

PRELIMINARY STATEMENT
ON THE
MINERAL PRODUCTION
OF THE
PROVINCE OF QUEBEC

PROVINCE OF QUEBEC, CANADA

Department of Mines and Fisheries

Honourable O. GAGNON, Minister

L.-A. RICHARD, Deputy-Minister

BUREAU OF MINES

A.-O. DUFRESNE, Director

PRELIMINARY STATEMENT
ON THE
MINERAL PRODUCTION
OF THE
PROVINCE OF QUEBEC

in the Calendar Year

1938



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Honourable Onésime Gagnon, P.C., K.C.,
Minister of Mines and Fisheries,
Quebec.

SIR,

The undersigned begs leave to submit to you the Preliminary Statement on the mineral production of the Province of Quebec during the calendar year 1938.

The purpose of this advance report is to present, to the interested public, the figures of production at as early a date as possible after the close of the year, as statistics gain much in usefulness by an early publication. The figures are given "subject to revision", as our returns are not quite complete; the difference with final figures however is not great, being usually well below one per cent. The statistics as finally established will be given, as in past years, in the annual report of the Quebec Bureau of Mines entitled Mining Industry and Statistics during the year 1938, which will follow later on, and in which will also be found detailed notes on the mines, lists of geological field-parties, inspection of mines and mining accidents.

The ton used throughout is that of 2000 pounds, except when otherwise mentioned. Values are given in Canadian funds.

I have the honour to be, Sir,

Your obedient servant,

A. O. DUFRESNE,

Director.

QUEBEC BUREAU OF MINES,
Quebec, March 1st, 1939.

PRELIMINARY STATEMENT
ON THE
MINERAL PRODUCTION
OF THE
PROVINCE OF QUEBEC
FOR THE CALENDAR YEAR
1938

For the last six years the curve of the yearly value of the production of the mines and quarries of the Province of Quebec shows an unbroken continuously rising curve. In the last three years successive new high records have been established. For 1938 it reached \$68,256,308 as compared with \$65,203,976 for the preceding year 1937.

If we consider the unsettled economic conditions which prevailed throughout the world during the last year, the result is satisfactory. On analysis of the figures for 1938 it is observed that in the metal group of mineral products there has been an increase of 11.7 per cent in the value in 1938, as compared with the 1937 figures; of the other two classes, the non-metallics show an appreciable falling off while the building materials advanced slightly.

The increase in value of the metallic group is to be credited to gold, a non industrial metal. While it is gratifying to see our gold industry grow apace, it would have been a source of great satisfaction to record a parallel increase in the value of production of base metals. Unfortunately the improvement in the prices of copper, lead and zinc which had been a feature of the metal market during the greater part of the year 1937, received a set-back in 1938. The yearly average prices of the three metals sagged as follows: copper, from 13.469 cents a pound in 1937 to 9.972 in 1938; lead, from 5.799 to 3.344 cents; zinc, from 5.593 to 3.073 cents.

ANNUAL VALUE OF THE MINERAL PRODUCTION OF THE PROVINCE
OF QUEBEC, 1927 to 1938

YEAR	VALUE	YEAR	VALUE
1927	\$29,124,110	1933	\$28,164,540
1928	37,325,237	1934	31,310,752
1929	46,454,820	1935	39,141,734
1930	41,158,740	1936	49,755,985
1931	36,051,366	1937	65,203,976
1932	25,683,066	1938	68,256,308

In the non-metallic substances, we record decreases all along the list. Asbestos remains our principal item in this group. Although both the quantity and the value of asbestos produced in 1938 show a falling off as compared with 1937, the year's operations were satisfactory. Magnesitic dolomite, feldspar, mica, soapstone have also suffered substantial decreases.

As a whole, the value of non-metallics in 1938 shows a falling off of 15 per cent as compared with the 1937 figures, which, it may be added, were the highest recorded in the history of mining in the Province.

In the mineral building materials class, a slight increase was recorded from \$9,355,941 in 1937 to \$10,157,401 in 1938, an advance of 8½ per cent.

