CANADA

DEPARTMENT OF TRADE AND COMMERCE

DOMINION BUREAU OF STATISTICS

MINING, METALLURGICAL AND CHEMICAL BRANCH

PRELIMINARY REPORT

on the

MINERAL PRODUCTION

of

CANADA

1941

Published by Authority of the Hon. James A. MacKinnon, M.P.,
Minister of Trade and Commerce.

OTTAWA

1942

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Minister of Trade and Commerce

2-6-3-42
Price -
10 cents

DEPARTMENT OF TRADE AND COMMERCE
DOMINION BUREAU OF STATISTICS
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OTTAWA - CANADA

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PRELIMINARY REPORT ON THE MINERAL PRODUCTION OF CANADA IN 1941

The value of production from Canadian mines in 1941 totalled $560,746,875; this is the highest ever recorded and is an increase of 5.8 per cent over 1940. Gains were reported for all groups; metals reached $395,372,577, an increase of 3.4 per cent; fuels, $84,548,486, up 7.2 per cent; industrial minerals, $34,123,685, 31.2 per cent over 1940, and structural materials, $46,702,127, or 11 per cent over last year.

VALUES OF MINERAL PRODUCTION OF CANADA, BY CLASSES, 1932 - 1941

Year	Metallics	Coal, natural gas, peat and crude petroleum	Other non-metallics	Clay products and other structural materials	TOTAL
	$	$	$	$	$
1932	112,041,763	49,047,342	7,740,837	22,398,283	191,228,225
1933	147,015,593	47,778,436	10,004,537	16,696,687	221,495,253
1934	194,110,963	54,262,099	10,501,762	19,286,761	278,161,590
1935	221,800,849	54,824,200	12,504,008	23,215,400	312,344,457
1936	259,425,194	59,983,320	16,740,117	25,770,741	361,919,372
1937	334,165,243	65,828,879	22,495,271	34,869,699	457,359,092
1938	323,075,154	64,803,294	20,066,123	33,878,666	441,823,237
1939	343,506,123	70,671,328	25,061,849	35,362,759	474,602,059
1940	382,503,012	78,837,874	26,011,498	42,472,651	529,825,035
1941	395,372,577	84,548,346	34,123,685	46,702,127	560,746,875

MINERAL PRODUCTION, BY PROVINCES, 1940 - 1941

	1940	1941 (Preliminary)
	$	$
Nova Scotia	33,318,587	32,620,508
New Brunswick	3,435,916	4,177,036
Quebec	86,313,491	99,668,216
Ontario	261,483,349	266,889,934
Manitoba	17,828,522	17,280,517
Saskatchewan	11,505,858	15,433,673
Alberta	35,092,337	41,014,161
British Columbia	74,134,485	76,697,091
Yukon	4,118,333	3,117,991
Northwest Territories	2,594,157	3,847,748
TOTAL	529,825,035	560,746,875

PRELIMINARY SUMMARY OF THE MINERAL PRODUCTION OF CANADA - 1941
WITH COMPARATIVE TOTALS FOR 1940

		1940 (Final)		1941	
		Quantity	Value	Quantity	Value
			$		$
METALLICS					
Antimony, bismuth, cadmium, chromite, cobalt, manganese, magnesium, molybdenum, tungsten	...	...	2,796,522	...	2,369,801
Copper, nickel, lead, zinc	...	...	155,922,881	...	165,944,166
Gold	fine oz.	5,311,145	204,479,083	5,351,689	206,040,026
Silver	fine oz.	23,833,752	9,116,172	21,754,798	8,323,603
Other precious metals	...	...	7,761,108	...	8,145,692
Miscellaneous - Arsenic, iron ore, mercury, radium, selenium, tellurium, titanium ore, uranium	...	...	2,427,246	...	4,549,289
TOTAL	...	...	382,503,012	...	395,372,577
NON-METALLICS					
Fuels					
Coal	ton	17,566,884	54,676,993	18,222,107	57,995,503
Natural gas	M cu.ft.	41,252,125	13,000,593	39,213,386	12,356,067
Peat	ton	30	75	500	2,350
Petroleum, crude	brl.	8,590,978	11,160,213	10,124,613	14,194,566
TOTAL	...	...	78,837,874	...	84,548,486
Industrial Minerals					
Asbestos, fluorspar, graphite, magnesitic-dolomite, mica, sulphur	...	...	18,205,399	...	24,516,593
Barytes	ton	338	4,819	6,661	73,168
Diatomite	tons	248	7,957	344	9,935
Feldspar, nepheline-syenite	...	...	305,472	...	474,534
Grindstones	tons	341	14,543	(a)	(a)
Gypsum	tons	1,448,788	2,065,933	1,590,321	2,947,361
Iron oxides	tons	9,979	111,874	10,045	142,069
Magnesium sulphate	tons	...	...	(a)	(a)
Mineral waters	Imp.gal.	140,663	20,892	169,664	67,151
Phosphate	tons	358	4,039	2,487	33,376
Quartz	tons	1,858,302	1,203,527	2,026,299	1,326,765
Salt	tons	464,714	2,823,269	560,827	3,008,281
Silica brick	M	3,438	182,786	4,145	240,411
Sodium carbonate	tons	220	1,760	186	1,488
Sodium sulphate	tons	94,260	829,589	115,601	931,554
Talc and soapstone	...	...	229,639	...	350,989
TOTAL	...	...	26,011,498	...	34,123,685
CLAY PRODUCTS AND OTHER STRUCTURAL MATERIALS					
Clay products (brick, tile, sewer pipe, etc.)	...	...	6,344,547	...	7,572,040
Cement	bbls.	7,559,648	11,775,345	8,368,711	13,063,588
Lime	tons	716,730	5,194,555	862,845	6,397,047
Sand and gravel	tons	31,375,415	11,759,245	31,914,550	11,839,623
Stone	tons	7,447,665	7,398,959	7,904,475	7,829,829
TOTAL	...	...	42,472,651	...	46,702,127
GRAND TOTAL	...	...	529,825,035	...	560,746,875

