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1903

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# MINERAL PRODUCTION OF CANADA

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GEOLOGICAL SURVEY DEPARTMENT,  
OTTAWA.

ROBERT BELL, M.D., D.Sc. (Cantab), LL.D., F.R.S., I.S.O.,  
*Acting Deputy Head and Director.*

SIR,—I have the honour to submit herewith the annual preliminary statistical statement of the mineral production of Canada for 1903.

Although the figures given herewith are, as stated, 'subject to revision,' they may still be taken as a very close approximation to those which will be given in the final report.

The completed annual report will follow later, and besides containing a revise of the general table of production, will include other details relating to explorations, development, exports, imports, etc. As much of this information is not available till several months after the close of the year, and the compilation and printing necessarily occupy some time, it cannot be completed till well on in the year following the one covered.

I am, sir,  
Your obedient servant,

ELFRIC DREW INGALL.

SECTION OF MINES, February 23, 1904.

GEOLOGICAL SURVEY OF CANADA

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SECTION OF MINES

SUMMARY

OF THE

MINERAL PRODUCTION OF CANADA

FOR 1903

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ELFRIC DREW INGALL, M.E.

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OTTAWA

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EXCELLENT MAJESTY

1904

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# GEOLOGICAL SURVEY OF CANADA

## SUMMARY OF THE MINERAL PRODUCTION OF CANADA IN 1903.

(Subject to Revision.)

PRODUCT.	Quantity. (a)	Value. (a)
<b>†METALLIC.</b>		
Copper (b)..... Lbs.	43,281,158	\$ 5,728,261
Gold, Yukon..... \$12,250,000		
" all other..... 6,584,490		18,834,490
Iron ore (exports)..... Tons.	368,233	922,571
*Pig iron from Canadian ore..... "	42,052	707,838
Lead (c)..... Lbs.	18,000,000	762,660
Nickel (d)..... "	12,505,510	5,002,204
Silver (e)..... Oz.	3,182,000	1,700,779
Zinc (f)..... Lbs.	900,000	48,600
Total metallic.....		33,707,403
<b>NON-METALLIC.</b>		
Actinolite..... Tons.	550	3,106
Arsenic..... "	257	15,420
Asbestos..... "	31,780	891,033
Asbestic..... "	10,548	13,819
Chromite..... "	3,383	33,830
Coal..... "	7,996,634	15,957,946
Coke (f)..... "	544,132	1,663,725
Corundum..... "	no returns.	
Felspar..... "	13,228	18,066
Fire clay..... "	2,317	2,505
Graphite..... "	738	23,745
Grindstones..... "	5,588	48,302
Gypsum..... "	307,489	384,259
Limestone for flux..... "	277,452	259,244
Manganese ore (exports)..... "	135	1,889
Mica..... "		159,473
Mineral pigments—		
Baryta..... Tons.	1,163	3,931
Ochres..... "	6,226	32,440
Mineral water..... "		100,000
Moulding sand..... Tons.	3,568	7,256
Natural gas (g)..... "		168,900
Peat..... Tons.	1,100	3,300
Petroleum (h)..... Brls.	461,336	922,672
Phosphate..... Tons.	1,329	8,214
Pyrites..... "	33,530	126,133
Salt..... "	53,537	334,088
Talc..... "	688	2,064
Tripolite..... "	835	16,700

†It is to be borne in mind that the only general and definite standard for valuing the varying and various products of the metal mining industries of the country is that herein adopted, viz., the final value of their metallic contents at the average market price for the year.

This reduces them to a common datum line for the purposes of this general table and results in such uniformity of presentation that the figures are reasonably comparable from year to year in illustration of the fluctuations and the growth of the different industries.

The non-metallic minerals having a tangible use—value as individual minerals are put down at the average spot value for each.

Whilst this plan of course results in some discrepancies it is adopted as the best

SUMMARY OF THE MINERAL PRODUCTION OF CANADA  
IN 1903—*Concluded.*  
(Subject to Revision.)

PRODUCT.	Quantity. (a)	Value. (a)
STRUCTURAL MATERIALS AND CLAY PRODUCTS.		\$
Cement, natural rock .....	Brls. 92,252	75,655
"    Portland.....	" 627,741	1,090,842
Granite .....		150,000
Pottery .....		200,000
Sands and gravels (exports).....	Tons. 355,792	124,006
Sewer pipe.....		317,970
Slate.....		22,040
Terra-cotta, pressed brick, &c.....		386,532
Building material, including bricks, building stone, lime, tiles, &c.....		5,650,000
Total structural materials and clay products .....		8,017,045
"    all other non-metallic.....		21,202,062
Total non-metallic .....		29,219,107
"    metallic.....		33,707,403
Estimated value of mineral products not returned.....		300,000
Total, 1903.....		63,226,510
1902, Total.....		63,885,999
1901 ".....		66,339,158
1900 ".....		64,618,268
1899 ".....		49,584,027
1898 ".....		38,697,021
1897 ".....		28,661,430
1896 ".....		22,584,513
1895 ".....		20,648,964
1894 ".....		19,931,158
1893 ".....		20,035,082
1892 ".....		16,628,417
1891 ".....		18,976,616
1890 ".....		16,763,353
1889 ".....		14,013,913
1888 ".....		12,518,894
1887 ".....		11,321,331
1886 ".....		10,221,255

attainable method for the purposes of this general statement which is practically an advance presentation of the mineral industry as a whole.

