# 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.

ter amalgamating.

12 hours daily.

The War Eagle Mining com-

Renewed activity is reported at

the Almeda copper mine, at the

Sylvanite Gold Tungsten and oth-

er properties in southern Oregon.

**Eastern Oregon** 

In eastern Oregon extensive de-

Baker county, under the manage-

ment of Robert M. Betts. Two

cyanide mills are being operated

The E. & E. mine at Bourne. which completed a 20-stamp mill

and flotation concentrating plant

last spring, is in operation with

The Ben Harrison mine com-

pleted its flotation plant and op-

erated during the summer months

for one shift daily, but closed down in October because of labor

conditions and high operating costs. The manager W. C. Fel-

lows, stated that when normal

closed in January, 1921.

The low price of copper togeth-

er with the closing down of the

International smelter at Salt Lake

City where the concentrates were

shipped made this move advisable.

are filled with concentrates. De-

velopment work will go on in an-

ticipation of operating when con-

The La Belleview mne partially

completed a mill this season at

their property northeast of Gran-

which has shipped silver ore for

several years closed down late

within the leasing company oper-

One of the results of the short-

age of labor for the last five

ducing mines from keeping en-

ough men on development work

and the blocking out of ore. This

work is absolutely necessary in

order to prepare ample ore re-

serves and working forces well in

Without such work and

and frequently embarrassing.

serves, production is apt to be-

come intermittent, more costly

been forced to shut down for the

above reason: others are operat-

ing their mills part time due to

insufficient ore reserves and are

placing all available men on de-

velopment work, paying therefor

from cash assets or borrowed

Some properties, although pos-

sessing ore reserves and complete

Some producing mines have

advance or requirements.

ating the mine.

The Buffalo mine near Granite,

ditions are more favorable.

All storage bins at the mine

The Empire Dredging company

John Arthur as manager.

(The following outline of Ore creek, Josephine county, has regon mining operations, develop-cently been sold to Mr. M. Norden was kindly furnished The States- the richest gold discovery made man by the Bureau of Mines and in southern Oregon in many years. Geology, Henry M. Parks, direct. The present owners plan to cuor, 417 Oregon building Port- large the present plant to include land, under date of Feb. 28:) Oregon Mines

Production from Oregon mines in 1920 apparently reached a low pany, owning a large quicks:lver tide mark. To attempt a lengthy property on Evans creek, Jackstatement of the conditions that son county, have completed a 25have brought this about woold be ton Scott furnace, replacing the but a tiresome reiteration of the small retorts formerly used. The story heard from practically ev ore is of good grade and the manery mining district in the coun- agement plans to fire the furnace Briefly, it may be stated as soon as a more active quickthat high wages, deficiency and silver market is assured. nefficiency of labor, extremely costs of materials and supplies, high freight rates and slow delivery all combined to reduce mining in the state to the lowest

het 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 old higher in a short labor market ause of the higher prices received or expected than could the mining industry since the price of metals has not been in propor tion to increased costs as has those of the competitors for labor above mentioned. The great increase in the cost of supplies. raises in freight and express, has added greatly to mining and mill-

The high freight rates has added to the cost of marketing con- conditions return full scale opercentrates and to smelter rates ations would begin. nd consequently has reduced ne smelter returns.

In addition to the high costs of material and freight charges the slow and uncertain freight delivery of the past year 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 Suris quoted in part as follows: preliminary estimate of the duction of metals at mines in in in 1920, compiled by harles G. Yale of the United tes Geological Survey, Departof the Interior, shows decrease in the output of ld and an increase in the outat of silver and copper as comed with that in 1919. The esnated output of gold in 1920 \$942,200 which, compared output in 1919, is a deease of only \$38,645. ewhat surprising that the ate so nearly held its own in the uction of gold, in view of the erse conditions under which ld mining has been carried on. less than half as many mines 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 199,940 ounces, as spared with 111,121 ounces in

