

Salem Has at Her Doors the Butte City District of Oregon, Undeveloped, in the Great Santiam Mining Country; This Year Will See Beginnings of Great Things

OREGON MINES, WHERE THEY ARE, WHAT THEY ARE, AND WHAT DOING

Silver and Copper Output Increased and Gold Output Decreased Only Slightly Last Year, and the Outlook Is For Great Development, in Near Future—The Big Feature for 1920 Was in Iron Development, and Oregon May Soon Have Big Operations in Both Iron and Coal Mines.

(The following outline of Oregon mining operations, development and possible development was kindly furnished The Statesman by the Bureau of Mines and Geology, Henry M. Parks, director, 417 Oregon building Portland, under date of Feb. 23.)

Production from Oregon mines in 1920 appears to have made a steady mark. To attempt a lengthy statement of the conditions that have brought this about would be but a tiresome reiteration of the story heard from practically every mining district in the country. It may be stated, however, that high wages, deficiency and inefficiency of labor, extremely high costs of materials and supplies, high freight rates and slow delivery all combined to reduce mining in the state to the lowest returns for many years.

The shortage of labor was greater in mining than in other industries due to extra high wages offered by road contractors, logging companies, wheat ranchers, etc. These industries could bid higher in the market because of the higher prices received or expected than could the mining industry since the price of metals has not been in proportion to increased costs as has those of the competitors for labor. The interior, however, showed an increase in the cost of supplies, made still greater by the two raises in freight and express, has added greatly to mining and milling costs.

The high freight rates has added to the cost of marketing commodities, and consequently has reduced net smelter returns.

In addition to the high costs of material and freight charges the slow and uncertain freight delivery of the interior has further aggravated the situation and added to the cost of mining.

The preliminary estimate of Oregon's metal production for 1920 by the U. S. Geological Survey is quoted in part as follows: A preliminary estimate of the production of metals at mines in Oregon in 1920, compiled by Charles G. Yale of the United States Geological Survey, Department of the Interior, shows a small decrease in the output of gold and an increase in the output of silver and copper as compared with that in 1919.

The estimated output of gold in 1920 was \$442,300, compared with \$450,000 in 1919, a decrease of only \$38,645. It is somewhat surprising that the state so nearly held its own in the production of gold, in view of the adverse conditions under which silver mining has been carried on. Less than half as many mines were producing in 1919 as in 1918, and the number must have still further decreased in 1920.

The output of silver in Oregon in 1920 was 13,414 ounces, as compared with 11,121 ounces in 1919, an increase for 1920 of 8,819 ounces.

The output of copper in 1920 was 2,300,000 pounds, or about 85,000,000 pounds more than in 1919. Notwithstanding decidedly adverse conditions, a considerable amount of new work was done in 1920.

Southwestern Oregon
The Waldo Corporation, George M. Esterly, manager, operating the Logan Hydraulic Placer mine at Waldo, Josephine county, has completed its 16,950 foot tunnel. Through this tunnel the gravel tailings are flumed to the Illinois river, thus obviating the necessity of using hydraulic elevators to lift the waste material from the working pits and in other ways decreasing the cost of operation.

The Old Channel mine, another well known placer in the Galice district, which has been idle for some years, now has a force of men working on the property under the management of J. R. Harvey.

The Boswell mine on Sucker creek, Josephine county, has recently been sold to Mr. M. Norden and associates. The property is the richest gold discovery made in southern Oregon in many years. The present owners plan to enlarge the present plant to include cyaniding of the rich tailings after amalgamating.

The War Eagle Mining company, operating a large quicksilver property on Evans creek, Jackson county, have completed a 25-ton Scott furnace, replacing the small retorts formerly used. The ore is of good grade and the management plans to fire the furnace as soon as a more active quicksilver market is assured.

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mal conditions, which they believe to be close at hand.

Coal
The increased price of crude oil and the inability of industrial and heating plants to make contracts for supplies of fuel oil has stimulated interest and activity in methods for beneficiating the sub-bituminous coals found in Oregon.

