserves and financed by a public able and eager to share in the creation of an ever greater national product.

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OREGON NICKEL PLANT GIVEN TAX WRITE-OFF

The Wall Street Journal, December 10, 1952, announced that the Defense Production Administration issued a certificate of necessity to Hanna Coal and Ore Corporation, Cleveland, authorizing it to take quick tax write-offs of $22 million worth of ferro-nickel ore processing facilities in Oregon.

Hanna is a subsidiary of M. A. Hanna Coal and Iron Corporation, also of Cleveland, whose chairman is the newly designated secretary of the treasury, George M. Humphrey. The certificate for Hanna is the largest of 173 certificates issued by DPA in the two-week period ended December 3. . . .

DPA authorized Hanna to write off 70 percent of the $22 million cost of its new nickel ore processing facilities over a five-year period instead of the longer period normally required by the Government for depreciation of such facilities.

Hanna's new facilities will be located in Douglas County, Oregon. Early last month, the company received a certificate permitting it a quick write-off of 85 percent of $3,566,000 worth of ore mining facilities which it plans to construct in Douglas County.

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CANADIAN GOLD SUBSIDY

Canadian Finance Minister Douglas Abbott has announced that in 1953 the Canadian Government will increase the maximum rate of assistance to Canadian gold mines from $11.50 an ounce to $13.50 an ounce. Under the new formula, it is estimated that the average aid given will increase by $1 an ounce. Abbott said that the International Monetary Fund had raised no objection to this action.

Meanwhile, the next chairman of the House Banking and Currency Committee, Rep. Wolcott (Rep., Mich.) has told reporters he is opposed to the United States taking action by itself to return to the gold convertible dollar, and that he favors a world conference of all former gold standard countries. (From the American Mining Congress Bulletin Service, No.27, December 8, 1952.)

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MAURY MOUNTAIN MINE

The Eickemeyer brothers, who have worked their Maury Mountain claims in Crook County, Oregon, off and on for about 15 years, are again taking out high-grade cinnabar. The workings below the drainage tunnel have been pumped out and ore is being removed from a mineralized zone along a northwest trending fault. Ore is treated in a rotary retort having a capacity of about 1,000 pounds of ore per charge or about 3 tons per day.

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CHROMITE PRODUCTION

The U. S. Bureau of Mines summarizes domestic chromite production in its Chromite Report No. 32. Although the report does not so state, this production must be the amount, at least the approximate amount, received at the Grants Pass ore-purchasing depot and represents production of both California and Oregon. Following are some of the statistics:

1951 -	First quarter	74	short tons
	Second quarter	576	" "
	Third quarter	637	" "
	Fourth quarter (during which government purchase depot at Grants Pass was opened)	5,610	" "
1952 -	First quarter	1,366	" "
	Second quarter	3,070	" "
	Third quarter	5,659	" "

Assuming that the fourth quarter would approximate the amount produced in the third quarter of 5,600 tons, total amount produced in 1951 and 1952 will be about 22,500 tons.

Total imports of chromite for the first three quarters of 1952 amount to 1,162,904 short tons, of all grades. If this represents three-fourths of the imports for the year, the total amount for the full year will be 1,550,539 tons.

The total amount of all grades imported in September 1952 was 130,677 short tons (valued at $3,282,198), of which metallurgical grade represented 82,065, refractory 26,061, and chemical 8,550. In order of importance metallurgical grade came from: Turkey (40,106 long tons); Southern Rhodesia (16,598 long tons); Philippines (9,416 long tons); Union of South Africa (6,045 long tons); Sierra Leone (4,200 long tons); Cuba (4,100 long tons); Yugoslavia (1,000 long tons); and India (600 long tons).