1919, an increase for 1920 of The output of copper in 1920 was 2,300,000 pounds, or about 55,000 pounds more than in 1919 Notwithstanding decidedly ad-

verse conditions a considerable int of new work was done in Southwestern Oregon

The Waldo Corporation, George materly, manager, operating the Logan Hydraulic Placer mine at Waldo, Josephine county, has sleted its 16,050 foot tunnel Through this tunnel the grave tailings are flumed to the Illinois river, thus obviating the neces of using hydraulic elevators to lift the waste material from the working pits and in other ways

reases the cost of operation. The Old Channel mine, another well known placer in the Galice istrict, which has been idle for some years, now has a force of nen working on the property under the management of J. R. Har-

lieve to be close at hand. Coal

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 Dregon Bureau of Mines to investigate coal washing methods in order to improve, it possible, the grade of coal and put it on the market to better meet the com-

The Oregon Bureau of Mines and Geology is conducting experiments on Oregon coals along the ment and possible development and associates. This property is 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 discyaniding of the rich tailings af- tillation treatment.

> Probably the most distinctive single feature to mark the mining industry of Oregon for 1920 is the development of iron ore in important quantity and of good quality in Columbia county within 25 miles of the city of Portland and near the Columbia river. The low in sulphur, which is always a to insure the establishment of an detrimental element, and carry iron industry in this section.

velopment work is being done on the properties of the Cornucopia Mines company at Cornucopia. THE LOTZ-LARSEN COMPANY WILL

ore per cent phosphorus.

The increased price of crude associated in their origin with the was lost until recent years. hydrous oxide of iron.

> sufficiently large and so close to vein, thus disclosing an almost the surface that they may be cheaply mined by some such process as the steam shovel method.

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 ores, as far as developed, are all can be predicted with confidence limonites, the larger part of them | that if a vigorous and intelligent carrying 50 per cent or better in program is continued a sufficient

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

Much of the ore is what would be

called a "soft" ore with only

oil and the inability of industrial weathering of the basaltic rocks. The principal development work product (concentrates). and heating plants to make con- found in the region which in their on these mines has been on a These ores will be reduced to ground water and put down as a along this vein in both directions separate deposit of its own kind. from this canyon so far as ex-One of the attractive features plored by the tunnels, and surof some of these deposits which face croppings over the mountain have been prospected is the fact indicate that this o re body exthat they give promise of being tends for about a mile along this

> inexhaustable ore body. Property of the Company. The company owns a group of twelve mining claims, lying along streaks of hard ore running and around this great vein, and on minor veins parallel thereto, on which there have been a number of open cuts and shafts showing the existence of several other ore bodies which, however, are not as well developed as the one above described, and their extent and value as yet undetermined. About 800 feet below these tun-

iron (dry analysis). They are tonnage of iron ore will be proven nels at the head of a box canyon. is now being driven to tap this ore body about 1500 feet below the surface croppings. This tunnel will be a little over 1000 feet in length and will drain the mine and permit the extraction of the ores through this tunnel to the 1500foot level, by the gravity process of mining, the most modern and conomic method known.

The ores of this mine are well adapted to the flotation process of concentration, and will be reduced mouth of the tunnel.

erating mine and mill. This pow- pears in the "Mineral Resources indicated above. er plant will be located at the por- of Oregon," published by the Butal of this cross-cut tunnel and reau of Mines of the State of Ore- the Wall Street tunnel, about 2900 such trade should naturally come. will generate about 200 horse gon. power from the waters of Henline creek, which have a sheer drop of Competent Mining Engineers 150 feet at this point, and will furnish power for mining and conproperties in the Santiam mining tain View No. 1, Mountain View The company has a permit from the state of Oregon for the exclusive use of the waters of Henline ities in production and profits. creek for power purposes.