The Southern Pacific railroad, owner of the Beaver Hill mine, Coos Bay district, has entered into a co-operative agreement with the U. S. Bureau of Mines and the Oregon Bureau of Mines to investigate coal washing methods in order to improve, if possible, the grade of coal and put it on the market to better meet the competition of Utah and Wyoming coals.

The Oregon Bureau of Mines and Geology is conducting experiments on Oregon coals along the line of low temperature carbonization. It is indicated that a superior fuel can be produced with the possibility of recovering valuable by-products from the distillation treatment.

Iron
Probably the most distinctive single feature to mark the mining industry of Oregon for 1920 is the development of iron ore in important quantities and of good quality in Columbia county within 25 miles of the city of Portland and near the Columbia river. The ores, as far as developed, are all ironites, the larger part of them carrying 50 per cent or better in iron (dry analysis). They are low in sulphur, which is always a detrimental element, and carry

but three-tenths to five-tenths of one per cent phosphorus.

These ironites ore are closely associated in their origin with the weathering of the basaltic rocks found in the region which in their original state carry about 12 to 14 per cent iron. In breaking down under the action of nature's processes of weathering, the iron which was present in the original rock chemically combined with silica and in other combinations is released to be deposited in more concentrated form as ironite, hydrous oxide of iron.

Sometimes it occupies the position of the original basalt by replacement and again it seems to have been carried greater or less distances by circulating ground water and put down as a separate deposit of its own kind.

One of the attractive features of some of these deposits which have been prospected is the fact that they give promise of being sufficiently large and so close to the surface that they may be cheaply mined by some such process as the steam shovel method. Much of the ore is what would be called a "soft" ore with only streaks of hard ore running through it.

The development work has proceeded rather slowly for more than two years but enough has been done in places well well distributed over the country that it can be predicted with confidence that if a vigorous and intelligent program is continued a sufficient tonnage of iron ore will be proven to insure the establishment of an iron industry in this section.

The principal development work on these mines has been on a large, well defined ore bearing fissure vein, which fills a fissure formed by moving along a shear zone and is paralleled by an intrusive dyke of feldspar-porphry, which has played an important part in the genesis of these ores. At what is known as the Upper tunnels, about 300 feet of tunneling has been done on this vein at a point where it crosses a deep canyon at right angles. The ore body at this point is about 25 feet in width, and this tunneling shows a continuous body of ore along this vein in both directions from this canyon so far as explored by the tunnels, and surface croppings over the mountain indicate that this ore body extends for about a mile along this vein, thus disclosing an almost inexhaustible ore body.

Property of the Company.
The company owns a group of twelve mining claims, lying along and around this great vein, and on minor veins parallel thereto. The extent of the ore body extends for about a mile along this vein, thus disclosing an almost inexhaustible ore body.

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have dawned. This economical and potent water power will be made to mine and reduce the ores of this great vein to a commercial product (concentrates).

These ores will be reduced to concentrates by the flotation process of concentration. The mill to be erected near the power plant at the mine. Assays taken from the upper tunnels during prospect work on this ore body indicate that the raw ores run from \$10 to about \$140 per ton, and average over \$20 per ton, the values being in gold, silver-lead and zinc, the silver and lead values predominating. These ores are ideal for concentration and will probably concentrate about ten to one, producing a concentrate worth something over \$200 per ton, which will make a very valuable commercial product.

Now Have a Road
Until recent years this region has been very difficult of access, and covered with heavy timber and underbrush, with poor and uncertain mountain trails which rendered these ore deposits inaccessible to any but those who would travel afoot, through thickets, and up steep declivities. Now, however, through the co-operation of Marion county and the present owners of this and near by mining prospects, a well planned and well equipped road has been opened up, and is being used to haul supplies and machinery to the Silver King mines, and other mining prospects in this district, which may soon become one of Oregon's best known mining districts.

