STATE OF OREGON
DEPARTMENT OF GEOLOGY & MINERAL INDUSTRIES
329 S.W. OAK ST.
PORTLAND, OREGON

THE ORE.-BIN

VOL. 1 NO. 5 PORTLAND, OREGON May 1939

MEDFORD GEOLOGIC MAP OUT.

The new geologic maps of the Medford quadrangle, representing work completed last November by field parties of the U. S. Geological Survey under Mr. Francis G. Wells, geologist, are ready for mailing. The maps are in several colors, show the various geological formations in the Medford-Ashland district, as well as the location of the mines in the district. On the back of the map appears a rather thorough description of the geology and notes on the occurrences of chromium, gold, quicksilver, coal, clays, etc.

The preparation of this map by the U. S. Geological Survey so soon after the completion of field work represents a concession requested by this Department and very kindly made by the director of the U. S. Geological Survey. The Department is carrying the cost of the color lithostating and is issuing the maps. Copies may be obtained by writing to the head office of the Department, 329 S. W. Oak Street, Portland, enclosing 40 cents to cover printing and mailing.

******

STREAM TIN IN OREGON.

Cassiterite, tin oxide (SnO_2), is commonly known as "stream tin" from its occurrence in placer deposits. A nodular variety, known as "wood tin", is found in some localities.

The United States lacks known commercial deposits of cassiterite, or stream tin, and the supply has to be imported. There are few occurrences in the United States, and these supply a certain amount of museum specimens but little, if any, commercial ore.

A group of placer miners operating on Pine creek, south of Baker, Oregon, had been finding heavy brown pebbles in their sluices. Unable to decide definitely what the brown material was, they sent samples to the Baker Assay Laboratory of the State Department of Geology & Mineral Industries, and Mr. Leslie Motz, assayer, determined the samples to be cassiterite.

Mr. Earl K. Nixon visited the placer property and collected a few pieces of the stream tin. These represent the first authentic occurrence of cassiterite in Oregon. Mr. Nixon states that the miners are working a gulch where the metal values have concentrated from an old Tertiary channel heading in the Greenhorn mountains, and that the stream tin represents the accumulations of many, many centuries of time. There is an insufficient amount to justify commercial development of the tin, so far as now known.

There have been many reports, from time to time, of cassiterite occurrences in Oregon. Some of these have originated in the Wallowa mountains and the Department's field survey parties made particular search for cassiterite pebbles last summer. None came to their attention. The occurrence on Pine creek may give new incentive to a search for this important, strategic war mineral.

******

SAMPLING OF OREGON COALS

Mr. Geer, technician of the U. S. Bureau of Mines, arrived in Oregon on May 1st and is now working with Mr. J. E. Morrison, engineer of this Department, on the job of sampling Oregon coals. At the moment these engineers are in the Coos Bay district, where the most important mines are located. The sampling itself must be done in a certain standardized method developed by the U. S. Bureau of Mines, and the samples are placed in air-tight cans for shipment to the laboratories of the U. S. Bureau of Mines.

Proximate and ultimate analyses will first be made of the various types of coal and then further studies and utilization tests will follow. It is the desire of the Department to demonstrate the best uses of coals existing in various parts of the state. Known occurrences of coal beds will be visited in Coos Bay, Medford, Salem, Molalla, Columbia county, Heppner, and perhaps other districts.

Dr. H. F. Yancey, of the U. S. Bureau of Mines, will join Mr. Nixon of the Department the second week in May for a trip to the various coal areas for definite planning of the sampling job, to be carried out by Messrs. Geer and Morrison. It will take three or four months to complete the tests after the sampling is done. The results of the work will be published by the Department in cooperation with the U. S. Bureau of Mines as soon as final data are available.

******

U.S.GEOLOGICAL SURVEY GEOLOGIST COMING FOR GRANTS PASS WORK.

The Department has just received word that Mr. Francis G. Wells, geologist of the U. S. Geological Survey, who will have charge of the field parties of the government work in the Grants Pass district, will arrive in Portland around May 20th, to lay out plans for the summer field season. Work will be concentrated on the Grants Pass quadrangle, which area carries from a point just north of the city of Grants Pass south to the California line. Considerable work as now planned will be done on the Kerby quadrangle, which adjoins the Grants Pass on the west.