Machinery on Ground ery for the constructiontion of nie E., Lyle G., Sunny Jim, Gol- this power plant, from the sixfoot Pelton water wheel to the last Utah, Crown Chief Justice, and bolt on the hydraulic pipe line, is now on the ground at the mine, of approximately 550 and actual work of construction & E. railroad, and about 40 miles of an overlapping, are full min- permit. In conjunction with the ing claims 1500 feet in length power plant the company also has on the ground a 12x14 Ingersol Rand air compressor of the best the machine drills to drive this cross-cut tunnel and extract the

ores of this mine. and a new era in the development of Albany, Or., secretary treasurof this mine and this district will

THE NORTH SANTIAM MINING

mal conditions, which they be- but three-tenths to five-tenths of ment of the Willamette valley by have dawned. This economical white men, after which the loca- and potent water power will be These limonite ores are closely tion and identity of these mines made to mine and reduce the ores of this great vein to a commercial

tracts for supplies of fuel oil has original state carry about 12 to large, well defined ore bearing concentrates by the flotation prostimulated interest and activity in 14 per cent iron. In breaking fissure vein, which fills a fissure cess of concentration in a mill methods for beneficiating the sub- down under the action of nature's formed by moving along a shear- to be erected near the power plant bituminous coals found in Oregon. processes of weathering, the iron ing zone, and is paralleled by an at the mine. Assays taken from which was present in the original intrusive dyke of feldspar-porph- the upper tunnels during prosrock chemically combined with yry, which has played an impor- pect work on this ore body indisilica and in other combinations tant part in the genesis of these cate that the raw ores run from is released to be deposited in more ores. At what is known as the \$10 to about \$140 per ton, and concentrated form as limonite, Upper tunnels, about 300 feet of average over \$20 per ton, the valtunneling has been done on this ues being in gold, silver-lead and Sometimes it occupies the po- vein at a point where it crosses a zinc, the silver and lead values sition of the original basait by deep canyon at right angles. The predominating. These ores are replacement and again it seems ore body at this point is about 25 ideal for concentration and will to have been carried greater or feet in width, and this tunneling probably concentrate about ten to petition of Utah and Wyoming less distances by circulating shows a continuous body of ore one, producing a concentrate situated about 16 miles north- steep, in many places reaching 45 uable commercial product.

has been very difficult of access,

being very rough and mountainous, and covered with heavy timber and underbrush, with poor tion of Marion county and the whole district. King mines. Trucks can operate lives at Fort Jones. the mill to be erected near the on it, and it has solved the trans- In 1902 the present company This company hopes before long

Is Good Property developed silver-lead prospects with almost unlimited

With the large body of ore in this mine of a good milling grade, All of the material and machin- and well 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 ap pears no good reason why this should not be one of our biggest

The Silver King Mining company is incorporated under the laws of Oregon and has a permit modern type, capable of operating as an investment company from the corporation commissioner of the state of Oregon. The officers of this company are: J. J. Lang-Upon the completion of this mack of Portland, Or., president; power plant development work E. E. Williams of Albany, Or., will proceed with modern rapidity, vice president; William S. Risley

### 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 feet. The mountains are quite worth something over \$200 per east of Gates station, on the Cor- degrees. The claims are all cov-Fork of the Santiam river.

ets, and up steep declivities. Now, of the brighter future that seems had to be taken in for eight miles however, through the co-opera- now in a fair way to open up that by pack horses, Heavy machinery

by mining prospects, as well as claims, 340 acres, as follows: Wall were taken in in this manner. ranchers who live on the narrow Street, Single Standard, New York, There will be a good wagon road shelf left by the Little North San-tiam, a road that may be trav-eled even by automobiles has been Brooklyn No. 2. Ross, Morning. The mineral showing is ample opened up, and is being used to haul supplies and machinery to the Silver King mines, and other mining prospects in this district, which makes the state of the s 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 rallroad at Lyons, Oregon, a distance of 17 miles from the Silver of this group were first located by J. W. Gilmore and D. P. though it gives promise at no distance of this district is the fact that it named Reeves and his two sons. William and Lyman. The first claim located was known as the Bimetallic, which has been remained the Wall Street. A few years later some other claims were located by J. W. Gilmore and D. P. though it gives promise at no distance of 17 miles from the Silver. tance of 17 miles from the Silver Junk of this city. Mr. Gilmore now tant time of becoming a rich min-

