

STATE OF OREGON
DEPARTMENT OF GEOLOGY & MINERAL INDUSTRIES
329 S.W. OAK ST.
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LIST OF MINES IN OREGON

The State Department of Geology and Mineral Industries announces issue of a list of the mines and mining properties in the state of Oregon. Those properties which are known to be active are so indicated. The type of property - whether gold placer, quicksilver, chromite, etc. - is indicated, but no description of the property is given, other than the name and address of the operator and the county and district. The list is alphabetical by counties and by mining districts within the counties. The total number of properties listed is 1,621. Of these, more than 200 are shown as being producing mines or active operations.

Because of the tremendous number of properties located over the state, it has been quite a task to assemble the list now available. It is reasonably accurate, but changes will be made and the list will be brought up to date from time to time. The list covers 32 pages of single-spaced, legal size paper.

A charge of 25 cents is being made to cover cost of printing and mailing only. Parties desiring to obtain a copy of the list may address the State Department of Geology and Mineral Industries, 329 S. W. Oak Street, Portland, Oregon.

ATTENTION -- MINERAL PRODUCERS

We have frequent calls for commercial offerings of minerals of various types. We are asked to supply the names of persons who produce such minerals as antimony, mercury, chromite, clays, titanium, ground vermiculite, bentonite, tungsten, tin, lead, zinc, mica, etc.

We shall be pleased to keep on file the names of persons in Oregon who have such minerals for sale so that we can assist them in finding buyers for their minerals or prospects.

We do not guarantee to find you a buyer (nor do we guarantee to the buyer that you are able to produce the grade and quantity of mineral he is looking for), but it is our wish to get buyer and seller together. That is our job and there is no cost connected with it so far as we are concerned.

THE PROSPECTOR

(Dedicated to All Prospectors and Miners Everywhere)

I'm only an old, old prospector
Who has his hopes and dreams,
Searching for the rainbow's ending
Where a golden mountain gleams.

I've roamed the hills and valleys
And climbed the craggy peaks,
Learning the lore of Nature --
She alone her language speaks.

I've seen the Sago Lily,
Like jewels on the desert bloom.
And dug out the mastodon's bones
From his deeply buried tomb.

Nome's sands, too, have known me;
I've poled up the Kuskokwim,
And run the angry rapids,
Taken many an icy swim.

I hope when my work is finished,
And I lay down my battered pan,
That some few here will say of me,
"He has been of use to Man".

- by C. W. Curl
January 23, 1939.

OREGON'S GOLD PRODUCTION

Oregon does not have the reputation of a mining state among those who are not well informed on the subject. As a matter of fact, Oregon has a substantial mineral production, the sum-total of which adds materially to the wealth of the state each year.

Oregon has one of the six largest gold lode-mines in the United States and Alaska, the Cornucopia mine in Baker county. Oregon ranks eleventh in a list of 24 states and territories in the production of gold; if Alaska and the Philippines and Puerto Rico are eliminated, it ranks ninth in a list of twenty-one.

The following tabulation is based on preliminary figures for the year 1938 released by the Denver office of the U. S. Bureau of Mines:

	<u>Ounces (1938)</u>
1. California	1,294,000
2. Philippines	862,397
3. Alaska	667,000
4. South Dakota	594,000
5. Colorado	370,000
6. Arizona	310,000
7. Nevada	289,000
8. Utah	210,650
9. Montana	197,200
10. Idaho	101,000
**11. OREGON	77,000
12. Washington	73,000
13. New Mexico	38,600
14. South Carolina	11,125
15. Virginia	2,814
16. North Carolina	1,870
17. Pennsylvania	1,402
18. Wyoming	877
19. Maryland	847
20. Georgia	833
21. Texas	455
22. Tennessee	300
23. Alabama	30
24. Puerto Rico	9

BAKER OFFICE CONDUCTS MINING SCHOOL

The State Department of Geology and Mineral Industries and the Board of Vocational Education are cooperating in conducting a mining school at Bend, Oregon. The mining school work is being carried out by John Eliot Allen, field geologist, and Leslie Motz, analyst, of the Baker office of the Department of Geology.

The original request for mining school work came from Baker. The two men in the Baker office prepared a series of lectures and demonstrations covering the subjects of mineralogy, identification of rocks, methods of prospecting, and economics. The work is designed to be of practical value to the prospector in the field and is kept as non-technical as possible. The school has been given for two seasons, with great success, at Baker, and was attended not only by prospectors but by people who wished some general knowledge of rocks and minerals.

Parties in Bend have requested that this work be given, and the result of cooperation with the Board of Vocational Education and the Department of Geology & Mineral Industries is the school at Bend. Classes will be held on Tuesday and Wednesday nights of each week, over a period of six weeks. Local arrangements are supervised by the Deschutes Geology Club, and all lectures are free to the general public.

Mr. Allen and Mr. Motz have spent a great deal of time and thought, much of it on their own time, in the preparation of their lectures. The classes are a real benefit to the people of Oregon and the lecturers should be commended for their efforts.

ALUMINUM FROM CLAY

Numerous requests are received by this office for information on the amount of "aluminum" that a clay should contain in order to be an ore of aluminum. To date, there is no known process in the United States which can be used to extract profitably aluminum from Pacific Northwest clays, in competition with existing manufacturers.

