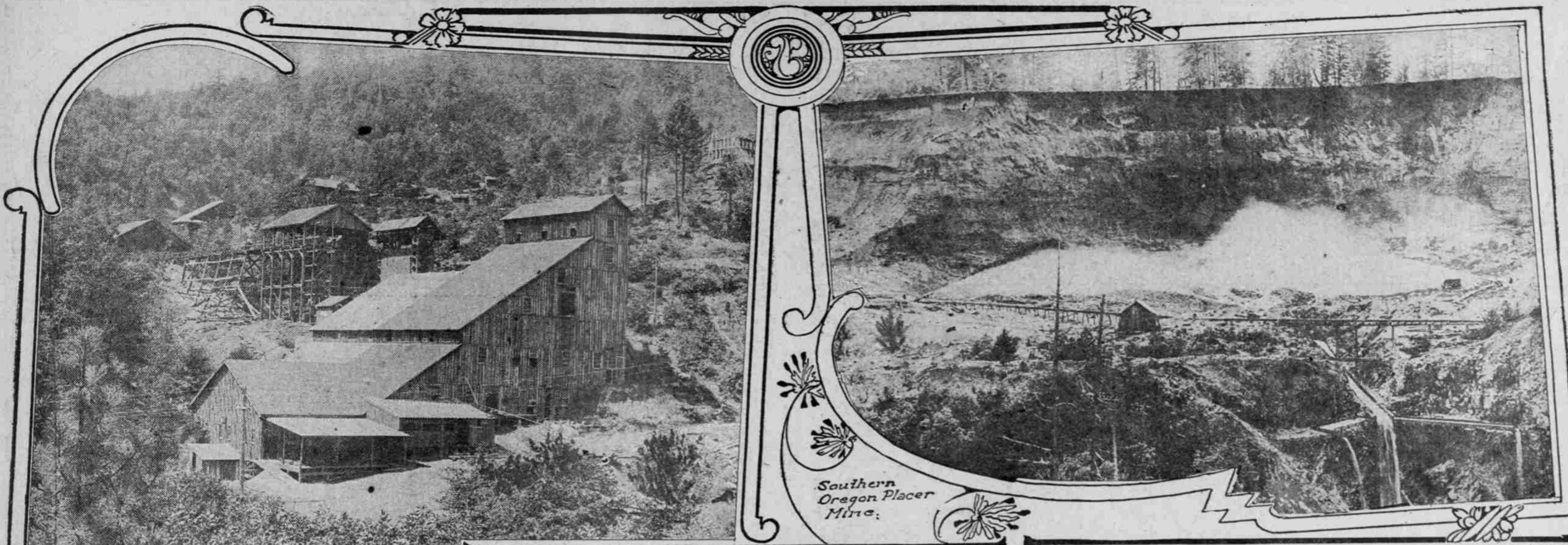
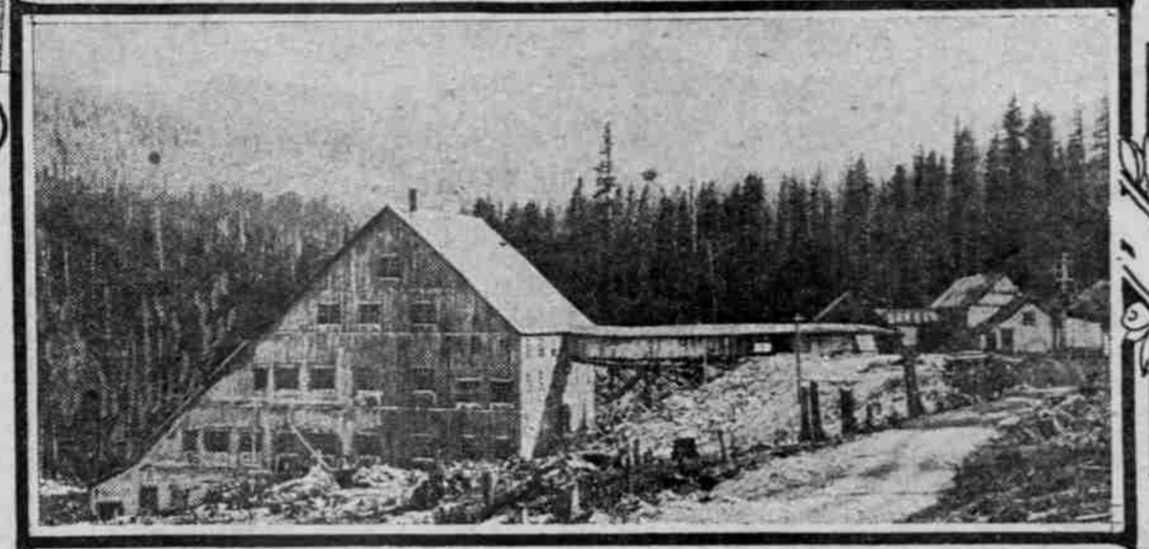