power plant for the purpose of op- vorable report on this mine ap- which time they have remained as curs, the benefits of trade with

ton, which will make a very val- vallis & Eastern railroad, in Ma- ered with heavy timber of the finrion county, township 8 north est quality, and there is an abunrange 5 east of the Willamette me- dance of water power for the Until recent years this region ridian, and about one and one- working of the property. Somequarter miles in a northerly di- thing more than 3000 feet of tunrection from the Little North nel work has been done on the Some of the largest -stockhel- feet of which is a cross tunnel, ders of this company are Salem running toward the Wall Street and uncertain mountain trails people, who have kept up assess- vein to tap it at a greater depth.

which rendered these ore deposits ment work and held the titles in When these claims were first inaccessible to any but those who all the years of good and ill re- located and for many years afterwould travel afoot, through thick- port. and therefore deserve well ward, all supplies and machinery

light railroad ties, supplies and present owners of this and near The property consists of 17 machinery for a small sawmill

ing section.

nouth of the tunnel.

This company nopes before long to interest large eastern capital in trict. An accurate and very faother claims taken over, since its development. When this octhis section will be felt by all The elevation of the camp is, at lines of business in Salem, where

# 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.

aring for a great event in the the products of the northwestern mining world. That city will be coal areas. host to the third annual International Mining convention, to be industry, including description of held at the municipal auditorium on April 5 to 9, inclusive.

American Mining congress. U. S. Bureau of Mines.

Oregon Bureau of Mines and Canadian Institute of Mining and Metallurgy. Portland Chamber of Com-

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 proftable 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 beow 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

Mineral Tariffs. Chromite? Manganese? Magne site? Pyrite? Tungsten? Lead? Zinc? Quicksilver? Can Canada and United States producers continue to compete with cheap foreign labor without a tariff? British Columbia Day.

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 which British Columbia leads in the Pacific northwest. The minada and the liberal treatment accorded citizens of the United States will be explained by other prominent mining men. Alaska Day.

Mining legislation. Both Gov-Alfred H. Brooks have been proconvention.

Coal Conference,

The people of Portland are pre- | beneficiation and utilisation of

Discussion of the coal mining coal fields, mining methods, prep aration, marketing and utiliza-The co-operating organizations tion.

Coal.

The processes will be demon strated by which a commercial hard coal may be produced from the lignites of the Pacific coast, and distillation products that promise to yield important quantities of motor fuel, lubricating and fuel oils and other by-pro-

A special meeting will be held for the consumer. powdered coal and of automatic stokers; distillation and other methods of improving the quality of northwest coals will be discussed.

Now being experted through the port of Portland. The great magnitude of the deposits, their origin, methods of mining and shipment, and the manner of handling at the Portland terminal will be featured. Hon, Robert N. Bell of Idaho, and others interested in the phosphate in dustry will present this subject in detail to the convention.

The Prospector. The discoverer and develope will have a real voice in this convention. The welfare of those who take the initial and greatest risks in mining will be made special feature. How much development should the prospector attempt to do? What information should he prepare for the exploration companies in order to engage their interest? What are reasonable terms and prices

in a lease and bond? A man of national importance broad in experience and in sym pathy with the prospector's problems will lead the discussion. Prospectors themselves will give addresses, including Jack Mulhelland, president of the British Columbia Prospectors' association. Every practicable aid will be given by all to those who are and always have been the pioneers in the development of the

Competitive Contests. Provisions will be made for ompetitive contests in the rapid determination of minerals by inspection without apparatus. A sufficient number of specimens of common minerals will be available for a number of contestants to compete at one time. There will be two classes of competiernor Riggs and Chief Geologist tors—the prospector and miner, and those who have had technigrammed to participate in the cal training in mineralogy.

