Ore Receipts.—The receip the year ending 30th April,	ots of ore fr were as fol	om the Tyce llows:—	mine for
	let Weight Tons.	Moisture. Di Per. Cent.	ry Weight. Tons.
"Rough" ore 3. "Fine" ore	3.320.770 5.302.695	1.284 2.649	32,892.933 14,897.317
Total ore	8,623.465 als 31.17 per	- cent. of fine	.47,790.250 ore.
Customs ore "Rough"		Tons. 2.957.1755 3.278.1755	
Custom rough flux ore		6,235.3510 891.1380	
Total cre receipts, dry weig Plus—Ore stocks on h	ght and at 1st	May, 1903	7,126.489 54,916.739 4,421.360
Less—Ore stocks on h	and at 1st	- May, 1904	59,338.099 3,245.837
Total tons of ore smelte	ed		56,092.262
a total of 68 per cent, roug Type ore assaying :	h ore and 3:	e per cent. fin	c ore; the
Copper (wet) (Per cent. 1 Silver	y electrolyt	ic assay)	4.56 .ozs. 2.87

SMELTING OPERATIONS.

Copper (wet) (Fer cent. by electrolytic assay)	4.50
Silver	2.87
Gold	0.1.4
Iron per cent.	11.94
Zinc	6.60
Silica	13.50
Alumina	3.95
Barium Sulphate "	37.30
Lime	2.20
Magnesia	Frace
Sulphur as sulphides	16.62

It will be noted in connection with the analysis for copper that the percentage of copper in the "ore" is figured upon the wet assay, while those of the "matte" and "yield" are figured upon the dry assay upon which the matte is sold; that is, the electrolytic assay, lcss 1.3 per cent., equals dry copper assay.

Roasting .- During the year we have roasted and trainined to the smelter 34,947 tons of ore the roasting operations being carried on without intermission and with satisfactory results. In order to treat the large accumulation of raw ore fines (some of which had previously been smelted, producing a low grade matte-which was slow, troublesome and expensive), experiments were instituted with a view to binding the fine sulphide ore into brick form, which could be roasted in heaps, instead of the orthodox practice of roasting in mechanical furnaces and afterwards briquetting the roasted fines. The final results of these experiments were highly satisfactory, both as to the oxidation of the copper, zinc, iron, sulphur, etc., and the hardness of the brick produced. After confirming these experiments on a larger scale, and the results being satisfactory, the brick-making and drying plant was crected at the north end of the roast yard, while horizontal oscillating screens were used under the ore bins to screen the mind fines to 38-in, size and less, reducing by 50 per cent, the quantity to be made into bricks, the oversize being sent to the roast heaps direct. The fine ore is transmed direct to the pit of the pug mill, covered with water, shovelled into the pug mill and made into brick form, as in slop brick-making, and then dried on the drying floor, which requires twentyfour hours. From there the bricks are wheeled direct to the roast beds, piled and burnt.

The brick produced after burning is hard, compact, and stands rough handling and usage; being sufficiently cintered it forms a porous homogeneous mass, and is a valuable addi-

tion to the furnace charge of ordinary burnt ore, increasing the turnace capacity at least 25 tons per day. The oxidation of the copper, zmc and iron is remarkably complete, average samples of large piles of burnt bricks giving 1.5 per cent. to 2.5 per cent. sulphur as sulphides, as against 7.00 per cent. in the ordinary burnt ore.

Burnt Ore.—The average analysis of the burnt ore tranned to the smelter during the year is as follows: Iron, 10.50 per cent.; silica, 17.90 per cent.; barium sulphate, 38.90 per cent.; zinc, 7.50 per cent.; magnesia, trace; sulphur as sulphide, 7.09 per cent., a decrease of .64 per cent. zinc, and an increase of 4.82 per cent. barium sulphate compared with the analysis a year ago.

Smelting.—During the year the furnace has been in blast 276 days of 24 hours each, and smelted as follows:—

•	Tons.
Tyee burnt ore and bricks	34.947.9230
Tyee raw ore	14,490.0410
Custom ore	6,611.5530
Total ore	56,049.5170
Silica flux	1,132.3985
Iron	447.5545
Flue dust	725.0285
Slag and barrings	3,109.4235
Low grade matte	2,751.8665

Total smelted (Tons of 2,000 lbs.) .. 64,215.7885

Coke used (Tons of 2,240 lbs.)..... 6,790.75

being an average of 203.077 tons of ore and 232.665 tons of mixture smelted per day, an increase of 52.69 tons of ore and of 55 tons of mixture smelted per day over that of 1903. The ratio of coke to ore was I ton of coke to 8.25 tons of ore, and I ton of coke to 9.45 tons of mixture smelted. The concentration was 10.28 tons of ore to I ton of matte.

Dividing the above operations into two periods of six months each, we have for the first period an average of 166 tons of ore smelted per day, and for the second an average of 243 tons per day, an increase of 77 tons smelted per day. The smelting operations during the year resulted in a steady increase in the amount of ore smelted per day, a result due to several factors, viz.—experience in handling this class of ore; to experiment; purchase of suitable fluxing ores; changes in the manipulation of the furnace, and the substitution of burnt bricks for raw ore fines in the furnace, making a shipping matte in one operation and using an average of 30 per cent. raw ore.

Slags.—An average sample of the slags for the year, sampled from the slag dump, assayed as follows :—

Copper Per cent. by calorometric assay
" Per cent. by electrolytic assay
Silver Oz Silver
Gold "
Iron oxide Per cent. 17.98
Silica
Barium oxide " 27.63
Calcium oxide
Zinc oxide
Alumina
Magnesium oxide Trace.
Sulphur

The betterment in the slag assays being due in part to the addition of the flux ores, which were not available last year, and to doubling the settling capacity at the furnace.

Product.—During the year we shipped 5,454.113 tons of copper matte, containing: 4,446.987 lbs. fine copper, 143,303.01 ozs, of fine silver, 8,778.034 ozs, of fine gold. Total value, less refining charges only \$678.836.62. An average matte of cop per (dry) 40.767 per cent., silver 26.277 ozs, per ton of 2,000 lbs., gold, 1.609 ozs, per ton of 2,000 lbs., and containing barium sulphide 7.47 per cent., zinc sulphide 12.66 per cent equivalent to a yield of copper (dry) 3.96 per cent., silver 2.55 ozs., gold 0.156 ozs.