OREGON'S MINING INDUSTRY IS ESTABLISHED ON SOUND BASIS

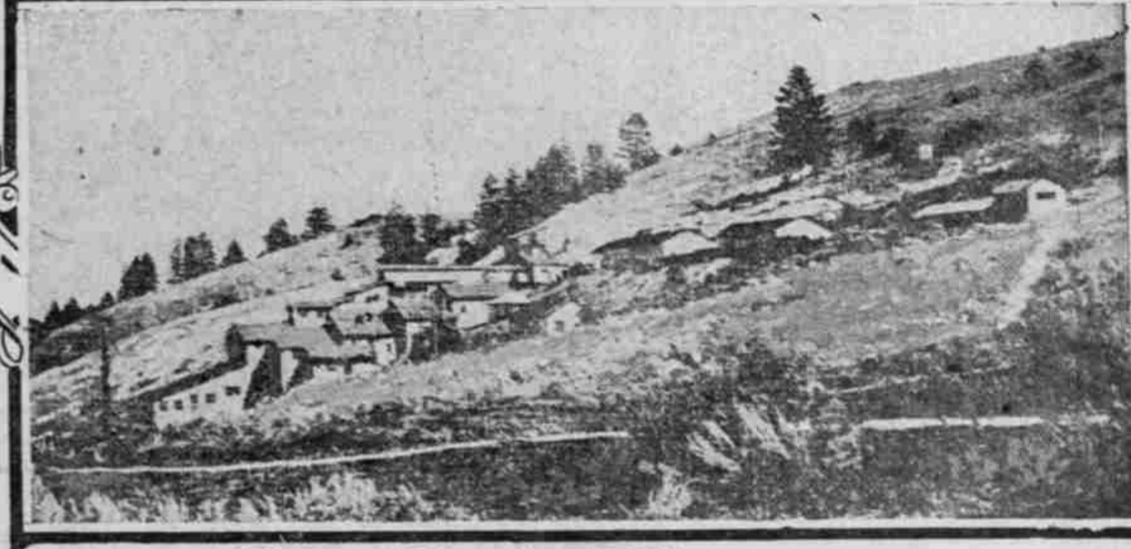
Metal Production for 1916 Is in Excess of \$4,000,000—Output Increases 600 Per Cent in Six Years—Gold Totals \$2,500,000 and Copper Makes Big Gain—Great Future Is Seen