First-aid contests will be held

#### The Boswell mine on Sucker equipment, are idle awaiting nor-DATES OF SLOGANS IN DAILY STATESMAN

funds.

Dairying, Oct. 21. Flax, Oct. 28. Filberts, Nov. 4. Walnuts, Nov. 11. Strawberries, Nov. 18. Apples. Nov. 25. Raspberries, Dec. 2. Cint, Dec. 9. at cows, Dec. 16 kberries, Dec. 23. rries, Dec. 30. Jan. 6, 1921. Jan. 20. Celery, Jan. 27. ach, Feb. 3.

ns, Feb. 10.

Rees, Feb. 24. Mining, March 3.

Goats, March 10. Beans, March 17.

iles, April 7. sumes. April 14. sparagus, April 21.

aved highways, March 24. olt, Marer 31.

up-

Sorghum, May 19. Cabbage, May 26. Poultry and Pet Stock, June 2 Land, June 9. Dehydration, June 16. Hops, June 23. Wholesale and Jobbing, June Cucumbers, July 7. Hogs, July 14. City Beantiful, flowers and bulbs, July 21. Schools, July 28. Sheep, Aug. 4.

Seeds. Aug. 18. Livestock, Aug. 25. Manufacturing, Sept. 15.

it John Day was operated steadily throughout the year and the district, both for successful operation and early full development, old dredges of the Powder River Gold Dredging company and the is the Lotz-Larsen group of claims on the Little North Fork of the Sumpter Dredging company have been operated from May 15, hav- Santiam, near the mouth of Gold ing been idle during the winter of creek, and east of Horn creek. The camp house of this com-1919-20 due to shortage of elecpany is about 12 miles from the den Rule, Josephine, San Diego, tric power caused by the unusually light rain fall the previous summit of the Cascades by trail, and about seven miles "as the Several other mines were closed crow flies." It is 15 miles from Gates, the acres. These claims are all con- will be started early in April; as for the same reason, the Eastern Oregon Light and Power company having been unable to furnish the present shipping point on the C. tiguous and, with the exception soon as weather conditions will producing and best paying silver-

Profitable Mine.

east of Salem. The Iron Dyke Copper mine at The personnel of this company Homestead was operated steadily William La Force, president; in 1920 but is reported to have H. H. Lotz, secretary; A. C. Lar-

sen, treasurer. mining properties that have paid water power alone at this point millions in dividends.

A. C. Larsen, aged 40 years, is large sum. college graduate and student; a time and energies to the development work.

Anderson Bros., with head ofthe fiscal agents. They are all mine; the balance will be there young men and have made a suc- in the early spring or summer, cess of a number of propositions, and the beginning of the shiplast fall due largely to troubles Butte school of mines. He de- year. veloped the Parrot Flat mine at Butte and the Bear Creek property there-and the latter has paid years has been to prevent the pro-

\$14,000,000 in dividends. Mr. Lotz predicts that Salem ers buy up and develop properties

worth hundreds of millions. to say in this connection what he said a year ago, that it is fortunate for Salem, the coming mining center, and for all interests 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 taine; which will mean a whole mining district; will, in fact,

make Salem a mining center. They have the right sort of backing, and they deserve to have better camp houseit, right up to the point of the dividend period, for which they are giving the best that is in them bulldog staying powers.

promising | following named claims: Moun-No. 2, Yellow Jacket, June, Francis, May Day No. 1, May Day No. 2, Smelter No. 1, Smelter No. 2, Shilo, Freeland, London, Black Hawk, Granger, Five Spot No. 1, Five Spot No. 2, Harrison, Min-Judge, comprising in all 25

and 600 feet in width. A Fine Water Power. This company has a fine water power on the Little North Fork H. H. Lotz, the engineer in of the Santiam, and one very charge and on the ground, is 42 casy of development, there being years old, and he has had a wide at one point a natural spillway experience in the development of worn in the solid rock. The wil: eventually be worth a very

They also have plenty of fine teacher, who is devoting all his timber for all mining purposes. Will Ship Ores Soon.

