CANADA

DEPARTMENT OF MINES

MINES BRANCH

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PRELIMINARY REPORT

ON THE

MINERAL PRODUCTION OF CANADA

DURING THE CALENDAR YEAR

1910

Prepared by

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EUGENE HAANEL, Ph.D.,
Director of Mines.

SIR,—I beg to submit herewith, the annual preliminary report on the mineral production of Canada in 1910, including a table showing the revised statistics of production in 1909.

The figures of production given for 1910 are, of necessity, subject to revision, since at this time, in many instances, producers of metallic ores have not themselves received complete returns from smelters. For these and other reasons, estimates have to be made. It is hoped, however, that this preliminary statement may serve to give a general idea of the gross output of the mineral industry during the year.

I am, Sir, your obedient servant,

JOHN McLEISH.

Division of Mineral Resources and Statistics,
February 23, 1911.

PRELIMINARY REPORT ON THE MINERAL PRODUCTION OF CANADA, 1910.

(Statistics subject to revision.)

Although complete statistics are not yet available, sufficient information is at hand to indicate that the total value of the mineral production of Canada during the past year exceeded $105,000,000. This production is made up from such a great variety of well established mining industries that the record should be particularly gratifying not only to those who are directly interested in the development of the mineral resources of the country, but also to the public at large who indirectly profit thereby.

Not only is the increase over the production of the previous year a large one, having amounted to $13,209,517, or over 14 per cent, but an examination of the details of production shows that the increase has been fairly well distributed amongst the more important ores and minerals produced in Canada.

The production of the more important metals and minerals is shown in the following tabulated statement in which the figures are given for the two years, 1909 and 1910, in comparative form, and the increase or decrease in value shown. Tabulated statements for both years, in greater detail, will be found on subsequent pages of this pamphlet:

	1909.		1910.		Increase (+) or decrease (−) in value.
	Quantity.	Value.	Quantity.	Value.	
		$		$	$
Copper..... Lbs.	52,493,863	6,814,754	56,598,074	7,209,463	+ 394,709
Gold..... Ozs.	453,865	9,382,230	.....	10,224,910	+ 842,680
Pig iron..... Tons.	757,162	9,581,864	800,797	11,245,630	+ 1,663,766
Lead..... Lbs.	45,857,424	1,692,139	32,987,508	1,237,032	− 455,107
Nickel..... "	26,282,991	9,461,877	37,271,033	11,181,310	+ 1,719,433
Silver..... Ozs.	27,529,473	14,178,504	31,983,328	17,106,604	+ 2,928,100
Other metallic products.....	.....	405,122	.....	559,186	+ 154,064
Total.....	.....	51,516,490	.....	58,764,135	+ 7,247,645
Less pig iron credited to imported ores.....	607,718	7,359,649	695,891	9,594,309	+ 2,234,660
Total metallic.....	.....	44,156,841	.....	49,169,826	+ 5,012,985
Asbestos and asbestic... Tons.	87,300	2,201,775	100,385	2,476,558	+ 274,783
Coal..... "	10,501,475	24,781,236	12,796,512	29,811,750	+ 5,030,514
Gypsum..... "	439,120	809,632	531,313	939,838	+ 130,206
Natural gas.....	.....	1,207,029	.....	1,312,614	+ 105,585
Petroleum..... Brls.	420,755	559,604	315,895	388,550	− 171,054
Salt..... Tons.	84,037	415,219	84,029	409,624	− 5,595
Cement..... Brls.	4,067,709	5,345,802	4,753,975	6,414,315	+ 1,068,513
Clay products.....	.....	6,450,810	.....	7,600,000	+ 1,149,190
Lime..... Bush.	5,592,924	1,132,756	5,721,285	1,131,407	− 1,349
Stone.....	.....	3,127,135	.....	3,499,772	+ 372,637
Miscellaneous non-metallic....	.....	1,642,602	.....	1,886,704	+ 244,102
Total non-metallic.....	.....	47,674,600	.....	55,871,132	+ 8,196,532
Grand total.....	.....	91,831,441	.....	105,040,958	+13,209,517

The subdivision of the mineral production in 1909 and 1910 by provinces was approximately as follows:

Province.	1909.		1910.	
	Value.	Per cent of total.	Value.	Per cent of total.
	$		$	
Nova Scotia	12,504,810	13·62	14,054,534	13·38
New Brunswick	657,035	0·71	585,891	0·56
Quebec	7,086,265	7·72	8,193,275	7·80
Ontario	37,374,577	40·70	43,017,026	40·95
Manitoba	1,193,377	1·30	1,470,776	1·40
Saskatchewan	456,246	0·50	557,806	0·53
Alberta	6,047,447	6·58	7,876,458	7·50
British Columbia	22,479,006	24·48	24,547,817	23·37
Yukon	4,032,678	4·39	4,737,375	4·51
	91,831,441	100·00	105,040,958	100·00

It will be observed that there has been an increased production in nearly every province, the only falling off being shown by New Brunswick, in which the gypsum production, and some of the structural products, showed a slight decrease.

In Nova Scotia there was a largely increased production of coal and gypsum. In Quebec the principal increases were in cement and asbestos. Ontario's increases are principally in the metals copper, nickel and silver.

Manitoba shows an increased production of gypsum and clay products; while in Alberta clay products, cement, and particularly coal, contribute the chief gains. In British Columbia the increase is mainly due to the coal industry, while the Yukon not only shows a gratifying gain in gold production but a growing shipment of copper and silver ores.