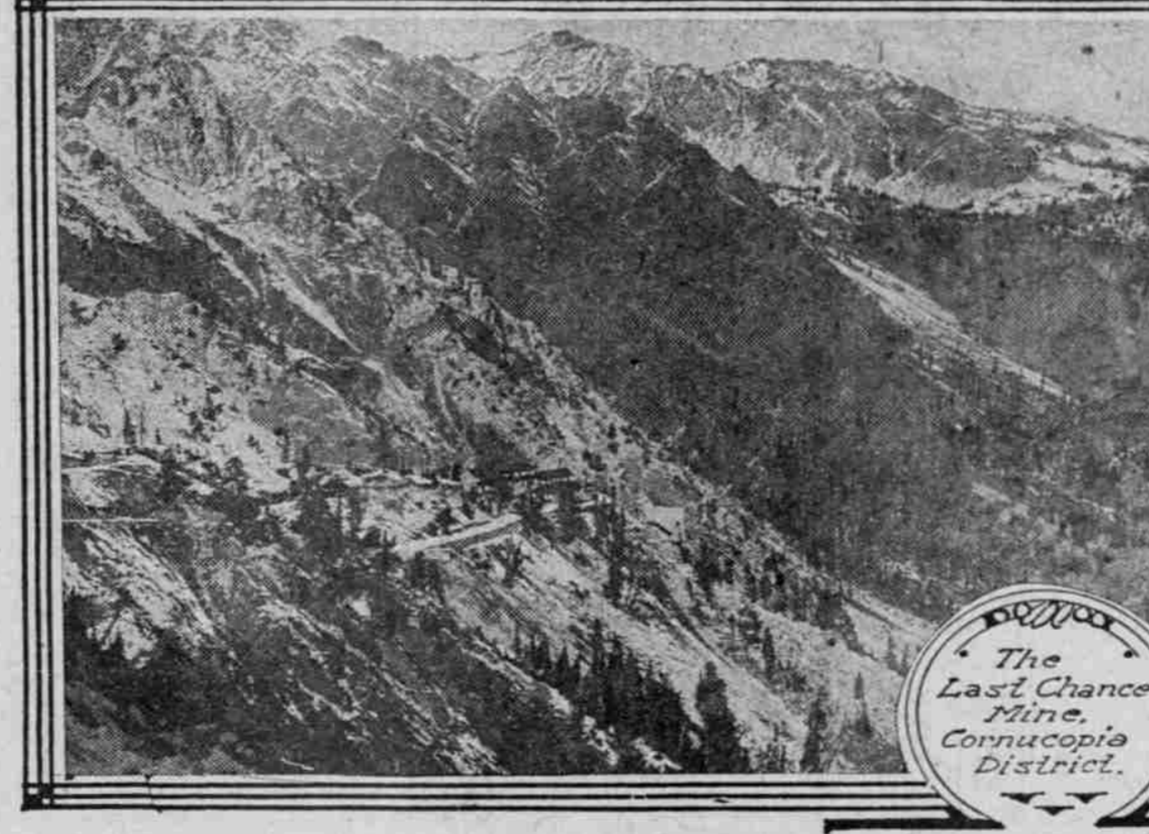
The Noted Opp Mine in Southern Oregon.



The Rainbow Mine, 20 Miles Northwest of Durkee.



The Ben Harrison Mill, Eastern Grant County.



The Last Chance Mine, Cornucopia District.

By H. N. Lawrie, Chairman Oregon Bureau of Mines and Geology Commission.

THE metal production of Oregon for the year 1916 will be in excess of \$4,000,000. This represents an increase of 100 per cent over the production of 1915. The following table will serve to show how consistently and rapidly the metal production of the state has increased since 1911:

1911	\$ 678,398.1914	\$1,678,153
1912	850,899.1915	2,615,065
1913	1,748,422.1916	4,000,000

It will be seen from this table that the metal output has increased for the past six years at the average rate of 100 per cent per year, or a total of 600 per cent. These figures may seem startling and to the layman who has not been in close touch with the development might indicate a reflection from the general boom in metals with the attendant enormous demand created by the war. Of this \$4,000,000 about \$2,500,000 is gold with a small percentage of silver which is recovered with the gold in the treatment of base ores. The remaining \$1,500,000 covers copper, about \$1,300,000, and \$200,000 includes chromite, quicksilver, tungsten, manganese, platinum and all other metals.

It is true that war conditions encouraged the production of chromite, quicksilver, tungsten, manganese and platinum but the outputs so far have not been large, as the figures show.

satisfactory to know that this production is a profitable one to the producers themselves.