This road winds through a scenic country, on an easy grade, and is in itself a sample of engineering skill, and reaches the railroad at Lyons, Oregon, a distance of 17 miles from the Silver King mines. Trucks can operate on it, and it has solved the transportation problem for this district. An accurate and very favorable report on this mine appears in the "Mineral Resources of Oregon," published by the Bureau of Mines of the State of Oregon.

Is Good Property
Competent Mining Engineers have examined this property and pronounced it one of the best undeveloped silver-lead prospects in this or any other country, with almost unlimited possibilities in production and profits.

With the large body of ore in this mine of a good mill grade, and adapted for the flotation process of concentration, and with all the natural advantages for the most economic method of mining known, and good transportation facilities now at hand, there appears no good reason why this should not be one of our biggest producing and best paying silver-lead mines.

The Silver King Mining company is incorporated under the laws of Oregon and has a permit as an investment company from the corporation commissioner of the state of Oregon. The officers of this company are: J. J. Launier, president; W. J. Loring, vice president; William S. Risley, secretary.

THE NORTH SANTIAM MINING DISTRICT OF MARION COUNTY

Arthur M. Swartley, Consulting Mining Engineer of the Bureau of Mines and Geology, State of Oregon, Has a Great Deal of Faith in the Santiam Mining District, and Success is a Matter of the Right Treatment of the Ores, According to Lately Discovered Methods.

By A. M. Swartley
The metal mining resources of Marion county include the North Santiam or Elkhorn district and the properties on the headwaters of the Molalla river. The ore bodies are of the same type and origin as the other districts on the west side of the Cascade range, which extend from the Ogden mountains in the north through the North Santiam district, Quartzville, Blue River, Bohemia and other districts in Douglas county.

The rocks in these districts are almost entirely gneiss, schists and tuffs which make up a large part of the Cascade range. The ore deposits are in silicified and mineralized fracture zones cutting through these andesitic lavas and tuffs. The veins generally dip steeply, and the fractures are frequently of great length. The ore bodies vary from one to many feet in width. The principal minerals are: pyrite (iron sulphide), chalcopyrite (copper and iron sulphide), galena (lead sulphide). These sulphides usually contain considerable gold and silver. At varying depths from the surface weathering has broken down and dissolved the sulphide minerals, leaving masses of the gold and silver part of the siliceous in the oxidized ore.

The mills erected in the past in these Cascade districts have been stamp mills with amalgamating plates upon which 50 to 60 per cent of the gold in the ore was collected. Some of these mills also had few concentrating tables which recovered a portion of the sulphides in the ore after it had passed over the plates.

At comparative shallow depths in these mines the sulphide zone was reached. The gold in the sulphide ores did not amalgamate as

well as in the oxidized ores above. The recovery per ton in practically all of these properties dropped below the cost of mining and milling and consequently these plants were forced to close. The above is essentially the history of all of the operating mines in these districts. The metallurgy, or milling methods of the time when this occurred had not advanced sufficiently to successfully treat these complex ores, which almost invariably occurred immediately below the oxidized zone. Great advancement in the art of handling complex ores has taken place since that time. The difficulty largely lies in the fact that smelting requirements are entirely different for zinc than for lead or copper, and lead smelting is also somewhat different than copper smelting. We must send our zinc ores to a separate zinc treatment plant, and we also have lead smelting plants and copper smelting plants.

The Present Problem
The problem, then, at the mine where we have these mixtures of sulphides is to separate largely zinc, copper, sulphides, and lead sulphides, each from the other. This cannot be successfully accomplished upon the old style of concentrating table. The method which has come into use in the last few years and which is being improved from day to day is that of flotation, and the special application of flotation to the separation of sulphides from each other is called preferential flotation. The products from this process are then in a marketable form.

Another method which is being applied at or near mines, in some cases by the mining companies themselves, is that of roasting. (Continued on page 7)

GOLD CREEK MINING AND MILLING COMPANY HAS SOME VALUABLE CLAIMS

There Are Seventeen of Them in All, Comprising 340 Acres, and With Water Power and Timber on the Land and Natural Facilities for Modern Mining on an Economic Scale.