Of the total production in 1910, $49,169,826 or 46·8 per cent is credited to the metals, and $55,871,132 or 53·2 per cent to the non-metallic products. Amongst the individual products, coal still contributes the greatest value, constituting 28·4 per cent of the total. Silver is next with about 16·3 per cent; nickel third with 10·6 per cent; gold, 9·7 per cent; clay products, 7·2 per cent; copper, 6·8 per cent, and cement, 6·1 per cent.

In valuing the metallic production, the same general practice has been followed as in past years, with one or two slight modifications. Instead of valuing lead at the New York price, the average price at Toronto has been used. This is somewhat lower than the New York price, but higher than that in London.

Nickel has been valued at an average price of 30 cents per pound, although the minimum quotation for the metal in large lots was 40 cents. Considerable quantities of monel metal are now made, the production of which does not require the separation of the nickel metal, and the price of 30 cents is equivalent to valuing two thirds of the production at 37½ cents, and one-third at 15 cents.

THE MINERAL PRODUCTION OF CANADA IN 1910.

(Subject to revision.)

Product.		Quantity.	Value.
METALLIC.			$
Copper, value at 12·738 cents per pound	Lbs.	56,598,074	7,209,463
Gold			10,224,910
Pig iron from Canadian ore	Tons.	104,906	1,651,321
Iron ore (exports)	"	114,449	324,186
Lead, value at 3·75 cents per pound	Lbs.	32,987,508	1,237,032
Nickel, value at 30 cents per pound	"	37,271,033	11,181,310
Silver, value at 53·486 cents per oz.	Ozs.	31,983,328	17,106,604
Zinc ore and other products			235,000
Total			49,169,826
NON-METALLIC.			
Arsenic, white	Tons.	1,502	75,328
Asbestos	"	75,678	2,458,929
Asbestic	"	24,707	17,629
Coal	"	12,796,512	29,811,750
Corundum	"	1,870	198,680
Feldspar	"	15,719	47,867
Fluorspar	"	2	15
Graphite	"	1,243	59,087
Grindstones	"	3,847	43,936
Gypsum	"	513,313	939,838
Magnesite (railway shipments)	"	328	2,493
Mica	"		143,409
Ochres	"	4,813	33,185
Mineral water			175,173
Natural gas			1,312,614
Peat	Tons.	771	1,735
Petroleum, value at $1.23 per barrel	Brls.	315,895	388,550
Phosphate	Tons.	1,319	11,780
Pyrites	"	55,925	192,263
Quartz	"	88,205	91,951
Salt	"	84,092	409,624
Talc	"	7,112	22,308
Tripolite	"	22	134
Total			36,438,278
STRUCTURAL MATERIALS AND CLAY PRODUCTS.			
Cement, Portland	Brls.	4,753,975	6,414,315
Clay products—			
Brick			5,930,630
Sewer pipe, fireclay, drain tile, pottery, etc.			1,669,370
Lime	Bush.	5,721,285	1,131,407
Sand and gravel (exports)	Tons.	624,824	407,974
Sand lime brick			360,894
Slate			18,492
Stone—			
Granite			634,783
Limestone			2,303,804
Marble			158,779
Sandstone			402,406
Total structural materials and clay products			19,432,854
All other non-metallic			36,438,278
Total value, metallic			49,169,826
Total value, 1910			105,040,958

The average monthly prices* of the metals in cents per pound for several years past are shown herewith.

——	1906.	1907.	1908.	1909.	1910.
	Cts.	Cts.	Cts.	Cts.	Cts.
Copper, New York	19·278	20·004	13·208	12·982	12·738
Lead "	5·657	5·325	4·200	4·273	4·446
" Toronto	4·727	5·429	3·894	3·692	3·750
Nickel, New York	41·64	45·000	43·000	40·000	40·000
Silver "	66·791	65·327	52·864	51·503	53·486
Spelter "	6·198	5·962	4·720	5·503	5·520
Tin "	39·819	38·166	29·465	29·725	34·123

*Quotations from *Hardware and Metal* and *Engineering and Mining Journal.*

Smelter Production.

General statistics of smelter production were collected by this Branch for the first time in 1908, and the aggregate results of these operations during the years 1908 and 1909 are shown in the accompanying table. Unfortunately, complete returns have not yet been received for the year 1910. It should be explained also that the figures include the results of the treatment of a small quantity of imported ores. The results of the operations at the smelter at Northport, Wash., treating chiefly Canadian ores, have also been included:

SMELTER AND REFINERY PRODUCTION IN CANADA, 1908 AND 1909.

——		1908.		1909.	
		Refined products.	Metals contained in matte blister, base bullion and speiss.	Refined products.	Metals contained in matte blister, base bullion and speiss.
Antimony	Lbs.	.....	.....	61,207	.....
Gold	Ozs.	15,436	203,300	18,241	200,129
Silver	"	11,168,689	3,271,899	14,242,545	4,845,920
Lead	Lbs.	36,549,274	1,116,792	41,883,614	3,973,810
Copper	"	.....	51,965,289	.....	53,328,583
Copper Sulphate	"	203,379	.....	51,405	.....
Nickel	"	.....	19,506,251	.....	27,041,957
Cobalt	"	.....	692,170	.....	1,321,083
White arsenic	"	1,431,052	.....	2,258,087	.....
Arsenic	"	.....	436,787	.....	1,074,516

The total ore charged to the furnaces during each of the past three years is shown as under:—

	1908.	1909.	1910.
Nickel-copper ores	360,180	462,336	628,947
Silver-cobalt-nickel-arsenic ores	7,182	8,384	9,466
Lead and other ores treated in lead furnaces	53,545	53,006	57,547
Copper-gold-silver ores	1,797,488	1,850,889	*2,000,000
Total	2,218,395	2,374,615	2,695,960

*Returns incomplete but tonnage probably exceeded the figure given.

Gold.

