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

****

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.

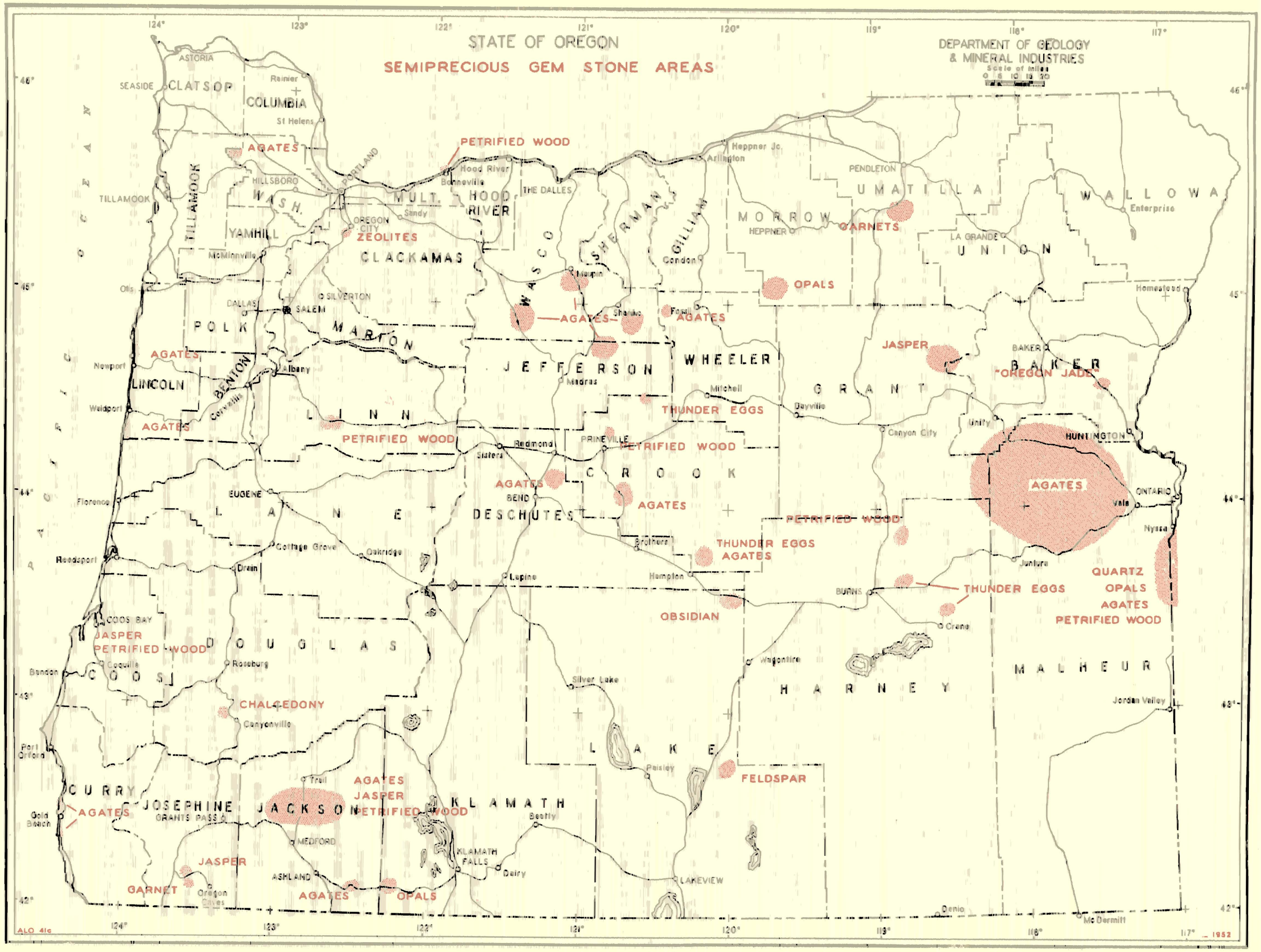
Dake, H. C., Gem Mining, a New Oregon Industry: Oregon Dept. Geology and Min. Industries Ore.-Bin, vol. 9, no. 7, July 1947.

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

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

---

* 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
JEFFERSON
WHEELER
GRANT
BAKER
LINCOLN
BENTON
LINN
CROOK
LANE
DESCHUTES
DOUGLAS
COOS
HARNEY
MALHEUR
LAKE
CURRY
JOSEPHINE
JACKSON
KLAMATH
PETRIFIED WOOD
AGATES
ZEOLITES
GARNETS
OPALS
JASPER
"OREGON JADE"
THUNDER EGGS
OBSIDIAN
QUARTZ
CHALCEDONY
FELDSPAR
GARNET
ASTORIA
SEASIDE
PORTLAND
SALEM
EUGENE
BEND
MEDFORD
ASHLAND
KLAMATH FALLS
LAKEVIEW
BURNS
PENDLETON
LA GRANDE
BAKER
ONTARIO
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.

****

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

****

NEW PHONE NUMBER

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

****

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.

****

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.

****

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.

****

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.)

****

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.

****

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.

****

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.

****

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.

****

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.)

****

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.