The property of this company is situated about 16 miles north-east of Gates station, on the Corvallis & Eastern railroad, in Marion county, township 8 north range 5 east of the Williams meridian, and about one and one-quarter miles in a northerly direction from the Little North Fork of the Santiam river.

Some of the largest stockholders of this company are S. M. and J. Throp, or four of the first claimants in this group were first located about 26 years ago by a man named Reeves and his two sons, William and Lyman. The first claim located was known as the Bimetallic, which has been re-located later some other claims were located by J. W. Gilmore and D. P. Junk of this city. Mr. Gilmore now lives at Fort Jones.

In 1902 the present company was organized and a number of its shareholders have since which time they have remained as indicated above.

The elevation of the camp is, at the Wall Street tunnel, about 2900 feet. The mountains are quite steep, in many places reaching 45 degrees. The claims are all covered with heavy timber of the finest quality, and there is an abundance of water power for the working of the property. Something more than 3000 feet of tunnel work has been done on the property of this company, 1200 feet of which is a cross tunnel, running toward the Wall Street vein to tap it at a greater depth.

When these claims were first located and for many years afterward, all supplies and machinery had to be taken in for eight miles by pack horses. Heavy machinery, light railroad ties, supplies and machinery for a small sawmill were taken in in this manner. There will be a good wagon road almost to this property this spring.

The mineral showing is ample for a big camp and runs in copper, gold and silver. One of the greatest drawbacks to the development of this district is the fact that it is not situated in a mining country and it has always been difficult to interest local people whose inclinations and interests are in other lines, to take an interest in this property so near at home, though it gives promise at no distant time of becoming a rich mining section.

This company hopes before long to interest large eastern capital in its development. When this occurs, the benefits of trade with this section will be felt by all lines of business in Salem, where such trade should naturally come.

MINING MEN OF THE WIDE WORLD WILL BE IN PORTLAND IN APRIL

The Third International Mining Convention Will Be Held In That City From the Fifth to the Ninth—Long List of Subjects—A Reindeer Barbecue.

The people of Portland are preparing for a great event in the mining world. That city will be host to the third annual International Mining convention, to be held at the municipal auditorium on April 5 to 9, inclusive.

The co-operating organizations are: American Mining congress, U. S. Bureau of Mines, Oregon Bureau of Mines and Geology, Canadian Institute of Mining and Metallurgy, Portland Chamber of Commerce, American Association of Engineers, Portland council, Oregon Technical Council.

There will be a most instructive and valuable program, an outline of which follows: **Gold and Silver.** Is gold mining to become profitable again? W. J. Loring, president of the American Mining congress and one of the largest gold mining operators in the west, will lead the discussion. No gold miner can afford to miss this part of the convention.

The Future of Copper. Why is the price of copper below normal? Why, with the curtailed production of copper are copper stocks still increasing? What will take militant Europe's place in absorbing our surplus stock? Authorities will answer, and tell whether industrial and water power development and electrification of our railways will do so.

The Future of Lead and Zinc. What of these two metals? Specialists will predict the future market conditions for lead and zinc.

Mineral Tariffs. Chromite? Magnesite? Pyrite? Tungsten? Lead? Zinc? Quicksilver? Can Canada and United States producers continue to compete with cheap foreign labor without a tariff? To Hon. William Sloan, minister of Mines for British Columbia, has been assigned the presentation of the mining resources of that great province. Along with his district mining engineers, he will discuss the various phases of mining and milling in the Pacific northwest. The mining laws of the Dominion of Canada and the liberal treatment accorded citizens of the United States will be explained by other prominent mining men.

Alaska Day. Mining legislation. Both Governor Riggs and Chief Geologist Alfred H. Brooks have been programmed to participate in the convention.

THE LOTZ-LARSEN COMPANY WILL BE SHIPPING ORES THIS SEASON

They Will Finish the Wagon Road from the Black Eagle Mine to Their Property This Spring, and 1921 Will See the Beginning of Operations That Will Result in The Goal of the Dauntless Workers, a Large and Profitable Mine.