While statistics of gold production are as yet incomplete, a preliminary estimate shows a production of approximately $10,224,910, an increase of about 9 per cent over the 1909 production. The production of the Yukon is valued at $4,550,000, the total exports, on which royalty was paid during the calendar year according to the records of the Interior Department, being 275,472.51 ounces. The Yukon production in 1909 was $3,960,000, the exports being 239,766.35 ounces. The British Columbia production in 1909 was placer gold $477,000; bullion from free milling ores $329,655; smelter recoveries $4,367,924. In 1910 the placer production is estimated by the Provincial Mineralogist as $482,000. An estimate of free milling bullion shipments and smelter recoveries is made of $4,950,000, or a total production for the province of $5,432,000. The Nova Scotia production shows a falling off of about $20,000, while Ontario will probably show a slight increase on account of the gold recovered in development work at Porcupine, of which a record has not yet been received.

Silver.

The silver production of Canada in 1909 showed an increase of 24.5 per cent over that of 1908 following a series of large increases during the three preceding years. It is very satisfactory therefore to be able to report a further increase in 1910 of about 16 per cent The total production last year including that produced as bullion and the metal estimated as recovered from ores sent to smelters or otherwise treated was approximately 31,983,328 ounces, as compared with a production of 27,529,473 ounces in 1909.

The increase is again chiefly credited to Cobalt and adjacent mining districts of Ontario, There was a slight falling off in the silver production of British Columbia as a result of the decreased production from the silver lead ores of the province.

For the province of Ontario, complete returns have been received from all the larger operators, while estimates based on railway shipments have been made for two or three of the smaller mines. The net production of recoverable silver is estimated at 29,375,000 ounces, that is after deducting 5 per cent from the settlement assays of ores sent to smelters to allow for smelting losses. At the average price of silver for the year this has a value of $15,711,513.

The production similarly estimated for 1909 was 24,822,099 ounces, thus showing an increase in 1910 of about 4,552,901 ounces, or over 18 per cent.

The total shipments of ore and concentrates were about 34,580 tons, containing approximately 29,931,678 ounces of silver, in addition to which somewhat over 940,000 ounces were shipped as bullion. The average silver content of ore and concentrates shipped was thus about 865.57 ounces, or $462.96 per ton, as compared with an average of 840 ounces in 1909.

The shipments during 1909 were 27,835 tons of ore, containing 22,349,717 ounces of silver, or an average of 803 ounces per ton; 3,059 tons of concentrates containing 3,627,819 ounces, or an average of 1,186 ounces per ton, and bullion containing 143,440 fine ounces.

The exports of silver in ore, etc., as reported by the Customs Department were 30,699,770 ounces, valued at $15,649,537.

The price of refined silver in New York varied between a minimum of 50½ cents per ounce on March 2nd and a maximum of 56¾ cents on October 19th, the average monthly price being 53.486, as compared with an average monthly price of 51.503 cents in 1909.

Copper.

No refined copper is produced in Canada, but the copper ores are mostly reduced to a matte or blister copper carrying values in the precious metals. In Quebec where the copper is recovered subsequently to the extraction of the sulphur from pyritic ores, there was increased activity during the year. A small quantity of ore was exported from British Columbia coast mines and the Yukon to United States smelters for treatment. In Ontario, where the copper is chiefly recovered from the nickel-copper ores of the Sudbury district, there is a very large increase in production. In British Columbia the most important events during the year were the acquisition of a controling interest in the Dominion Copper Company by the British Columbia Copper Company, with the subsequent re-opening of several of the properties, and the destruction by fire of part of the head works of the Granby Mines at Phœnix, B.C., which noticeably affected the output, although the Boundary district as a whole shows an increased production.

Statistics are not available at the present time to show the total quantity of copper contained in ores shipped from the mines. The total production of copper, however, contained in blister and matte produced and estimated as recoverable from ores exported was in 1910 approximately 56,598,074 pounds. In 1909 the production of copper estimated on the same basis was 52,493,863 pounds, an increased production of about 7.8 per cent, being therefore shown in 1910.

Of the production in 1910, Quebec is credited with 957,178 pounds; the production in Ontario was 19,259,016 pounds; and in British Columbia the production is estimated at about 36,000,000 pounds. Ontario shows an increased production of about 3,512,317 pounds, or 22.3 per cent, while British Columbia shows a slight increase, the production in 1909 being estimated at 35,658,952 pounds.

The New York price of electrolytic copper during the year varied between the limits of 12 cents and 13¾ cents per pound, the average being 12.738, as compared with an average of 12.982 cents in 1909.

The total exports of copper contained in ore, matte and blister according to Customs Department returns were 56,964,127 pounds, valued at $5,840,553. It will be noted that the exports agree very closely in number of pounds with the record of the production which would be expected since practically all the copper is exported.

Lead.

The total production in 1910 of pig and manufactured lead was 32,987,508 pounds, valued at the average price of refined lead in Toronto at $1,237,032.

The production of refined lead and lead contained in base bullion exported in 1909 was 45,857,424 pounds. A decreased production in 1910 is therefore shown of 12,869,916 pounds.

The production of both years was entirely from British Columbia. The falling off in the output of that province is due largely to the curtailment of production by several of the important Slocan mines, consequent to the destruction of railway facilities and of several mines buildings by forest fires.

The Blue Bell Mine also, one of the leading shippers of lead in 1909, suspended operations early in 1910. Against these decreases may be placed the advent of the Sullivan mine, East Kootenay, into the list of shippers.

The exports of lead in ore during the year were 23 tons, and of pig lead 3,856 tons, or a total of 3,879.

About 12,614 tons of domestic production were, therefore, available for home consumption.