The work this summer fits in to a plan which contemplates cleaning up in proper detail much of the geology of the mineralized area in southwest Oregon. The Medford quadrangle was finished last year and the map is now being issued; the Grants Pass quadrangle will be finished this summer, and a colored geologic map of it is expected to be issued about this time next year; the Kerby quadrangle will be finished next, in the summer of 1940.

The State Department of Geology & Mineral Industries is undertaking a detailed geological survey of the Tiller quadrangle, which adjoins the Medford on the north and the Riddle on the east.

******

ROGUE RIVER COORDINATION BOARD ACTIVE.

The Rogue River Coordination Board, consisting of Charles E. Stricklin, State Engineer, as chairman, Senator W. H. Strayer of the Governing Board of the State Department of Geology & Mineral Industries, Mr. E. E. Wilson, chairman of the State Game Commission, as members, with Earl K. Nixon as secretary, was established by the passage of Senate Bill 385 in the last legislature. The first meeting of this Board was held in Grants Pass on Tuesday, April 18. After this meeting the Board spent three days covering the mining areas in Josephine county and observing conditions along streams there and at the mouth of the river. Another meeting was held in Corvallis on May 1st. At that meeting it was decided that a standard of turbidity of 50 parts per million of solids in suspension would be considered as the point beyond which conditions would not be favorable for salmon fishing in the lower river. If the turbidity is higher than 50 parts per million at Grants Pass, it is the opinion of the Board that the turbidity is caused by natural conditions; if lower at Grants Pass and higher at the mouth of the river, then it is the opinion of the Board that it should take some action toward coordinating or rotating the operation of some of the placer mines in order to make conditions near the mouth of the river comparable with those around Grants Pass.

Inasmuch as the snowfall this winter was relatively light in the Siskiyous many of the placer operations have already been obliged to close down, so it is improbable that any termination of mining activities will be required this year.

Another meeting of the Rogue River Coordination Board will be held in Portland Sunday, May 7th.

******

RICH QUICKSILVER STRIKE.

According to a source which has always been unusually reliable, a very important quicksilver strike has been made recently at one of the mines in the western Cascades. Details are being withheld in deference to the mine development now going on, but they may be announced in the next issue of the Ore.-Bin.

It would appear to us that with the quicksilver production diminishing somewhat in California and the Oregon production increasing quite rapidly, Oregon will run neck and neck with the state of California in the production of quicksilver for 1939. With the increased price of quicksilver -- it is being sold now at $90 per flask -- somewhat of a rush is on to obtain quicksilver properties.

******

UNITS OF GOLD BULLION VALUES.

Troy weights are used as the basis of gold and silver values, and the ounce is the primary unit.

Troy Weights

1 pound	-	12 ounces
1 ounce	-	20 pennyweight
1 pennyweight	-	24 grains

The gold content of the dollar is now fixed at 15 5/21 grains of gold 9/10 (usually designated as 900) fine, so that one dollar is equivalent to 13.714- grains of pure gold. Since there are 480 Grains in 1 ounce, an ounce of pure gold is valued at $35. Following are the gold values of different Troy weights.

1 pound	has a value of	$420.
1 ounce	"	35.
1 pennyweight	"	1.75
1 grain	"	0.0729

In order to convert Avoirdupois to Troy weights:

1 Avoirdupois	pound	= 14.58333	Troy ounces
1 "	ounce	= 0.91146	"

Therefore:

1 Avoirdupois	pound	has a value of	$510.42
1 "	ounce	"	31.90

The metric system is used in nearly all countries outside of the United States and British Empire.

1 gram - 15.432 grains - 0.03215 oz. Troy

Therefore:

1 gram is valued at $1.125.
1 kilogram is valued at $1125.

******

BERYLLIUM *

* Digested from Mineral Trade Notes, vol. 8 no. 2, Feb. 20, 1939, published by the United States Bureau of Mines.