Eastern Oregon Leads.
Of the 16 Eastern Oregon counties all but four have ore deposits, and have produced, but the counties which are generally known as mining counties are Baker, Grant, Malheur, Harney, Wallowa, Union, Umatilla, Lake, Wheeler, Jefferson, Crook and Deschutes. Of these counties Baker every year leads in the list of producers, but the gold belt of the Blue Mountains is a wide one and extends north into Wallowa, Union and Umatilla Counties, south into Malheur and Harney Counties and westward through Grant, Wheeler into Crook, Jefferson and Deschutes Counties, while scattered mineral districts are found as far south as the Nevada-California line. Of the 50-odd productive metal mines of Eastern Oregon, about half are placer and half quartz mines.

The chief mining counties of Southern Oregon, from the production standpoint, are Josephine, Jackson, Coos and Curry. Here again, however, as we travel north along the Coast and Cascade Ranges are many mining districts of promise, in which development work is going on. Transportation facilities are being extended as rapidly as tonnage demands, which will encourage more rapid development of the mines contiguous to them.

There are two cement companies in Oregon, one in the southern part of the state and the other at Oswego, close to Portland. Since these plants are just being broken in to production their outputs have not reached their maximum as yet. Next year, however, with an anticipated increase in the building rate over last year, the value of these payrolls will be felt and all of the advantages of being supplied with a local and high-grade product as well.

Copper Increase Big.
It may be anticipated, however, with fair prices for these minor metals that the result of development work this past year will be reflected in much increased productions for this coming year. The copper development which resulted in an aggregate production of \$1,300,000, approximately, for this year was begun before the boom in copper prices. Further than this the production of copper in Oregon as a development has gone is not dependent upon high prices for the metal to insure success for the operator. Since there is an abundance of gold in this country and since it has a fixed price, there appears to be no special incentive on account of the war to stimulate gold production. One is forced to conclude, therefore, that the rapid rise in the metal production of Oregon is not due to temporary conditions, but rather is resting on a permanent basis to be projected into the future along normal lines.

While this total production for 1916 is an excellent showing for so short a time and a pleasing fact in connection with the rapid growth of the mining industry in the state, it is still more

Coal Mining to Expand.
The Coos Bay coal measures have taken on a new activity on account of the greater accessibility of the Willamette Valley as a market, due to the opening for transportation of the Willamette-Pacific Railroad, from Eugene to Powers, Or. This will have the effect of supplying the Willamette Valley with cheaper fuel than anything they have used heretofore and will develop a substantial payroll at the mines around Marshfield and along the road. Experiments will soon be under way to produce a higher grade fuel from these mines by perfecting a system of briquetting, which will give satisfactory results.

That Oregon has an excellent supply

of clays for the manufacture of tile and building brick there is no doubt. Further, these clays are located conveniently to transportation and fuel. The tile industry will receive an impetus when the several large drainage

basins in Western Oregon begin construction. From reports of progress in drainage it is expected that some of these projects will be launched this coming year.

It became known a little over a year ago that potassium nitrate existed in the southeastern part of the state on the Idaho line. The deposit is most unusual from a geological as well as from a chemical separation standpoint. New problems are offered which must be solved before success can be assured. Investigations of a far-reaching nature have been in progress during the year and it is reported by the management of the company that results are becoming more satisfactory.

From Alkali Lake, of Lake County, in South Central Oregon, the soda and starch industry has been started by California interests. Shipments of soda ash were made this past year, but until the problem of chemical separation has been fully worked out as a basis for a large plant, the output will no doubt be limited. The possibilities for a substantial industry producing soda and borax with other by-products seem very sound.

On the whole, Oregon opens the new year with excellent prospects for an increased mineral production of a very diversified character. In order to insure the desired acceleration in mineral production for this year and the years to come, the state must assume the responsibility of continuing to render constructive aid to the industry, which

for the present, may be classified as follows:

First—To supply the prospector with accurate information concerning his prospect and how best to develop it.

Second—Detailed geological work must be done in the producing districts as a guide to intelligent development. This work logically follows the reconnaissance survey of these districts, which has been made in the past four years.

Third—Continue the geological reconnaissance survey to cover areas not yet reached, to determine their economic importance.