The imports of lead in 1910 were 8,305 tons, valued at $525,265, in addition to which were manufactures valued at $107,688, and litharge, white and red lead, etc., $200,790, or a total value of $833,743.

The price of lead in Toronto during 1910 averaged about 3.750 cents per pound, in New York 4.446 cents per pound and in London £12.920 per long ton.

The amount of bounty paid during the twelve months ending December 31, 1910, on account of lead production was $318,308.28, as compared with a payment of $346,527.98 in 1909.

Nickel.

There has been a very large increase in the production of nickel-copper ores in Ontario during the past two years, and it is perhaps not generally realized that the production of nickel in this province is now almost as large, pound for pound, as the production of copper in British Columbia, while the market price of the metal is from two to three times that of copper. A portion of the production is, however, now recovered with copper as monel metal and sold at a much lower price than fine nickel. Active operations are being carried on by the same companies as formerly, viz.: the Mond Nickel Company, at Victoria Mines, and the Canadian Copper Company, at Copper Cliff.

The ore is first roasted and then smelted and converted to a Bessemer matte containing from 77 to 82 per cent of the combined metals, copper and nickel; the matte being shipped to the United States and Great Britain for refining.

The total production of matte in 1910 was 35,033 tons, valued at the furnace at $5,380-064, an increase of 9,188 tons, or 31.6 per cent over the production of 1909. The metallic contents were copper, 19,259,016 pounds, and nickel, 37,271,033 pounds.

The aggregate results of the operations on the Sudbury District nickel-copper ores during the past four years were as follows in tons of 2,000 pounds:—

——	1907.	1908.	1909.	1910.
Ore mined	351,916	409,551	451,892	652,392
Ore smelted	359,076	360,180	462,336	628,947
Bessemer matte produced	22,041	21,197	25,845	35,033
" shipped	22,025	21,210	.....	.....
Copper contents of matte shipped	6,996	7,503	7,873	9,630
Nickel " "	10,595	9,572	13,141	18,625
Spot value of matte shipped	$3,289,382	$2,930,989	$3,913,017	$5,380,064
Wages paid	$1,278,694	$1,286,265	$1,234,904	$1,748,153
Men employed	1,660	1,690	1,735	.....

Exports of nickel contained in ore, matte, &c., as compiled from Customs reports have been, for the twelve months ending December 31, as follows:—

——	1906. Pounds.	1907. Pounds.	1908. Pounds.	1909. Pounds.	1910. Pounds.
To Great Britain	2,716,892	2,518,338	2,554,486	3,843,763	5,335,331
To United States	17,936,953	16,857,997	16,865,407	21,772,635	30,679,451
	20,653,845	19,376,335	19,419,893	25,616,398	36,014,782

The price of refined nickel in New York remained practically constant throughout the year—the quotation being "Large lots, contract business, 40 to 45 cents per pound. Retail spot from 50 cents for 500 pound lots up to 55 cents for 200 pound lots. The price for electrolytic is 5 cents higher."

Iron.

Iron Ore.—Excluding Quebec, for which complete returns have not been received, the production of iron ore in 1910 was 254,915 short tons, valued at $566,109. The shipments may be classified as magnetite, 124,535 tons, hematite, 130,380 tons. In 1909 the total shipments were 268,043 tons, valued at $659,316, and comprised magnetite, 74,240 tons, hematite, 190,473 tons, and bog ore, 3,330 tons.

Exports of iron ore from Canada during 1910 are recorded by the Customs Department as 114,499 tons, valued at $324,186. This is chiefly from Moose Mountain mine, Ontario, Torbrook, N.S., and Bathurst, N.B.

Although not a Canadian production, it may be of interest to state that the two Canadian companies operating the Wabana mines, shipped during the year 1,259,626 short tons of which 808,762 tons were shipped to Sydney and 450,864 tons to the United States and Europe.

Pig Iron.—An increase of 5.58 per cent is shown in the production of pig iron in Canada in 1910 as compared with 1909. The total production in 1910 was 800,797 short tons,

valued at $11,245,630, as compared with 757,162 tons, valued at $9,581,864 in 1909. These figures do not include the output from electric furnaces making ferro-products, which are situated at Welland and Sault Ste. Marie, Ont., and Buckingham, Que. Of the total output of pig iron during 1910, 17,164 tons valued at $333,956, or $19.78 per short ton were made with charcoal as fuel, and 783,633 tons valued at $10,911,674, or $13.92 per ton with coke. The amount of charcoal iron made in 1909 was 17,003 tons, and iron made with coke was 740,159 tons. The classification of the production of 1910, according to the purpose for which it was intended, was as follows:—Bessemer 219,492 tons, basic, 425,400 tons, foundry, including miscellaneous, 138,741 tons.

The amount of Canadian ore used during 1910 was 160,290 tons; imported ore 1,406,668 tons; mill cinder, &c., 22,671 tons.

The amount of coke used during the year was 993,037 tons, comprising 499,717 tons from Canadian coal and 493,320 tons imported coke or coke made from imported coal.

The consumption of charcoal was 1,615,919 bushels.

Limestone flux was used to the extent of 569,355 tons.

In connection with blast furnace operations there were employed 1,403 men and $1,006,727 were paid in wages.

The total daily capacity of 16 completed furnaces was according to returns received 2,880 tons.

The number of furnaces in blast December 31, 1910, was 11.

The production of pig iron by provinces in 1909 and 1910 was as follows —

Province.	1909.			1910.		
	Tons.	Value.	Per ton.	Tons.	Value.	Per ton.
		$	$ cts.		$	$ cts.
Nova Scotia	345,380	3,453,800	10 00	300,287	4,203,444	12 00
Quebec	4,770	125,623	26 34	3,237	85,256	26 34
Ontario	407,012	6,002,441	14 75	447,296	6,956,930	15 55
Total	757,162	9,581,864	12 65	800,797	11,245,630	14 04

The exports of pig iron during the year are reported as 9,763 tons, valued at $296,310. Probably the greater part of this is ferro-silicon and ferro-phosphorus, produced at Welland and Buckingham, respectively.