The detailed presentation of the particulars of the various subordinate industries from other standpoints is reserved for the annual report of the Mines Section.

\*The total production of pig iron in Canada in 1903, from Canadian and imported ores amounted to 297,835 tons, valued at \$3,742,710, of which it is estimated 42,052 tons valued at \$707,838, should be attributed to Canadian ore and 255,833 tons, valued at \$3,034,872, to the ore imported.

- (a.) Quantity or value of product marketed. The ton used is that of 2,000 lbs.
- (b.) Copper contents of ore, matte, &c., at 13·235 cents per lb.
- (c.) Lead contents of ores, &c., at 4·237 cents per lb.
- (d.) Nickel contents of ore, matte, &c., at 40 cents per lb.
- (e.) Silver contents of ore at 53·45 cents per oz.
- (f.) Oven coke, all the production of Nova Scotia and British Columbia.
- (g.) Gross return from sale of gas.
- (h.) Includes crude oil sold to refiners and oil sold for fuel and other purposes.
- (i.) Zinc contents of ores at 5·400 cents per lb.

## REMARKS.

The main feature presented by the mineral industry of Canada as a whole consists in the decrease in the grand total of production of a little over one per cent in comparison with the figures for 1902. A comparison of the items for the two years shows the reason for this falling off. The shrinkage in the production of the Yukon placer gold fields accounts for \$2,250,000 of the total diminishment of over \$2,500,000 in the gold output of the country. This is augmented by over \$1,000,000 decrease in the values of the output credited to others of the metallic class, viz., pig iron, silver, lead and nickel. To offset this, the copper, iron-ore and zinc industries exhibit increases aggregating nearly \$1,500,000, leaving a minus amount of a little over \$2,000,000 against the metallic class as a whole, equivalent to nearly six per cent.

Advances were shown in several of the non-metallic class, notably in coal and coke, limestone, mica, salt, cement and in some of the clay products. The total growth in all the non-metallics showing increases, amounted to nearly \$2,000,000, the advance in the coal and coke output accounting for over \$1,600,000 of this. As against these non-metallic industries showing increases, decreases are exhibited in the values of the production in asbestos, natural gas, petroleum and a number of others aggregating about \$500,000 leaving a net gain in this class of somewhat under \$1,500,000 or a little over five per cent to offset the above mentioned falling off in the the metallic class, the final difference in the grand totals for the two years amounting to nearly \$660,000, or a proportional decrease of close on one per cent.

Product.	Quantity.		Value.	
	Increase.	Decrease.	Increase.	Decrease.
	p. c.	p. c.	p. c.	p. c.
<b>Metallic—</b>				
Copper .....	11·54		26·97	
Gold .....				11·73
Pig iron (from Canadian ore only) .....		41·32		32·14
Pig iron (from both home and imported ores) .....		16·77		11·80
Lead .....		21·59		18·35
Nickel .....	16·95			0·47
Silver .....		25·85		24·02
<b>Non-metallic—</b>				
Asbestos and asbestic .....	4·73			21·20
Coal .....	11·17		10·22	
Coke .....	8·38		9·51	
Cement .....	4·54		3·45	

The above table gives the percentage of growth or decline in regard to the chief items in the general table. It will be noted that decreases both in quantities and values, have been the chief characteristic of the leading metallic industries with the notable exception of copper and nickel. In the latter case, however, the considerable increase in the output has been more than offset by the lower valuation which has been given to the metal following the drop in the average market price for the year. The increase in the copper output was on the other hand considerably enhanced by the higher average market price of the metal. It is interesting to note also that with regard to pig iron, lead and silver, higher market prices modified the heavy falling away in these items. The whole of the group classed as metallic, shows a decrease of 5.8 per cent.

In the non-metallic class the more important contributors are given in the table and all exhibit substantial increases in quantities but lower prices reversed the effect in the case of asbestos and lessened the advantage gained in the case of coal and cement, coke only showing a slight advance. In the grand totals of the non-metallic class the figures for structural materials and clay products show a slight advance of 1.5 per cent, all other non-metallics being credited with an advance of over 6.6 per cent.