Fourth—To co-operate with the United States Bureau of Mines in perfecting milling and metallurgical systems for the most efficient treatment of the complex ores of the state.

Fifth—To give broad publicity to essential facts so that capital may be intelligently directed from foreign centers to the mining industry of the state and thoroughly safeguarded in every reasonable way from loss.

branches of agriculture where increased production has been brought about and where worn-out grain farms have been brought back into profitable condition.

During the period covered by the records in the Dairy and Food Commissioner's office there has been a marked increase in the amount of butter, cheese and condensed milk manufactured in Oregon. There was a time when we imported carload after carload of butter, but such is not the case at the present time. In fact, considerable butter is now being exported.

The following tables show the increase in the number of creameries, cheese factories and condenseries, and the amount of butter, cheese and condensed milk manufactured:

first association was organized early in 1914.

If every dairyman in Oregon would pay particular attention to this point, inside of one year we could outrank any state in America for quality in butter, and having done that the markets of the country would come to us with money in hand, asking for our dairy products, and willing to pay our price.

Denmark and New Zealand have taken up the subject in that way and are reaping the results of their endeavors. Why should Oregon be behind either of them? Ours is a state unexcelled for dairy advantages, climate, range of feed stuffs, fertility of soil, unspoiled areas, abundance of cold mountain water, transportation; in fact, we have everything that goes to make up a great dairy country. All that we lack is the putting forth of the effort to do the very best that we can with the advantages at hand.

OREGON'S FARM OUTPUT WORTH \$155,000,000

Gain in Valuation Over 1915 Total Production Is \$25,000,000—Increase in Prices for Wheat and Potatoes Is Factor. Increase in Cattle Is Notable.

THE past year has been an unusually prosperous one for the Oregon farmer. While there were only slight gains in yields in some of the staple products, prices in some cases reached unprecedented proportions. The total value of Oregon crops is estimated at \$155,000,000, as compared with \$130,000,000 for 1915, the gain for 1916 being \$25,000,000.

The wheat yield, which amounted to about 18,000,000 bushels for each of the last two years, was worth about \$7,000,000 more to Oregon farmers in 1916 than in 1915. There was an increase of about 1,000,000 bushels in potatoes, the yield last year being 5,250,000 bushels. The returns from potatoes amounted to more than \$2,000,000 over 1915. The increase in the value of hay was in excess of \$1,000,000. Nearly all other products made substantial increases in value.

Oregon Labor Commission, State Tax Commission, and other state sources. The 1916 growing season was unusual in many respects. To begin with, the Fall of 1915 was exceedingly dry. In the wheat belt Fall seeding of Summer-fallow land in many cases was postponed until early Spring. In the western portion of the state the dry season prevented Fall plowing and seeding, for when the rains did come, the weather continued so wet that seeding was impossible. As a result of the unfavorable Fall seeding conditions, the total Spring-sown acreage for 1916 was considerably above the usual amount. Fortunately, occasional rains, and practically no hot winds during the growing period, brought about a season of unusually favorable conditions for Spring-planted crops. Even in the Fall wheat districts the 1916 Spring-sown crop frequently out-yielded Fall-sown acreage.

by rains occurring at picking time, but these same rains helped to produce a bumper potato crop, as well as being of great benefit to all crops during the growing season.

The 1916 Fall season was out of the ordinary also on account of early killing frosts, and hard freezing weather about the middle of November. Late vegetables and corn were considerably injured by the first frosts, and the November freeze did considerable damage to apples and potatoes. So all in all the 1916 crop season was quite out of the ordinary.

Estimates of the production and value of the various general farm crops of the state for the year 1916 are as follows:

Crop	Amount	Value
Wheat (bushels)	18,000,000	\$7,000,000
Oats (bushels)	17,500,000	7,245,000
Barley (bushels)	2,000,000	5,600,000
Potatoes (bushels)	7,000,000	5,250,000
Corn (bushels)	1,200,000	900,000
Hay (tons)	1,575,000	10,750,000
Clover seed (pounds)	2,500,000	375,000
Hops (pounds)	1,900,000	2,900,000
Miscellaneous	.....	8,880,000
Total	.....	\$70,000,000

In the foregoing table the corn estimate includes the acreage grown for silage. The greater part of the corn grown in Oregon is used as silage. "Miscellaneous" includes seeds other than clover, vegetables, etc.

