

was of a value of \$5,318,703, which is an increase over that of 1900 of \$586,508, or equal to about 12% increase. This is the greatest gold production British Columbia has ever made. In 1900 the increase was 12½% over the previous year, and the increase this year over 1900 is 11½%, showing the growing importance of the gold output of the Province. This production is derived from placer mining, including ordinary placer work, hydraulicing and dredging, and from lode mining.

PLACER GOLD MINING.

The placer gold output for the year 1901 was \$970,100—a decrease from the previous year of \$308,624. This is accounted for by the fact that the Atlin production has again suffered a serious diminution; the ordinary placers are mostly worked out, and the hydraulic companies, which should have been at work making an output have managed to get into litigation amongst themselves and with individual miners, so that the season was practically lost. It is hoped and expected that by next season the existing plants, and those now under construction, will be able to work and, if so, the output of the camp will certainly be doubled.

HYDRAULICING.

The Cariboo District shows a considerably decreased production, which is due almost entirely to the small output of the largest company in the district, the Cariboo Consolidated, which, through shortage of water, was only able to work a part of the season. This shortage of water was occasioned by the sudden melting of the snow in the spring, leaving insufficient water for the latter part of the season. The snow usually retained on the mountains is, as a rule, a sufficient reserve supply to last through the season, but last year this all melted at once causing spring freshets and a dry summer season. The smaller companies in the district did well, and with a normal snowfall and spring all should make a very good showing next season.

A small output has been made from the Liard Division, but as last year was the first year of the operations of the hydraulic companies there most of the work was preparatory and of the nature of development.

On the coast certain deposits of black sand have been worked to a profit, but have not made the output expected.

DREDGING.

Dredging for gold, although it continues to receive much attention and large amounts have been invested in capital, has not as yet yielded any very material return or output. That the gold exists in the beds of many of the rivers in considerable quantities has been conclusively proved many times, but the difficulty seems to be to save it.

It might be pointed out that in every instance, as far as is known, the dredges operating in British Columbia work up stream and it is very questionable if such a practice is best suited to the conditions here prevailing, or whether they should not, on the contrary, work down stream.

In most of our rivers dredging is done under the following conditions viz.: a swift current, numerous boulders, fine, flaky gold to be recovered and, finally, a hard, undredgable and uneven bedrock.

It is submitted that, under these conditions, a dredge working up stream can not be expected to save or take up all the gold. The agitation of the river bed by the buckets is great, and the gold will and is bound to settle into crevices in the bedrock. A very small crevice may hold the profits of a month, from which in a hard bedrock, it is impossible for a dredge to recover it. Any gold once raised and afterwards dropped is swept by the force of the current back of the dredge bucket and is consequently lost. On the other hand, in working down stream a "face" is formed, which will be more or less inclined; the gold is swept from the bedrock on to this inclined face of removable material, and would be taken up in a subsequent bucket load.

LODE GOLD MINING.

Placer mining is, of necessity, dependent on the weather, and is as variable in this Province as that commodity, but in lode gold mining, as the mines develop, the production becomes as regular as the output of a manufacturing business, and it is to lode mining that the Province is indebted for its ever-increasing gold production. In 1901 the lode mines of the Province produced \$4,348,603 in value of gold, an increase over the previous year of \$895,222, or 26%. When it is remembered that this increase follows an increase in

1899 of about 30%, and in 1900 of 21%, a fair idea may be formed of the development and growth of the industry. This great increase is due first and chiefly to the development of the Boundary District, but the increased tonnage of the Rossland and Nelson Districts has also had its effect. Approximately, this gold has been derived from—

Direct smelting of copper-gold ores \$3,474,738
Combined amalgamation and concentration 873,865

Total \$4,348,603

It may be said that no absolutely "free milling" gold property is working in the Province; they all carry sufficient values in sulphides to necessitate the saving of such.

SILVER.

The total amount of silver produced in 1901 was 5,151,333 ounces, valued at \$2,884,745. This is an increase over the previous year of \$575,515 in value. The silver production of British Columbia this past year has been affected in two ways and requires some explanation. Silver is derived from silver-lead ores and from copper ores carrying silver, with a small percentage of "dry" silver ores. In 1900 approximately 90% of the silver produced was derived from silver-lead ores, probably including most of the "dry" ores, as they were chiefly smelted together and are impossible to separate in the statistics. This year there has been a falling off in the production of lead ores, and a consequent diminution of the silver production, which has, however, been more than offset by the greatly increased tonnage of the copper-silver ores.

As near as can be estimated, the copper-silver ores have this year produced 30½% of the silver output. The production from "dry" ores, although proportionately small, has greatly increased, but it would be difficult, as before stated to separate, with any degree of accuracy, this source of production from the others.

LEAD.

The production of lead was this past year 51,582,906 lbs., worth \$2,002,733. This shows a decrease in value of \$689,154, or about 25% as compared with the production of 1900, but in fairness the comparison must not stop here; it must be remembered that in 1900 there was a phenomenal increase over 1899 of 206%. The figures show, therefore, that the lead production of 1901, although showing a decrease as compared with 1900, shows an increase over 1898 of 86%, and over 1899 of 128%, and is still 25% higher than the highest production of any year prior to 1900. The cause of the decrease is not attributable to the mines themselves, but to the condition of the market for lead ores—too large a question to go into here—which has temporarily rendered it unprofitable to mine large deposits of galena very low in silver. Reference is here made particularly to the lead ores of East Kootenay. The Slokan district has not been so seriously affected by the low price obtainable for lead ores, as the ores of this section carry much higher silver values, which has enabled them to be mined and marketed at a profit. As a matter of fact, the Slokan has this year just held its own as regards tonnage of ore mined and values produced.

COPPER.

Each year seems to present some particular feature of interest, and this year it is the greatly increased copper production of the Province. The copper production for the year has been 27,603,746 lbs. of "fine copper," valued at \$4,446,963, an increase of 17,666,665 lbs., and \$2,831,674 over that of the previous year, or about 175% increase in value.

It may here be noted that the recent "break" in the copper market did not occur until the last month in the year, and as, in estimating the values as above, the average price for the year is employed, the value of the product has not been seriously affected.

This copper has been derived as follows:—

Boundary district	14,511,787 lbs.
Trail (Rossland)	8,333,446 "
Coast	3,115,872 "
Nelson	1,539,449 "
Other districts	43,192 "
Total	27,603,746 "

The great increase has been due to the working of the exceedingly large and notoriously low grade copper ores of