(a) Data not yet available.

Owing to wartime censorship, no figures are permitted to be published on the production of base metals or certain industrial minerals which play such an important part in the allied war effort. It is sufficient to say that Canadian base metal mines, smelters, and refineries worked to capacity during the year.

It has been announced by the International Nickel Company that an expenditure of approximately $35,000,000 will be made in a production-expansion program to be completed in 1943. The Falconbridge Nickel Mines undertook extensive additions to the various units of their plant to provide for increased capacity, thus every effort is being made to supply the allied war machine with nickel.

In addition to maximum outputs of copper, lead and zinc, plans to produce other metals of strategic importance were in evidence. One of the most outstanding was the announcement that a plant to produce magnesium metal from dolomite will be built near Renfrew, Ont. The process to be used was worked out by Dr. L. M. Pidgeon at the National Research Council Laboratories in Ottawa; also a plant has been erected at Farm Point, Que. a short distance north of Ottawa, to extract brucite from brucite-bearing limestone which occurs in that vicinity. It is proposed to use the brucite in the manufacture of refractory materials and it also may be mentioned that this mineral is a potential source of magnesium metal. The process which will be used to separate the brucite from the limestone was developed by Mr. M. F. Goudge in the laboratories of the Federal Department of Mines.

Plans are under way for the recovery of tin which occurs in small quantities in the Sullivan lead-zinc ores of the Consolidated Mining & Smelting Company.

During the past two years members of the staff of the Geological Survey of Canada have made extensive investigations into the possibilities of the location of manganese deposits in different parts of Canada. Considerable interest is in evidence in New Brunswick and Nova Scotia and two 100 ton mills for concentrating manganese ore were erected in the former province.

Tungsten is another metal of very strategic importance. It occurs in many parts of Canada in association with gold ores, and during the past year shipments of tungsten ores have been made to the Department of Mines for treatment. The Hollinger mine at Timmins is now erecting a small plant for the recovery of Scheelite.

At the beginning of the war practically no mercury was produced in Canada, but now, owing to the development of a property at Pinchi Lake, B.C. by the Consolidated Mining & Smelting Company, Canada is now able to produce more than enough to meet her own requirements.

Considerable interest seems to be in evidence toward the increased production of zinc from various Canadian properties. On the former Quebec-Manitou property, east of Val D'Or, a 600-ton concentrator is being built to treat the gold-zinc ore. Underground development is also being carried on at the old Calumet zinc property. In British Columbia, the Zincton Mines Limited came into production in September, exporting zinc concentrates to the United States, and the Lake Geneva Mining Corporation, in Ontario, also began exports of concentrates in August.

Iron ore was produced in larger quantities than in the previous year. Production from the Helen mine, in the Michipicoten area, which is operated by the Algoma Ore Properties, a subsidiary of the Algoma Steel Corporation, was larger than in the preceding year, and further drilling has been done at the old Josephine mine, northeast of the Helen. Proposals of various methods for the drainage of Steep Rock Lake, near Atikokan, Ont., under which is known to be an extensive deposit of high-grade iron ore, have been considered and the financing of this proposition is going forward.