There were imported during the year 227,753 tons of pig iron, valued at $3,122,695; 16,106 tons of charcoal pig valued at $242,152, and 18,900 tons of ferro-manganese, valued at $464,741.

Steel.—The total production of ingots and castings in 1910 was approximately 822,281 short tons, of which 803,600 tons were ingots, and 18,681 tons were castings. The figures have been partially estimated, the records of the Ontario Iron and Steel Company having been unfortunately destroyed by fire. The production in 1909 was reported as 754,719 short tons, made up of 739,703 tons of ingots and 15,016 tons of castings.

Returns from seven of the principal rolling mills report the production in 1910 of steel in the following shapes: blooms and billets 635,500 short tons; rails 399,761 tons; rods and bars 214,233 tons; miscellaneous rolled products 23,167 tons.

Statistics showing the open hearth and Bessemer steel production for four years are as follows:—

	1907.	1908.	1909.	1910.
	Tons.	Tons.	Tons.	Tons.
Ingots—Open hearth (basic)	459,240	443,442	535,988	580,932
Bessemer (acid)	225,989	135,557	203,715	222,668
Castings—Open hearth	20,602	9,051	14,013	18,083
Other steels	1,151	713	1,003	598
Total	706,982	588,763	754,719	822,281

Iron and Steel Bounties.—Following is a statement of the bounties paid on iron and steel during the calendar years 1909 and 1910 as kindly furnished by the Trade and Commerce Department. As no bounty is paid on iron made from mill cinder or ingredients other than ore, the figures do not show the total output of the furnaces but only those quantities on which bounty was paid.

	1909.		1910.	
	Quantity on which Bounty was paid.	Bounty.	Quantity on which Bounty was paid.	Bounty.
	Tons.	$ cts.	Tons.	$ cts.
Pig iron made from Canadian ore	126,297·55	214,705 80	84,758·70	76,282 83
Pig iron made from imported ore	607,718·09	425,402 64	695,891·23	278,356 52
Total, pig iron	734,015·64	640,108 44	780,649·93	354,639 35
Steel ingots	729,189·37	766,470 41	767,379 39	460,427·64
Steel wire rods	81,405·42	488,432 70	88,179·58	529,077 60
Total bounty paid on iron and steel		1,895,011 55		1,344,144 59

Asbestos.

The total shipments of asbestos in 1910 with one firm still to hear from, are reported as 75,678 tons, valued at $2,458,929, as compared with 63,349 tons, valued at $2,284,587 in 1909, an increase of about 19 per cent in tonnage and 7.6 per cent in total value.

The number of men employed in mines and mills is reported as 3,443, at a wage cost of $1,393,856. While the shipments are reported as above, the actual production was returned as 4,815 tons of crude and 91,353 tons of mill stock produced from 1,474,527 tons of asbestos rock, or a total production of 96,168 tons; stock on hand at the end of the year totalled 39,310 tons, as compared with 20,921 tons on hand at December 31, 1909.

The following tabulated statement shows the production and shipments during 1910 and the stock on hand at the end of the year:—

	Production.	Shipments.			Stock on hand Dec. 31.	
	Tons.	Tons.	Value.	Per ton.	Tons.	Value.
			$	$		$
Crude No. 1	1,971	1,688	445,130	263·70	1,605	426,782
" " 2	2,844	1,732	171,684	99·12	2,842	405,419
Mill Stock No. 1	16,026	12,830	701,681	54·69	6 [illegible],933	[illegible] 403,74
" " 2	56,321	42,612	997,987	23·42	24,541	591,752
" " 3	19,006	16,816	142,447	8·47	3,389	29,988
Total asbestos	96,168	75,678	2,458,929	32·49	39,310	[illegible]
Asbestic		24,707	17,629	0·71		1,867,6

In the absence of a uniform classification of asbestos of different grades, the above subdivisions have been adopted purely on a valuation basis. Crude No. 1 comprising material valued at $200 and upwards and Crude No. 2 under $200. Mill Stock No. 1 includes stock valued at from $45 to $100; No. 2 from $20 to $40; No. 3 under $20.

The shipments of asbestos in 1909 were in detail as follows —

Crude No. 1, 912 tons, value $246,655, or $270.37 per ton;
Crude No. 2, 2,162 tons, value $328,855, or $152.11 per ton;
Mill stock No. 1, 14,776 tons, value $785,731, or $53.18 per ton;
Mill Stock No. 2, 32,417 tons, value $800,728, or $24.70 per ton;
Mill stock No. 3, 13,082 tons, value $122,618, or $9.37 per ton;
Total, 63,349 tons, value $2,284,587, or $36.06 per ton; asbestic, 23,951 tons, value $17,188.

The exports of asbestos during the twelve months ending December, 1910, are reported by the Customs Department as 71,485 tons, valued at $2,108,632, comprising 57,939 tons, valued at $1,505,477 to the United States; 6,700 tons, value $280,452 to Great Britain; 440 tons, value $15,925 to Germany; 2,187 tons, value $94,619 to France, and 1,242 tons value $43,948 to other countries.

The imports of manufactures of asbestos during the same period are reported as valued at $230,489.

Corundum.

There was an increased production of corundum in 1910. The quantity of corundum ore treated during the year was 37,183 tons, from which was produced 1,686 tons of grain corundum. The shipments were 106 tons sold in Canada and 1,774 tons sold in other countries, a total of 1,870 tons, valued at $198,680.