A great deal of experimental work has been done to discover a commercial process of this type. Aluminum metal has been extracted from clay. In fact, the U. S. Bureau of Mines station at Pullman, Washington, has some aluminum pellets which were reduced from eastern Washington clays. The cost of this process, however, is so great that the process is not commercially practical.

The answer to the question - Can aluminum be economically extracted from Pacific Northwest clays? - is "No". That is, until such time as a process is perfected which can compete with the process using bauxite. In Germany aluminum reportedly is made from clays, but also it is reported that the cost of production is much higher than it is in the United States where bauxite is exclusively used.

Bauxite is, at present, the only commercial ore of aluminum. This ore has the following generalized chemical composition:

	<u>Percentage</u>
Alumina (Al_2O_3)	55-65
Silica (SiO_2)	2-5
Iron (Fe_2O_3)	1-25
Titanium Oxide (TiO_2)	1-2
Combined water (H_2O)	10-30

It should be noticed that the silica content is very low, and furthermore the silica that is present must be soluble in hot alkalies by means of which impurities are removed leaving pure Al_2O_3 . Aluminum is not made directly from bauxite but from alumina (Al_2O_3) which is extracted from bauxite by chemical processes and the purified alumina then reduced to aluminum in electric furnaces.

Analyses of some of the western Oregon high-alumina clays is given:*

	I	II	III	IV	V
Alumina (Al_2O_3)	37.6	39.2	38.8	41.3	39.9
Silica (SiO_2)	43.6	36.4	45.9	42.2	47.0
Iron (Fe_2O_3)	5.3	5.9	2.8	2.9	0.46
Titanium Oxide (TiO_2)	1.1	0.3	0.2	0.6	0.2
Ignition Loss	12.6	17.4	12.4	13.4	12.5
I - Fransen Pit	IV - Macleay Locality				
II - Ellis Pit	V - Hobart Butte Flint Clay				
III - Dibble Pit					

* Wilson, Hewitt, and Treasher, Ray C., Preliminary Report on some of the Refractory Clays of Western Oregon: Oreg. State Dept. Geol. & Mineral Industries, Bull. no. 6, p. 84, 1938.

First of all, it should be noticed that the analysis gives alumina percentage, not aluminum percentage. Pure alumina consists of 53 percent aluminum, so that the actual amount of aluminum present in these clays is approximately one-half the alumina content. This point is frequently overlooked by many people.

Secondly, it should be noted that the percentage of silica is high, usually higher than the alumina percentage. Furthermore, the silica is in chemical combination with the alumina and the two are separated with extreme difficulty. In other words, the process of preparing pure alumina

(from which aluminum is made by electrical methods) from the complex aluminum silicates present in western Oregon clays is too expensive to justify the use of these clays as ores of aluminum at the present time.

The use and production of aluminum is constantly increasing. It has been estimated that there is now a 30 to 40 years' supply of bauxite in the United States at the present rate of production. As production expands it is probable that more research will be done on high alumina clays in order to supplement the domestic supply of bauxite.

MINING REGULATIONS
MINING METHODS

The U. S. Bureau of Mines has just released a technical paper dealing with Federal placer-mining laws and regulations, and small-scale placer-mining methods. The information contained therein is similar to that in Information Circulars issued by the Bureau, to which additions have been made, and certain changes. The pamphlet is 6 inches by 9 inches in size and contains 49 pages and is printed (not mimeographed). Copies may be secured from the Superintendent of Documents, Washington, D.C., for 10¢.

This publication is particularly valuable to anyone desiring information about the Federal placer-mining laws, and the explanation of small-scale placer-mining methods is extremely helpful to the "little fellow". The pamphlet is officially designated as follows:

Johnson, Fred W., "Federal Placer-Mining Laws and Regulations"; and Jackson, Chas. F., "Small-Scale Placer-Mining Methods"; U.S. Bureau of Mines, Technical Paper 591, 49 pp., 26 figs., incl. maps of placer districts, 1938.

NEW USES FOR THE FLOTATION PROCESS

Application of the flotation process began with the concentration of sulphide ores. First a bulk concentrate was made; then with the development of selective flotation, different sulphides were separated from the bulk concentrate. It was at first assumed that the process was practical only in sulphide ore treatment, but the field of application has been progressively widened by research, and at present embraces a large number of substances other than sulphides. In fact it may be said with fair accuracy that the process now is applicable throughout the whole field of beneficiating natural mineral products, both metallic and non-metallic, and is branching out into still other industrial fields. Examples of the latter are in removing ink in reclaiming news print paper, separating fibre in waste water from paper mills, eliminating impurities in sugar refining, and in differential separation of certain crystalline substances, such as sodium chloride and potassium chloride, thus avoiding tedious recrystallizing procedures.

The broad scope of the flotation process applied to industrial processes is outlined in U.S.B.M. Report of Investigations 3397. Especially noteworthy is its expanding use in chemical engineering fields. This subject is of especial interest at a time when studies are being made in an effort to prevent or lessen the discharge of industrial wastes into streams.