Part of the machinery is now on the ground for a plant for the ices at Vancouver, Wash., are treatment of the rich ores of this Mr. Lotz is a graduate of the ment of ores will be made this

There is a wagon road all the way to the Black Eagle mine, on Horn creek, and the Lotz-Larsen people built a bridge (a low bridge) across Horn creek last people will wake up to what they fall, and began the construction have at their doors after outsid- of the wagon road from the Black Eagle mine to their property a mile and a half to two miles. This The Salem slogan editor wishes road will be finished this spring -and for the first time trucks and autos will be able to get to

this great property. There is rich ore on the dump and in sight, sufficient to guarantee a profitable run, with the proper treatment; and the ore reserves are all but unlimited-

Literally mountains of it. The camp house of the Lotzarsen company burned down last winter, destroying also a lot of valuable instruments and equipment. But, undiscouraged. these people soon had a new and

And that is a sample of the spirit with which they are work-

#### in training, brain and brawn, and determined to reach—the actual range. The ore deposits are in working of a large and profitable The property consists of the mine. SILVER KING MINES HAVE THE MACHINERY NOW ON THE GROUN

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.

Paper Mill, Sept. 23.

(Back copies of Satem Stogan editions of The Daily Oregon Statesman are on hand. They are Statesman are on hand. They are sale at 10c each, mailed to any address.)

Paper Mill, Sept. 23.

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Paper Mill, Sept. 23.

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Paper Mill, Sept. 23.

(Coal must come back. California crude oil, which has doming a population of the sulphides in the ore after it had passed over the plates.

Another method which is being applied at or near mines, in some of the summit of the sulphide sone of the summit of the sulphides in the ore after it had passed over the plates.

Another method which is being dary stories tell of the use of the U.S. bureau of mines' moving pictures will be shown at the comvention.

(Continued on page 7)

(Continued on page 7)

dies are of the same type and origin as the other districts on the west side of the Cascade range. which extend from the Ogle mountain mine on the north through North Santiam Quartzville, Blue River, Bohemia and other districts in Douglas county. The rocks in these districts are almost entirely Cascades andesites and tuffs which make ing for the goal which they are up a large part of the Cascade silicified and mineralized fracture zones cutting through these andesitic lavas and tuffs. The veins generally dip steeply and the fracture zones 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), sphalerite (zinc sulphide), and 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 most

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 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 ad- zinc. vancement 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 smelt ing. We must send our zinc ores or concentrates to a 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 zinc sulcopper sulphides, and lead sulphides, each from the ing laws of the Dominion of Can-Buc-This cannot be cessfully 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 n these Cascade districts have to day is that of flotation, and been stamp mills with amalgamat- the special application of flotaing plates upon which 50 to 60 tion to the separation of sulphides The Silver King mines, owned are commonly known as silverwas collected. Some of these ential flotation. The products by the Silver King Mining com- lead ores, and carry values in mills also had a few concentrating from this process are then in a

# DISTRICT OF MARION COUNT

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 boof the gold and a large part of the

silver in the oxidized ore. The mills erected in the past

Prizes will be given,

#### (In Twice-a-Week Statesman Following Day) Drug garden, May 5. Loganberries, Oct. 7. Sugar beets, May 12. Prunes, Oct. 14.

erries and Currants, Jan.

National Advertising, Aug. 11. Automotive Industry, Sept. 1. Grain and Grain Products, Woodworking and other things,