Coal and Coke.

The total coal production in Canada in 1910, comprising sales and shipments, colliery consumption and coal used in making coke, is estimated at 12,796,512 short tons, valued at $29,811,750. This is an increase of 2,295,037 tons, or nearly 22 per cent over the production of 1909, and is the largest production of coal yet recorded for Canada.

There has been an increased production from practically all the larger collieries, while in the province of Alberta many new mines are being opened up and developed. The largest increases have been in the west—Alberta showing an increase of nearly 42 per cent and British Columbia over 27 per cent, while Nova Scotia shows an increase of a little over 13 per cent. The total production is almost equally divided this year between the eastern and western coal fields, while Alberta contributes about 22 per cent of the whole as compared with 10 per cent in 1905 and 5 per cent in 1900.

The production by provinces was approximately as follows, the figures for 1908 and 1909 being also given. With respect to Alberta, while the table below shows a production in 1910 of 2,824,929 tons, the Provincial Mine Inspector estimates the output at over 3,000,000 tons.

Province.	1908.		1909.		1910.	
	Tons.	Value.	Tons.	Value.	Tons.	Value.
		$		$		$
Nova Scotia	6,652,539	13,364,476	5,652,089	11,354,643	6,407,091	12,871,388
British Columbia	2,333,708	7,292,838	2,606,127	8,144,147	3,319,368	10,373,024
Alberta	1,685,661	4,127,311	1,994,741	4,838,109	2,824,929	6,161,055
Saskatchewan	150,556	253,790	192,125	296,339	190,484	293,448
New Brunswick	60,000	135,000	49,029	98,496	53,455	106,910
Yukon Territory	3,847	21,158	7,364	49,502	1,185	5,925
Totals	10,886,311	25,194,573	10,501,475	24,781,236	12,796,512	29,811,750

The exports of coal are reported by the Customs Department as 2,377,049 tons, valued at $6,077,350, as compared with exports of 1,588,099 tons in 1909, valued at $4,456,342.

Imports of coal during the year include bituminous 5,966,466 tons, valued at $11,919,-341; slack 1,365,281 tons, valued at $1,795,598, and anthracite 3,266,235 tons, valued at $14,735,062, or a total of 10,597,982 tons, valued at $28,450,001.

There was a greater importation of each class of coal than in 1909, when the total imports were 9,872,924 tons.

Coke.—The total production of oven coke in 1910 was about 897,273 short tons, as compared with a production of 862,011 tons in 1909. The total quantity of coal charged to ovens was 1,373,793 short tons. By provinces the production was, Nova Scotia, 507,996 tons; Ontario, 25,959 tons; Alberta, 121,578 tons, and British Columbia, 241,740 tons. The coke is all made from Canadian coal with the exception of that made by the Atikokan Iron Company at Port Arthur, Ontario. All of the coke produced was used in Canada with the exception of 50,922 tons sold for export to the United States, chiefly from Alberta The quantity sold for export in 1909 was 77,407 tons.

The quantity of coke imported during the calendar year was 737,088 tons, valued at $1,908,725, as compared with imports of 661,425 tons, valued at $1,508,627 in 1909.

Chromite.

No returns of production of chromite have been received but 619 tons are reported as having been shipped by rail from Coleraine and Black Lake. An export of 15 tons valued at $150 is also reported by the Customs Department.

Petroleum and Natural Gas.

The production of crude petroleum shows another large falling off in 1910, the production being only 315,895 barrels, or 11,056,337 gallons, valued at $388,550, as compared with 420,755 barrels, or 14,726,433 gallons, valued at $559,604 in 1909. The average price per barrel was also less, being about $1.23 in 1910, as compared with $1.33 in 1909.

The above statistics of production have been kindly furnished by the Trade and Commerce Department, and represent the quantities of oil on which bounty was paid, the total bounty payments being $165,845.06 in 1910 and $220,896.50 in 1909.

The production in Ontario by districts as furnished by the Supervisor of Petroleum Bounties, was, in 1910, as follows, in barrels:—Lambton, 205,456; Tilbury and Romney, 63,058; Bothwell, 36,998; Leamington, 141; Dutton, 7,752, and Onondaga (Brant county) 1,005.

The production in New Brunswick was 1,485 barrels.

In 1909 the production by districts was as follows, in barrels:—Lambton, 243,123; Tilbury and Romney, 124,003; Bothwell, 38,092; Leamington, 5,929, and Dutton, 9,513. New Brunswick produced 95 barrels.

While the production has been decreasing, the imports as might be expected have been increasing. The total imports of petroleum oils, crude and refined, in 1910 were 67,949,643 gallons, valued at $3,133,449, in addition to 1,362,235 pounds of wax and candles, valued at $80,106. The oil imports included, crude oil, 53,604,053 gallons; refined and illuminating oils, 7,656,727 gallons; lubricating oils, 3,071,257 gallons; other petroleum products, 2,607,606 gallons.

The production of natural gas was valued at $1,312,614, being $68,568 for the province of Alberta and $1,244,046 for Ontario. These values represent as closely as can be ascertained the value received by the owners of the wells for gas produced and sold or used and do not necessarily represent what the consumers have to pay for the gas, since in a number of instances the gas is re-sold once or twice by pipe line companies before reaching the consumer. In Alberta also some gas is being used by brick manufacturers for which no estimate has been obtained as to quantity or value. The total quantity of gas used in Ontario exceeded 7,036 million feet, and in Alberta over 450 million feet. A considerable flow of gas is reported from the new wells of the Maritime Oil Co., Ltd., in Albert county, New Brunswick, which it is proposed to pipe to Moncton.