One of the most promising properties in the Santiam mining district, both for successful operation and early full development, is the Lotz-Larsen group of claims on the Little North Fork of the Santiam, near the mouth of Gold creek, and east of Horn creek.

The camp house of this company is about 12 miles from the summit of the Cascades by trail, and about seven miles "as the crow flies."

It is 15 miles from Gates, the present shipping point on the C. & E. railroad, and about 40 miles east of Salem.

The personnel of this company is: William La Force, president; H. H. Lotz, secretary; A. C. Larsen, treasurer.

H. H. Lotz, the engineer in charge and on the ground, is 42 years old, and he has had a wide experience in the development of mining properties that have paid millions in dividends.

A. C. Larsen, aged 40 years, is a college graduate and student; a teacher, who is devoting all his time and energies to the development work.

Anderson Bros., with head offices at Vancouver, Wash., are the fiscal agents. They are all young men and have made a success of a number of propositions.

Mr. Lotz is a graduate of the Butte school of mines. He developed the Parrot Flat mine at Butte and the Bear Creek property there, and the latter has paid \$14,000,000 in dividends.

Mr. Lotz predicts that Salem people will wake up to what they have at their doors after outsiders buy up and develop properties worth hundreds of millions.

The Salem slogan editor wishes to say in this connection what he said a year ago, that it is fortunate for Salem, the coming mining center, and for all interested in the Santiam district, that two such superior men as Mr. Lotz and Mr. Larsen have come and donned mining togs and got down to work, with a determination to see the thing through to the end—in fact, to develop a whole mining district; will, in fact, make Salem a mining center.

They have the right sort of backing, and they deserve to have it, right up to the point of the dividend period, for which they are giving the best that is in them in training, brain and brawn, and bulldog staying powers.

SILVER KING MINES HAVE THE MACHINERY NOW ON THE GROUND

The Actual Work of Construction Will Begin Early Next Month, and the Managers Expect to Operate Under the Flotation Process and to Be Soon Shipping Valuable Concentrates, Making a Real and a Paying Mine.

The Silver King mines, owned by the Silver King Mining company, are located in the eastern panhandle of Marion county, about 24 miles northwesterly from the summit of Mt. Jefferson, in what is commonly known as the Elkhorn mining district. As the ores of this mine are what

are commonly known as silver-lead ores, and carry values in gold, silver-lead and zinc; the lead predominating in quantity lead silver in value. Legendary stories tell of the use of silver-lead ores of these mines by Hudson's Bay trappers, to melt into bullets, prior to the settle-

- ### DATES OF SLOGANS IN DAILY STATESMAN (In Twice-a-Week Statesman Following Day)
- Loganberries, Oct. 7.
 - Prunes, Oct. 14.
 - Dairying, Oct. 21.
 - Flax, Oct. 28.
 - Filberts, Nov. 4.
 - Walnuts, Nov. 11.
 - Strawberries, Nov. 18.
 - Apples, Nov. 25.
 - Baspberries, Dec. 2.
 - Mint, Dec.
 - Great cows, Dec. 16.
 - Blackberries, Dec. 23.
 - Cherries, Dec. 30.
 - Years, Jan. 6, 1921.
 - Gooseberries and Currants, Jan. 13.
 - Corn, Jan. 20.
 - Citrus, Jan. 27.
 - Spinach, Feb. 3.
 - Onions, Feb. 10.
 - Potatoes, Feb. 17.
 - Hops, Feb. 24.
 - Wool, March 3.
 - Beans, March 10.
 - Paved highways, March 24.
 - Bacon, March 31.
 - Biles, April 7.
 - Laguena, April 14.
 - Apples, April 21.
 - Grapes, April 28.
- (Back copies of Salem Slogans editions of The Daily Oregon Statesman are on hand. They are for sale at 10c each, mailed to any address.)

(Continued on page 7)