Chromium metal is one of considerable strategic importance, and deposits of chrome ore occur in the Eastern Townships of Quebec. Chromite Limited, at St. Cyr, Que., has been shipping chromite to the Chromium Mining & Smelting Company, Sault Ste. Marie, Ont., where it is used in the manufacture of chromium alloys, and a 50-ton concentrator has been erected for the purpose of enlarging the development on this property.

Antimony metal is produced at Trail, B.C. by the Consolidated Mining & Smelting Company. Cadmium is also produced at Trail, and at Flin Flon, Man. Selenium and tellurium are recovered at the copper refineries of the Ontario Refining Company, Copper Cliff, Ont., and Canadian Refiners Limited, at Montreal East, Que. Molybdenum, in the form of molybdic oxide, is produced at Quyon, Que. by Quyon Molybdenite Limited.

Part of the production of cobalt ores from the Cobalt camp was exported and the remainder was shipped to the Deloro Smelting & Refining Company, Deloro, Ont. It was anticipated shortly after the war started that the demand for cobalt would be large and that the Canadian cobalt mines would not be able to produce sufficient ores to meet the wartime requirements. With the conquest of Belgium by Germany, the cobalt reduction works in that country were cut off from the African producers. Arrangements were accordingly made to treat the cobalt residues or "alloy" from African copper mines in Canada and the United States, with the result that the Canadian plant which formerly operated on Ontario ores is now treating these foreign ores only and is stock-piling shipments from Ontario mines.

With the cessation of the treatment of arsenical ores of cobalt, and with the increased demand for arsenic, residues from roaster plants of northern Quebec gold mines treating arsenical gold ores, were shipped to the Deloro Smelting & Refining Company Limited for the recovery of arsenic, and the province of Quebec can now be credited with an output of commercial arsenic for the first time.

GOLD PRODUCTION, BY PROVINCES, 1940 - 1941

	1940		1941	
	fine oz.	Value	fine oz.	Value
		$		$
Nova Scotia	22,219	855,432	19,170	738,045
Quebec	1,019,175	39,238,238	1,088,860	41,921,110
Ontario	3,261,688	125,574,988	3,190,786	122,845,260
Manitoba	152,295	5,863,357	150,525	5,795,135
Saskatchewan	102,925	3,962,613	138,004	5,313,154
Alberta	215	8,277	215	8,277
British Columbia	617,011	23,754,924	615,838	23,709,763
Northwest Territories..	55,159	2,123,621	77,334	2,977,359
Yukon	80,458	3,097,633	70,959	2,731,922
TOTAL	5,311,145	204,479,083	5,351,689	206,040,026

Notwithstanding the fact that Canada's base metal production plays an important role in the mining picture, from point of value, gold output holds the leading position in the industry. Gold production totalled 5,351,689 fine ounces valued at $206,040,026 and represented 52 per cent of the total value of the metal production of the country, and 37 per cent of the total value of all minerals produced. The yellow metal is produced in every province with the exception of Prince Edward Island and New Brunswick. Monthly production was well maintained throughout the year until November and December, when the Kirkland Lake strike impeded output. Canadian output for the year was only 0.8 per cent over 1940, and the immediate future of gold mining would indicate that production will not increase, but may possibly decrease. Unlike other commodities, the price of gold does not fluctuate, particularly when the price and exchange rate are fixed. Cost of supplies and wages have risen and the margin of profit will be less than in former years. It is interesting to note, however, that several new properties came into production during 1941, notably in the Northwest Territories where the Ptarmigan, Slave Lake, and Thompson Lundmark reported outputs for the first time. In Ontario, the principal new producers were the Hoyle and Nakhodas mines in the Porcupine camp, and the Jerome in the Sudbury district.

Silver production totalled 21,754,798 fine ounces. Silver, as a rule, occurs with most other metals and the principal producing silver mine in Canada is the Sullivan silver-lead-zinc mine in British Columbia, which is owned by the Consolidated Mining & Smelting Company. The Cobalt camp in Ontario was for many years the principal source of Canadian silver, but the nickel-copper ores of the Sudbury District now account for a large part of the provincial output. British Columbia mines accounted for 51.6 per cent of the total silver output of the Dominion, Ontario 23 per cent, Manitoba and Saskatchewan combined, 14 per cent, and Quebec 7.6 per cent.

Platinum metals, including platinum, palladium, iridium, rhodium and osmium are produced in association with the nickel-copper ores of the Sudbury district and Canada leads the world in the production of platinum. Radium and uranium salts were produced at Port Hope, Ont. from concentrates that had been previously shipped from the radium property of the Eldorado Gold Mines Ltd. at Great Bear Lake which closed down in July, 1940. It is understood that the Company anticipates reopening the mine this year.