Salt.

Complete returns of salt production show total sales of 84,002 tons, valued at $409,624 for the salt alone. Packages used were valued at $173,446. Stock on hand at the end of the year was reported as 2,474 tons. Two hundred and eight men were employed and $112,909 paid in wages. The production was about the same as in 1909.

Imports of salt during the calendar year were:—salt in bulk and bags dutiable, 20,174 tons, valued at $97,326, and salt free of duty 108,794 tons, valued at $364,735.

Cement.

Complete statistics have been received from the manufacturers of cement, covering their production and shipments during the year 1910. These returns show that the total quantity of cement made during the year, including both Portland and slag cement, was 4,396,282 barrels, as compared with 4,146,708 barrels in 1909, an increase of 249,574 barrels, or 6 per cent.

The total quantity of Canadian Portland cement sold during the year was 4,753,975 barrels as compared with 4,067,709 barrels in 1909, an increase of 686,266 barrels, or 16.87 per cent. The total consumption of Portland cement in 1910, including Canadian and imported cement, and neglecting an export of Canadian cement valued at $12,914, was 5,103,285 barrels, as compared with 4,209,903 barrels in 1909, or an increase of 893,382 barrels, or 21.22 per cent.

Detailed statistics of production during the past four years are shown as follows:—

	1907.	1908.	1909.	1910.
	Barrels.	Barrels.	Barrels.	Barrels.
Portland cement sold	2,436,093	2,665,289	4,067,709	4,753,975
" manufactured	2,491,513	3,495,961	4,146,708	4,396,282
Stock on hand January 1	299,015	383,349	1,098,239	1,180,231
" December 31	354,435	1,214,021	1,177,238	822,538
Value of cement sold	$3,777,328	$3,709,063	$5,345,802	$6,414,315
Wages paid	$956,080	$1,275,638	$1,266,128	$1,323,264
Men employed	1,786	3,029	2,498	2,085

The average price per barrel at the works in 1910 was $1.34, as compared with an average price of $1.31 reported for 1909, and $1.39 in 1908.

The imports of Portland cement into Canada during the twelve months ending December 31, 1910, were 1,222,586 cwt., valued at $468,046. This is equivalent to 349,310 barrels of 350 pounds at an average price per barrel of $1.34. The imports in 1909 were 142,194 barrels, valued at $166,669, or an average price per barrel of $1.17.

The imports from Great Britain during 1910 were 123,880 barrels valued at $130,951; from the United States 168,972 barrels valued at $253,463; from Belgium 19,027 barrels, valued at $20,618; and from other countries 37,431 barrels, valued at $63,014.

Following is an estimate of the Canadian consumption of Portland cement for the past six years:

Calendar Years.	Canadian.		Imported.		Total.
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.
1905	1,346,548	59	918,701	41	2,285,249
1906	2,119,764	76	665,845	24	2,785,609
1907	2,436,093	78	672,630	22	3,108,723
1908	2,665,289	85	469,049	15	3,134,338
1909	4,067,709	97	142,194	3	4,209,903
1910	4,753,975	93	349,310	7	5,103,285

Exports of the Products of the Mine, Year 1910.

(Compiled from Trade and Navigation Monthly Statements.)

Products.		Quantity.	Value.
			$
Arsenic	Lbs.	4,512,673	173,932
Asbestos	Tons.	71,485	2,108,632
Barytes	Cwt.	5	150
Chromite	Tons.	15	150
Coal	"	2,377,049	6,077,350
Feldspar	"	15,601	47,962
Gold			5,491,051
Gypsum	Tons.	346,081	416,725
Copper, fine, in ore, etc	Lbs.	56,964,127	5,840,553
Lead, in ore, etc	"	46,800	1,308
" pig	"	7,712,253	248,174
"	"	36,014,782	4,039,040
Nickel, in ore, etc	Ozs.	2,254	62,776
Platinum, in ore, concentrates, etc	"	30,699,770	15,649,537
Silver, in ore, etc	Lbs.	937,263	330,903
Mica	"	3,491,737	29,839
Mineral pigments	Galls.	16,136	7,169
Mineral water	"	2,818	462
Oil, refined			
Ores—			
Antimony	Tons.	239	14,095
Iron	"	114,499	324,186
Manganese	"	4	160
Other ores	"	9,534	641,426
Plumbago	Cwt.	15,768	53,008
Pyrites	Tons.	30,434	110,071
Salt	Lbs.	275,200	2,618
Sand and gravel	Tons.	624,824	407,974
Stone, ornamental	"	446	3,352
" building	"	63,407	18,867
" for manufacture of grindstones	"	308	338
Other products of the Mine			134,462
Manufactures—			
Bricks	M.	390	12,762
Aluminium, in bars, etc	Cwt.	77,224	1,160,242
" manufactures of			3,741
Cement			12,914
Clay, manufactures of			9,061
Coke	Tons.	57,971	250,715
Grindstones, manufactured			23,164
Gypsum, ground			12,306
Iron and Steel—			
Stoves	No.	1,058	15,832
Castings, N.E.S			51,958
Pig iron	Tons.	9,763	296,310
Machinery (linotype machines)			39,438
" N.E.S			301,961
Sewing machines	No.	17,834	188,196
Type-writers	"	5,970	409,326
Scrap iron and steel	Cwt.	233,264	171,603
Hardware, tools, etc			88,844
" N.E.S			43,472
Steel, manufactures of			1,110,925
Lime			44,762
Metals, N.O.P			133,426
Plumbago, manufactures of			66,058
Stone, ornamental			5,272
" building			80
Total			46,679,238

THE MINERAL PRODUCTION OF CANADA IN 1909.

(Revised.)