1902.		1903.	
Product.	Per cent of total production.	Product.	Per cent of total production.
1 Gold.....	33.41	1 Gold.....	29.79
2 Coal and coke.....	25.05	2 Coal and coke.....	27.87
3 Building material.....	8.43	3 Copper.....	9.06
4 Nickel.....	7.87	4 Building material.....	8.94
5 Copper.....	7.06	5 Nickel.....	7.91
6 Silver.....	3.51	6 Silver.....	2.69
7 Asbestos.....	1.80	7 Cement.....	1.84
8 Cement.....	1.77	8 Petroleum.....	1.46
9 Pig iron (from Canadian ore).	1.63	9 Iron ore (export).....	1.46
10 Petroleum.....	1.48	10 Asbestos.....	1.42
11 Lead.....	1.46	11 Lead.....	1.21
12 Iron ore (not used in making pig iron in Canada).....	1.09	12 Pig iron (from Canadian ore)	1.12

The relative importance of the different mineral industries contributing to the grand total will be apparent from an inspection of the above table in which the figures account for all but about 5 per cent of the aggregate. As usual gold together with coal and coke constitute Canada's most valuable mineral assets and account for 57.66 per



cent of the value of the whole mineral output of the country. To the metallic class as a whole must be credited 53.31 per cent of the mineral output, the structural material division contributing 13.15 per cent and the other non-metallic products a little over one third or 33.53 per cent.

The per capita value of the total mineral products for 1903 was \$11.29 as compared with \$2.23 in 1886, the first year for which figures are available.

*Gold.*—A decrease of over two and a half million dollars is shown, of which two and a quarter millions is to be ascribed to the decreased output from the Yukon District, leaving approximately a quarter of a million falling off in the other provinces. The Yukon output for the year \$12,250,000 is based on the receipts of Canadian Yukon gold at the United States Mint at San Francisco and other receiving offices.

The contributors to the total as formerly, were Nova Scotia, Quebec, Ontario, Saskatchewan, the Yukon Territory and British Columbia.

*Silver.*—Silver production, according to present indications, shows a considerable decrease, over a million ounces, compared with last year's output. Over 90 per cent of the production is obtained from British Columbia.

*Lead.*—The production of lead in 1903 has been estimated at about 9,000 tons. The exports, according to custom returns, were 9,314 tons, valued at \$426,466. The production is practically all the output of British Columbia mines, no returns having been received of production in eastern Canada.

*Copper.*—The copper contained in ore, matte, etc., shipped from Canadian mines in 1903, was about 21,640 tons, an increase of 2,238 tons or over 11.5 per cent over the previous year's output. In Ontario and Quebec there was little change, perhaps a slight falling off, the increase being practically all in British Columbia. From the Sudbury district, Ontario, about 13,832 tons of high grade matte were shipped containing 3,576 tons of copper. (see further under nickel). In British Columbia shipments of ore from the boundary district were approximately 625,000 tons in 1903 and from Rossland about 377,000 tons. For statistical purposes the copper is valued at the average price for the year of electrolytic copper in New York, viz., 13.235 cents per pound. This is an increase on the average price for 1902 of nearly 14 per cent.

*Nickel*—The following were the results of operations on the nickel copper deposits in 1903 :

	Tons
Ore mined.....	136,633
Ore smelted.....	207,030
Matte shipped.....	13,832
Matte in stock at end of year.....	1,246
Copper contents of matte shipped.....	3,576
Nickel " ".....	6,258
Value of matte shipped.....	\$2,686,469

According to customs returns exports of nickel were as follows :

	Lbs.
To Great Britain.....	1,335,677
United States.....	11,363,470
Other countries.....	80
Total.....	12,699,227

*Zinc*.—About 1,000 tons of zinc ore, worth \$10,500 were shipped to Swansea, Wales, from the Long Lake zinc mine in the county of Frontenac Ont. No returns have been received of zinc production in British Columbia.

*Iron*.—Exports of Iron Ore were 368,233 tons valued at \$922,521. About 81,035 tons of iron ore from Canadian mines were charged to blast furnaces in Canada and valued at the furnace at about \$247,229.

In addition to the above Canadian ore, 485,911 tons of imported ore valued at \$823,147 were used in Canadian furnaces. The total quantity of pig iron manufactured from both Canadian and imported ores was 297,885 tons of which 19,614 tons were made with charcoal as fuel and 278,271 tons with coke.

*Arsenic*.—The arsenic plant at Deloro, Ont. was worked for three months only producing 257 tons of white arsenic valued at \$15,420. Exports of arsenic were 198 tons valued at \$10,583.

*Coal and Coke*.—An increased production is reported from all the provinces in which coal mining is being carried on.

The Dominion Coal Company, the largest producing company in Nova Scotia increased its output notwithstanding the serious check caused by the fire in Dominion No. 1 colliery in March. The Nova Scotia Steel and Coal Company also shows very largely increased output from their Sydney mines.