The metal, beryllium, has attracted public fancy, probably on account of the comparatively high sales price and the peculiar properties of the metal. Beryllium is virtually as hard as tempered steel, it melts at about the same temperature, yet it is scarcely two-thirds as heavy as aluminum. It resists atmospheric attack (similar to the rusting of iron)

about the same as aluminum since it forms an oxide film over the surface that stops further attack.

Beryllium alloys have attracted the attention of Congress. A recent radio broadcast by a prominent news-commentator stated that an appropriation bill is being prepared to permit the accumulation of reserve stocks of strategic war minerals. This appropriation, according to the broadcast, has been greatly increased to allow financial assistance to industries which are producing certain materials likely to be of great importance in national defense. The particular materials mentioned were beryllium alloys. These have certain unique properties, and undoubtedly the United States has lagged behind Europe in the development and application of these valuable alloys.

The pure metal is costly to produce ($35 to $50 a pound). The commercial metal (99.5 percent beryllium) is quite brittle, and that factor, coupled with the high cost, eliminates it as a structural material. An effort has been made to alloy the metal with other light metals such as aluminum and magnesium but these experiments have not yet been commercially successful. The use at present is largely confined to alloying beryllium with the heavy metals, principally copper, and to a minor extent, nickel and other nonferrous metals. Almost the only use for the pure metal itself is for "windows" in X-ray tubes and electrodes for neon signs; the targets for the latest atom-smashing machines are also made of beryllium.

When beryllium is alloyed with copper it is soft and ductile before being heat treated, and is therefore easily machined. This alloy can be made hard and highly elastic by a one-stage heat treatment, or "tempering" as it is frequently and incorrectly called. After heat treating, the alloy resists "fatigue", that is, it can be bent or subjected to stress repeatedly without breaking. It has been found that drill steel, for example, does not break as readily if it is used one day, and then allowed to "rest" a day; if used continually the total number of working days of its use is lower, and the failure is diagnosed as "fatigue". The beryllium-copper alloy also has good electrical conductivity, and other properties which make it valuable for flat and coil springs.

Other useful beryllium alloys are typically as follows: nickel with 2.5 percent beryllium; 18-carat gold (75 percent gold, 25 percent silver) with varying percentages of beryllium; and nickel-steel (36 percent nickel, with trade name Invar) with 1 percent of beryllium. Beryllium added to nickel makes an extremely strong, hard alloy; added to gold it makes a hard alloy; and in the case of nickel-steel beryllium makes a rustless and machinable alloy, yet, like Invar, it does not expand or contract like other alloys with changes of temperature.

These uses, and the possibilities that may develop from researches being conducted, have caused many people to place an inflated value on beryllium ores. No matter what the sales price, little can be sold if there is insufficient market for the material. Gold might still have a sale price of $35 an ounce in a desert, but to what end, if there were no buyers? It is a fact that more beryl (principal beryllium ore) is being offered for sale than can be consumed at present demand levels. The sales price ranges from $30 a ton at the mine to $50 a ton at the consuming plant, where sales are made.

The cost of converting beryllium ore to metal is not excessively high, as suitable methods have been developed and they are not inherently expensive. It is necessary to expend large sums upon research, educational campaigns, patents, and other expenses incident to the development of any new metal, and the burden of these expenses has had to be borne by a relatively small volume of actual sales.

Beryllium metal undoubtedly has a bright future, but quoted sales prices of $30-$50 a ton for the ore should not mislead the uninformed investor into becoming over-enthusiastic about the profits resulting from a beryllium deposit.

******

The California Mining Journal reports that according to the Air Hygiene Foundation in Pittsburgh, a survey made in England indicates that stone masons who are clean shaven are commonly afflicted with silicosis; that those with mustaches suffer less, and that those with both beards and mustaches are commonly immune from this occupational disease, caused by silica dust.

This might serve as a basis for a facetious order by the Industrial Accident Commission.

******

Ed Stovall, address Grave Creek, Oregon, has 500 feet of 11" hydraulic pipe and one No. 2 Hoskins type giant without deflector, which he will sell for a price of $75 cash.

The equipment is near the road and can be got out easily.

******