Product.		Quantity.	Value. (*b*)	Per cent of Total.
METALLIC.		$	$	%
Antimony ore	Tons*	35	1,575	
Antimony, refined	Lbs.	61,207	4,285	
Cobalt (*k*)	"		94,609	0·10
Copper (*c*)	"	52,493,863	6,814,754	7·42
Gold	Ozs.	453,865	9,382,230	10·22
Pig iron from Canadian ore (*d*)	Tons.	149,444	2,222,215	2·42
Iron ore (*a*)	"	21,956	61,954	
Lead (*e*)	Lbs.	45,857,424	1,692,139	1·84
Nickel (*f*)	"	26,282,991	9,461,877	10.30
Silver (*g*)	Ozs.	27,529,473	14,178,504	15·44
Zinc ore	Tons.	18,371	242,699	0·26
Total			44,156,841	48.08
NON-METALLIC.				
Arsenic	Tons.		67,446	
Asbestos	"	63,349	2,284,587	2·49
Asbestic	"	23,951	17,188	
Chromite	"	2,470	26,604	
Coal	"	10,501,475	24,781,236	26.99
Corundum	"	1,491	162,492	0·18
Feldspar	"	12,783	40,383	
Graphite	"	864	47,800	
" artificial	"	257		
Grindstones	"	4,275	54,664	
Gypsum	"	473,129	809,632	0·88
Magnesite	"	330	2,508	
Mica	"	369	147,782	0·16
Mineral pigments—Barytes	"	179	1,120	
" Ochres	"	3,940	28,093	
Mineral water			175,173	0·19
Natural gas (*h*)			1,207,029	1.31
Peat	Tons.	60	240	
Petroleum (*i*)	Brls.	420,755	559,604	0·61
Phosphate	Tons.	998	8,054	
Pyrites	"	64,644	222,812	0.24
Quartz	"	56,924	71,285	
Salt	"	84,037	415,219	0·45
Talc	"	4,350	10,300	
Total			31,141,251	33·91

* Short tons throughout.

(*a*) Exports.

(*b*) The metals, copper, lead, nickel and silver are for statistical and comparative purposes valued at the final average value of the refined metal. Pig iron is valued at the furnace, and non-metallic products at the mine or point of shipment.

(*c*) Copper content of smelter products and estimated recoveries from ores exported, at 12.982 cents per pound.

(*d*) The total production of pig iron in Canada in 1909 was 757,162 tons, valued at $9,581,864, of which it is estimated 607,718 tons valued at $7,359,649 should be credited to imported ores.

(*e*) Refined lead and lead contained in base bullion exported at 3·690 cents per pound, the average price for the year in Toronto.

(*f*) Nickel content of matte produced at 36 cents per pound (the average minimum quotation for nickel in New York less 10 per cent). The value of the nickel contained in matte was, as returned by the operators $2,810,748 or an average per pound of 10·7 cents.

(*g*) Estimated recoverable silver at 51·503 cents per ounce.

(*h*) Gross returns for sale of gas.

(*i*) Quantity on which bounty was paid and valued at $1.33 per barrel.

(*k*) Value received by shippers of silver cobalt ores for cobalt content.

THE MINERAL PRODUCTION OF CANADA IN 1909—*Concluded.*

(Revised.)

Product.		Quantity.	Value. (*b*)	Per cent of Total.
STRUCTURAL MATERIALS AND CLAY PRODUCTS.			$	%
Cement, Portland	Brls.	4,067,709	5,345,802	5·82
Clay Products—				
Bricks, Common	No.	539,228,708	4,212,424	4·59
" Pressed	"	57,264,656	630,677	0·69
" Paving	"	3,759,803	67,408	.....
" Moulded and ornamental		.....	8,866	.....
Fireclay and fireclay products		.....	78,132	.....
Fire-proofing and architectural terra cotta		.....	113,886	0·12
Pottery		.....	285,285	0·31
Sewer pipe		.....	645,722	0·70
Tiles, drain	No.	27,571,097	408,440	0·44
Lime	Bush.	5,592,924	1,132,756	1·23
Sand lime-brick	No.	27,052,864	201,650	0·22
Sand and gravel (exports)	Tons.	481,584	256,166	0·28
Slate	Squares.	4,000	19,000	.....
Stone—				
Granite		.....	454,824	0·50
Limestone		.....	2,139,691	2·33
Marble		.....	158,441	0·17
Sandstone		.....	374,179	0·41
Total, structural material, etc		.....	16,533,349	18·01
" all other non-metallic		.....	31,141,251	33·91
Total, non-metallic		.....	47,674,600	51·92
" metallic		.....	44,156,841	48·08
Total value, 1909		.....	91,831,441	100·00

ANNUAL MINERAL PRODUCTION IN CANADA, SINCE 1886.

Year.	Value of production.	Value per capita.	Year.	Value of production.	Value per capita.
	$	$ cts.		$	$ cts.
1886	10,221,255	2 23	1899	49,234,005	9 27
1887	10,321,331	2 23	1900	64,420,877	12 04
1888	12,518,894	2 67	1901	65,797,911	12 25
1889	14,013,113	2 96	1902	63,231,836	11 55
1890	16,763,353	3 50	1903	61,740,513	11 03
1891	18,976,616	3 92	1904	60,082,771	10 36
1892	16,623,415	3 39	1905	60,078,999	11 35
1893	20,035,082	4 04	1906	79,286,697	12 55
1894	19,931,158	3 98	1907	86,865,202	13 35
1895	20,505,917	4 05	1908	85,557,101	12 32
1896	22,474,256	4 38	1909	91,831,441	12 82
1897	28,485,023	5 49	1910	105,040,958	14 02
1898	38,412,431	7 32			