Considerable activity has been displayed in the operation of the mines in the North-west Territories, especially on the eastern slope of the Rocky Mountains in the district about Blairmore.

In British Columbia the output of the Crows Nest Pass Coal Company exceeded that of 1902 by 49·8 per cent and the company has made substantial progress in the development of their properties. On the coast the Western Fuel Company are actively operating and developing the properties formerly worked by the New Vancouver Coal Mining and Land Co. The Wellington Colliery Company have been opening up a seam of anthracite coal from which it is expected shipments will soon be made.

*Corundum.*—Returns have not yet been received of production of corundum, but railway shipments at Barry's bay are reported at 1090 tons which may however include corundum ore as well as grain corundum.

*Asbestos.*—The production of asbestos divided into crude and mill stock was as follows :

	Tons.	\$
Crude.....	3,134	361,867
Mill stock.....	27,995	554,021
Total.....	31,129	915,888

Exports of asbestos according to Customs returns were :  
31,780 tons valued at \$891,033.

The product was all obtained from the Eastern Townships, Quebec.

*Cement.*—The production of natural rock cement is at present small in comparison with the output of Portland, and the sales in 1903 were less by 35,679 barrels than in 1902. Detailed statistics for 1903 were as follows :—

Cement sold during the year.....	92,252 brls.	valued \$75,655.
Cement manufactured .....	96,152 "	
Stock on hand January 1, 1903.....	23,000 "	
" December 30, 1903.....	26,000 "	
Wages paid .....		\$29,550

Portland cement statistics have been partially estimated in the absence of complete returns. The following is probably a close approximation :—

Portland cement sold .....	627,741 brls.	valued at \$1,090,842.
" manufactured .....	714,136 "	
Stock on hand January 1, 1903....	41,991 "	
" December 31, 1903....	128,386 "	
Wages paid about .....		\$400,000

The imports of Portland cement in 1903 were

	Cwt.	\$
Six months ending June.....	1,061,358	385,216
" December.....	1,646,516	674,880
Total.....	2,707,874	1,060,096

This importation is equivalent to about 773,678 barrels of 350 pounds each.

## EXPORTS of Products of the Mine, Calendar Year 1903.

PRODUCT.		Quantity.	Value.
			\$
Arsenic.....	Lbs.	395,573	10,583
Asbestos.....	Tons.	31,780	891,033
Barytes.....	Cwt.	406	363
Coal.....	Tons.	1,954,629	5,219,860
Chromite.....	"	1,013	20,524
Felspar.....	"	13,760	23,319
Gold bearing quartz, dust, nuggets, &c.....	\$		17,566,540
Gypsum, crude.....	Tons.		
Copper, fine, in ore, &c.....	Lbs.	37,039,175	3,702,368
"    black or coarse, cement copper and cop- per in pigs.....	"	203,701	25,226
Lead in ore, etc.....	"	13,624,303	426,466
Nickel in ore, matte, &c.....	"	12,699,227	1,116,099
Platinum in ore, concentrates, &c.....	Oz.	283	304
Silver in ore, &c.....	"	3,360,192	1,989,474
Mica.....	Lbs.	956,244	196,020
Mineral pigments.....	"	1,351,475	12,770
"    water.....	Gals.	5,709	3,585
Oil—			
crude.....	"	350	15
refined.....	"	1,013	190
Ores—			
Antimony.....	Tons.	33	4,332
Iron.....	"	368,233	922,571
Manganese.....	"	135	1,889
Other.....	"	4,942	143,470
Phosphate.....	"	1	20
Plumbago, crude.....	Cwt.	8,235	26,230
Pyrites.....	Tons.	21,067	59,604
Salt.....	Lbs.	11,915,648	5,927
Sand and gravel.....	Tons.	355,792	124,006
Stone, ornamental.....	"	129	783
building.....	"	140,476	45,512
for manufacturing of grindstones.....	"	2,019	16,925
Other products of the mine.....			157,568
Manufactures—			
Bricks.....	M.	891	5,699
Cement.....	\$		2,851
Coke.....	Tons.	32,608	135,957
Grindstones, mfd.....	\$		10,734
Gypsum, ground.....	"		12,457
Iron and steel—			
Stoves.....	No.	960	11,718
Castings.....	\$		138,352
Pig iron.....	Tons.	4,400	78,382
Machinery, N.E.S.....	\$		416,397
Scrap iron or steel.....	Cwt.	131,263	88,839
Hardware, N.E.S.....	\$		88,285
Steel and manufacturing of.....	"		2,078,328
Lime.....	"		131,412
Metals, N.O.P.....	"		554,900
Plumbago, manufactures of.....	"		17,412
Stone, ornamental.....	"		7,097
"    building.....	"		587

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