Consumption of chromite during the first three quarters of 1952 in short tons was as follows:

Metallurgical grade	499,803	(57% of total)
Refractory grade	284,254	(33% " ")
Chemical grade	85,733	(10% " ")
Total . . .	869,790	

If this rate of consumption continues in the fourth quarter, total amount consumed would be 1,159,720 short tons. According to the same assumption, the total amount of metallurgical grade consumed will be 666,404. Industrial stocks on hand at the end of the third quarter of 1952 in short tons were as follows:

Metallurgical grade	394,673
Refractory grade	267,379
Chemical grade	114,353
Total . . .	776,405

It may be observed that the quantity of metallurgical-grade chromite in industrial stocks at the end of the third quarter of 1952 is a little less than 60 percent of the probable consumption in 1952. In other words, these stocks would not last very long if imports were cut off.

F.W.L.

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BASALT IN COMPOST PILES AND AS SOIL CONDITIONER

A new use for basalt is described in the November issue of Organic Gardening. A mixture of pulverized basalt and clay when added to compost piles has been found to impart not only valuable minerals helpful to plant growth but also a beneficial cooling effect on the compost. Overheating of compost piles destroys valuable nutrients, especially nitrogen; kills bacteria and enzymes, and drives off earthworms. In Germany, where pioneer work on the use of basalt has been underway for several years, temperatures of compost piles have been reduced from 170° F. to as low as 120° F. A surprisingly large proportion of basalt and clay is used in the German method. Equal weights of basalt and clay are added to the compost, the mixture representing 30 percent of the total weight of the heap.

Basalt, in the opinion of Dr. W. D. Keller,* Professor of Geology at the University of Missouri, is one of the best-balanced rocks for supplying plant nutrients. He feels that basalt, ground with an illite-rich clay and mixed with organic matter should provide the best average plant food possible.

Powdered basalt is also used directly on the soil in experiments conducted in Germany. If left on the surface, the soil temperature is increased, but if worked in it is temporarily reduced. The basalt powder soon decays to clay and releases its nutrients.

*See also "Native rocks as fertilizers," by W. D. Keller, Organic Farmer, April 1950, abstracted in July 1950 Ore.-Bin.

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ANALYSES OF SOME OREGON BASALTS

The following chemical analyses of several basalts from Oregon show the relative abundance of the nutrient elements phosphorus, potassium, calcium, magnesium, and iron.

	Stayton[1]	The Dalles[1]	Lost Creek[1]	Average of 6 analyses[2]
Silica	51.44 %	49.08 %	49.85 %	49.98 %
Titanium oxide	2.80	3.56	2.50	2.87
Iron oxide	14.16	14.27	12.19	13.97
Alumina	13.29	13.71	15.20	13.74
Magnesium oxide	4.28	4.58	6.25	4.73
Calcium oxide	8.28	8.44	9.43	8.21
Sodium oxide	2.93	3.17	3.08	2.92
Potassium oxide	1.40	1.31	0.97	1.29
Phosphorus	0.61	0.73	0.40	0.78
Water	0.73	0.90	0.24	1.22
Manganese oxide	0.23	0.25	0.16	0.24

1/Thayer 1937:1622; 2/Washington 1922:765

In addition to the above constituents Oregon basalts contain the following trace elements[3]:

0.1% to 1%	0.1% to 0.01%	0.01% to 0.001%	Below 0.001%
Strontium	Chromium	Cobalt	Zirconium
	Vanadium		Copper
	Barium		Nickel
			Molybdenum

3/Spectrographic analysis of basalt from Jackson Falls quarry, Washington County, by Oregon Department of Geology and Mineral Industries.

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TRI-COUNTY CHROMITE PROJECT

The Tri-County Mining and Concentrating Corporation was organized in 1951 by Mr. E.R.Wells, Mt. Vernon, Oregon. Officers are E. R. Wells, President; W. A. Stinnett, Vice President; J. A. Curzon, General Manager. Office and concentrating mill are at John Day. The company has a lease on the Dry Camp chromite property and has mined and milled about 600 tons of ore and shipped about 100 tons of concentrates to the Grants Pass purchasing depot.

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