FUELS

Coal production totalled 18,222,107 short tons valued at $57,995,503, an increase of 3.7 per cent in quantity and 6.1 per cent in value over 1940. Nova Scotia mines accounted for 40.5 per cent of the total and Alberta mines 38 per cent. The remainder was produced in British Columbia, Saskatchewan, New Brunswick and Manitoba, in the order named.

OUTPUT AND VALUE OF COAL IN CANADA, BY KINDS AND BY PROVINCES, 1940 and 1941
(Short tons)

Provinces	1940 Output	1940 Value $	1941 Output	1941 Value $
Nova Scotia (bituminous)	7,848,921	28,766,195	7,386,975	28,444,180
New Brunswick (bituminous) ...	547,064	1,961,863	523,299	2,015,716
Manitoba (lignite)	1,697	4,037	1,246	3,411
Saskatchewan (lignite)	1,097,517	1,408,540	1,319,899	1,707,844
Alberta -				
Bituminous	3,069,206	8,465,642	3,671,357	10,431,614
Sub-bituminous	598,686	1,569,771	585,453	1,593,549
Lignite	2,535,947	6,342,546	2,713,036	7,357,113
Total	6,203,839	16,377,959	6,969,846	19,382,276
British Columbia (bituminous).	1,867,846	6,157,250	2,020,842	6,442,076
CANADA -				
Bituminous	13,333,037	45,350,950	13,602,473	47,333,586
Sub-bituminous	598,686	1,569,771	585,453	1,593,549
Lignite	3,635,161	7,755,123	4,034,181	9,068,368
Total	17,566,884	54,675,844	18,222,107	57,995,503

Natural gas output showed a decline from 41,232,125 thousand cubic feet in 1940 to 39,213,386 thousand cubic feet in 1941. Alberta wells accounted for 26,365,770 thousand cubic feet and Ontario wells 12,131,895 thousand cubic feet. Wells in New Brunswick and Saskatchewan made up the remainder.

Production of crude petroleum rose to over 10,000,000 barrels, of which 9.9 millions were produced in Alberta. In addition to the greater output during the year, consideruble activity was experienced in new drilling, particularly in the northern extension of the Turner Valley. There was also a reported production of crude oil and its derivatives from the bituminous sands of Alberta. Unfortunately, towards the close of the year part of the plant used for this extraction was destroyed by fire. Production from Ontario wells was not as great as in 1940.

The value of production of non-metallics other than fuels aggregated over $34,000,000 as against $26,000,000 in 1940. Canada has been for years the largest producer of asbestos in the world; fluorspar deposits in various parts of the country have been investigated and shipments have been made to steel mills; feldspar exports and Canadian consumption were higher. Canadian mica plays an important role in war industry. The magnesitic-dolomite deposits at Kilmar, Que. are worked up into various refractories. Sulphur in the elemental form, in pyrites shipped from the mines, and in sulphuric acid made from waste smelter gas, is an important strategic material. A discovery of a large barite deposit in Nova Scotia in the fall of 1940 has led to the development of a new mining industry in that province. Production in 1941 totalled 6,561 tons, the greater part of which was shipped to the West Indies where it is used in oil well drilling operations. Domestic markets are also being investigated.

More gypsum is produced in Nova Scotia than in any other province, a large part of which is exported. Production of gypsum is also reported from New Brunswick, Ontario, Manitoba and British Columbia.

Salt is produced in Ontario, Manitoba, and Alberta from salt wells and in Nova Scotia by mining methods. Production totalled 560,827 tons valued at $3,008,281. In Ontario, a large heavy chemical industry has been built up near some of the wells; the amount used for the production of the chemicals being 46 per cent of the total output.

The output of nepheline-syenite was greater than in 1941. Its principal use is in the manufacture of glass as its aluminium content is said to toughen the product. Sodium sulphate was produced in larger quantities; the production of silica brick was greater than last year; quartz output was higher. Graphite, soapstone, talc, phosphate,

diatomite, iron oxides, mineral waters and sodium carbonate were also produced.

Structural materials, including brick, cement, lime, stone, and sand and gravel all showed gains over 1940. Clay products totalled $7,572,040, a gain of 20 per cent; cement production reached 8,368,711 barrels, a rise of 10.7 per cent; lime production reached 862,845 tons as compared with 716,730 tons in 1940; stone totalled 7,904,475 tons, a gain of 6 per cent, and sand and gravel output was valued at $11,839,623 as compared with $11,752,245 in the previous year.

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