

# Copper Production in British Columbia in 1916

Details of Copper Output in the Province, Mines Contributing and Developments in the Copper Industry During the Past Year as Presented in the Annual Report of the Minister of Mines, Hon. William Sloan, and Provincial Mineralogist, William Fleet Robertson.

The amount of copper produced by smelting in the Province in 1916 was 65,379,364 lb fine copper, valued at the average New York market price for copper at \$17,784,494. These figures represent the amount of copper actually recovered, as nearly as it is possible to ascertain; the amount of copper really in the ores mined would be approximately 25 per cent. greater. This is the largest copper output in the history of the Province.

As compared with the year 1915, these figures show an increased production in amount of 8,460,959 lb, or about 14.86 per cent., and in value the increase is \$7,948,994, or 55.3 per cent.

The amount of copper produced during the year 1916 is the largest in the history of copper mining in the Province; the highest previous production, made in 1912, was 51,456,537 lb, valued at \$8,408,513.

The apparently abnormal increase in the value of the production this year is partly due to the high average market value of the metal for the past year, due to the phenomenal demand for munitions of war.

Owing to this heavy demand for war purposes, principally for brass to be used in shells, the market price of copper increased steadily during the year. The year opened with copper at about 22.5 cents a pound in the New York market, and at the end of December it was 29 cents; the average price for the year was 27.202 cents, as compared with an average price of 17.275 cents in 1915. This higher market value of the metal assisted materially in raising the value of the copper produced, thereby greatly stimulating production.

The large increase in quantity of copper produced this year is due to a greatly increased production from the Coast District of some 7,000,000 lb, largely from the Britannia mine, while the Granby Company's Hidden Creek mine, at Anyox, on Observatory Inlet, increased its production by about 2,000,000 lb. The output from the Rocher Deboile mine, in the Omineca Division, was rather less than last year. The Trail Creek Mining Division and the Boundary District made very nearly the same production as last year; the output from Kamloops was greater, chiefly due to increased production from the Iron Mask.

The big mine and smelter of the Granby Company at Anyox were operated continuously throughout the year, and the tonnage treated was nearly 2,300 a day. The reserves of good-grade ore at this mine are very considerable and are given in the annual report of the company for the fiscal year ended June 30th, 1916, as amounting to 9,416,385 tons, with an average copper content of 2.37 per cent.; in addition to which there is practically an equal tonnage of lower-grade ore. The Granby Company this year produced from its mines in Skeena and Boundary 57.6 per cent. of the Province's copper production.

Another important producer of copper in the northern portion of the Province is the Rocher Deboile mine, near Hazelton. After developing for a couple of years this property commenced shipping in June, 1915, and has produced steadily since that time.

In the Boundary District the Granby Company's mines at Phoenix and smelter at Grand Forks were operated to nearly full capacity, but the output was curtailed during the latter part of the year owing to shortage of coke. Operations at this plant were characterized by the handling of a large amount of material low in copper and highly siliceous which had not previously been classed as ore. This was rendered possible by the high price of copper.

The British Columbia Copper Company, which oper-

ates the Mother Lode mine at Deadwood and a smelter at Greenwood, was, in former years, another large producer of copper in the Boundary District. During the past year this company's production has again increased very materially; a production of about 3,376,000 lb of copper being made, chiefly by the Mother Lode mine. The company's smelter was operated steadily throughout the year, although also affected somewhat by the coke shortage.

The Britannia mine had a very successful year, the tonnage of ore mined and milled being about 400,000 tons, containing 18,000,000 pounds copper, 98,000 ounces silver, and 800 ounces gold. The ore reserves at this mine are large—claimed to be about 17,000,000 tons—and it is expected the yearly tonnage treated will increase still further, as the ultimate plans of the company are to have milling capacity to handle 4,000 tons a day.

The copper mines on Texada Island made about the same output as in 1915; the most important producer is again the Marble Bay.

More small shipments of copper ore were made from Vancouver Island and along the Coast than in 1915. The high price of copper has stimulated the work of developing copper-showings on the Coast, and while this has not resulted in any great quantity of ore being shipped in 1916, it is likely that a considerable increase of production will take place in 1917.

The only production of copper in the Nelson Division was from the Eureka mine, but the reopening of the old Silver King mine about the end of the year may assist copper production from this division in 1917.

The following table shows the production of the various districts for the years 1915 and 1916:

	1915	1916	Per
	Lb.	Lb.	Cent.
Boundary District .....	17,402,662	17,626,623	=26.97
Rossland District .....	4,651,681	4,200,745	= 6.42
Coast, Omineca and Cassiar			
Districts .....	34,516,957	42,547,332	=65.08
Yale-Kamloops District .....	295,164	819,227	= 1.25
Nelson and other districts ...	51,941	185,437	= 0.28
	56,918,405	65,379,364	100.00

The average assays of the copper ores of the various camps, based upon the copper recovered were as follows: Boundary, 0.655 per cent.; Coast, Omineca and Cassiar, 1.77 per cent.; and Rossland, 0.68 per cent.

Copper-mining is now the most important form of mining in the Province, and this year it more than equalled in value the entire total value of the lode minerals produced, and was double the value of the coal and coke production. It forms 55.5 per cent. of the total value of metalliferous mines and 42.5 per cent. of the total mineral production. In the working of the large, low-grade copper deposits and the subsequent smelting of the ores produced, a great number of men are employed and a large proportion of the money value is retained in the country in the payment of wages and purchasing of supplies.

All the copper ores carry small amounts of the precious metals, and therefore any increase in the copper production also increases the output of gold and silver. The high price of copper during the past year has stimulated prospecting and the development of copper claims, and there is no doubt that the Provincial output will steadily grow in future years.

The most important metallurgical development in connection with copper-mining during the year 1916 was the establishment of a copper-refinery at the Trail smelter. Until this year all copper produced in the Province was shipped to Eastern points as blister-copper and there refined, but with a start at refining having been made, it may be expected that an increasing amount of the copper-output will be refined in the Province.