Figures are conservative. The figures given above, as well as others appearing in this article, are compiled from reports of the United States Bureau of Crop Estimates, the

The Summer rains, however, did some damage to matured grain, hay and fruit. The cherry crop in particular was badly damaged in some sections

Livestock values show some marked changes as compared with a year ago. Sheep are much higher, while dairy cows are much lower. Some sales of first-class ewes have been made during recent months at close to \$10 a head. Good grade dairy cows recently have sold at \$40 to \$50 a head. Horses and mules appear to have about the same values as a year ago, while hogs are somewhat higher. Beef cattle values also are higher than the prevailing values one year ago.

OREGON'S DAIRY OUTPUT WORTH \$20,000,000

Increase in Production of Butter, Cheese and Condensed Milk in Oregon Is Marked—Dairying Has Big Future in Oregon—Quality of Output Is of High Rank.

ALTHOUGH the output of some of the productive industries of Oregon have been somewhat on the decrease during the past year, dairying still remains one of the most attractive, stable and profitable occupations.

Figures lately compiled by the Dairy and Food Commissioner for the year 1916 show an increased production over the year of 1915 in all branches of the industry, verifying the

ANNUAL EXPENDITURES FOR STREET PAVEMENTS IN PORTLAND

Year	Amount	1911	1912	1913	1914	1915	1916
1905	\$ 510,000	.....	.....	.....	.....	.....	.....
1906	619,000	.....	.....	.....	.....	.....	.....
1907	897,000	.....	.....	.....	.....	.....	.....
1908	1,021,000	.....	.....	.....	.....	.....	.....
1909	2,432,000	.....	.....	.....	.....	.....	.....
1910	4,400,000	.....	.....	.....	.....	.....	.....

old adage that "prosperity follows the cow."

While the receipts for some products grown or manufactured within the state seem to indicate a falling tide, the meek, patient and persistent dairy cow has been quietly working every day of the 365 that have gone into that cycle of time which we term the past year, and when we figure up the results of her labor we find that she has added to our wealth about \$20,000,000, an increase of nearly \$2,000,000 for the year.

More and more the dairy cow is proving herself to be not only the faithful and abiding friend and servant of man as a producer of some of his most desirable foodstuffs, but she is also his friend and servant as a revenue producer through other

branches of agriculture where increased production has been brought about and where worn-out grain farms have been brought back into profitable condition.

During the period covered by the records in the Dairy and Food Commissioner's office there has been a marked increase in the amount of butter, cheese and condensed milk manufactured in Oregon. There was a time when we imported carload after carload of butter, but such is not the case at the present time. In fact, considerable butter is now being exported.

The following tables show the increase in the number of creameries, cheese factories and condenseries, and the amount of butter, cheese and condensed milk manufactured:

Year	No. Creameries	Pounds of Butter Mfg'd
1907	50	1,880,033
1908	70	4,900,000
1909	60	No record
1910	60	No record
1911	98	12,318,287
1912	102	13,217,728
1913	105	16,288,390

Butter—

Year	No. Cheese Factories	Pounds of Cheese Mfg'd
1907	40	2,500,000
1908	55	No record
1909	60	No record
1910	60	No record
1911	71	7,453,233
1912	68	6,892,887
1913	74	8,951,968

Cheese—

Year	No. Condensed Milk Denneries	Lbs. Condensed Milk Mfg'd
1907	2	No record
1908	2	No record
1909	7	19,350,758
1910	7	21,376,900
1911	7	27,116,092

OREGON FARM PRODUCTS IN 1916.

Grand total	\$155,000,000
General farming	70,000,000
General livestock	39,000,000
Dairy products	22,000,000
Poultry and eggs	10,000,000
Fruit	10,000,000
Wool and mohair	4,000,000