SUBDIVISION OF QUEBEC'S MINERAL PRODUCTION
FOR THE YEARS 1934-1938

YEAR	METALS	%	NON-METALLICS	%	BUILDING MATERIALS	%
1934	\$19,258,094	61	\$6,579,453	21	\$5,473,205	18
1935	23,804,792	61	8,824,178	22	6,512,764	17
1936	30,643,787	62	12,388,178	25	6,724,020	13
1937	38,615,175	59	17,232,860	27	9,355,941	14
1938	43,152,345	63	14,946,562	22	10,157,401	15

TABLE OF THE MINERAL PRODUCTION OF THE PROVINCE OF QUEBEC
DURING 1938

SUBSTANCES	PRODUCTION IN 1938		VALUE IN 1937
	QUANTITIES	VALUE	
METALLICS:			
Chrome.....		\$.....	\$ 3,286
Copper, lb.....	112,645,797	11,233,039	12,378,737
Gold (in Canadian funds), ounces....	875,285	30,788,150	24,894,755
Lead.....			77,732
Selenium, lb.....	217,952	378,147	360,759
Silver, ounces.....	1,188,426	516,692	407,784
Tellurium, lb.....	41,577	71,512	45,739
Titaniferous iron ore, tons.....	207	1,449	26,432
Zinc, lb.....	5,315,852	163,356	419,951
Sub-totals.....		\$ 43,152,345	\$ 38,615,175
NON-METALLICS:			
Asbestos, tons.....	289,793	\$ 12,890,195	\$ 14,505,541
Feldspar, tons.....	5,944	63,304	105,612
Industrial lime, tons.....	121,993	703,886	796,970
Industrial limestone, tons.....	122,909	155,365	210,828
Magnesitic dolomite.....		465,035	677,207
Marl, tons.....	21,607	8,643	13,171
Mica, lb.....	390,318	72,058	124,594
Mineral paints (iron oxide, ochre), tons	4,888	65,459	77,883
Mineral water, gals.....	159,104	18,833	19,697
Peat, tons.....	526	16,518	17,121
Phosphate, tons.....	208	1,886	900
Pyrite, tons.....	33,179	135,091	194,496
Quartz and industrial sand, tons....	85,153	315,251	448,327
Talc and soapstone.....		35,038	40,513
Sub-totals.....		\$14,946,562	\$ 17,232,860
BUILDING MATERIALS:			
Building lime, tons.....	15,179	\$ 137,032	\$ 110,173
Building limestone, tons.....	1,645,110	1,460,144	1,272,567
Cement, barrels.....	2,730,320	3,693,188	3,537,798
Clay products { Brick, M.....	48,249	766,379	825,596
{ Other.....		255,266	226,996
Granite, tons.....	124,576	553,123	611,023
Marble, tons.....	7,035	40,747	39,423
Sand and gravel, tons.....	11,710,281	3,180,199	2,637,495
Sand-lime brick, M.....	1,952	23,389	28,415
Sandstone, tons.....	45,183	46,825	65,424
Slate and shale, tons.....	791	1,109	1,031
Sub-totals.....		\$10,157,401	\$ 9,355,941
TOTALS.....		\$68,256,308	\$ 65,203,976

Two important events took place this year in the Rouyn-Harricana region: a vocational mine-school was organized in Abitibi by the Quebec Bureau of Mines and the Quebec Youth Aid, with the assistance of the Federal authorities; and the branch of the Canadian National railways from Senneterre to Rouyn, in Abitibi and Témiscamingue counties, was completed and opened to traffic in December.

For the mine-school a small mine which had been put up at sheriff's sale was acquired, and put in working order, to train young men possessing an elementary education, as mine workmen. The "apprentices" carry out mucking, drilling, blasting, timbering and other underground work under the guidance of expert miners, and after a six months course they are prepared to fill such positions in the operating mines at regular current wages.

In December the branch line of the Canadian National Railways from Rouyn to Senneterre, was formally opened to traffic. This line, which is 101 miles in length, serves ten townships, in which there are at present 16 operating mines which have an aggregate milling capacity of approximately 5,600 tons of ore a day.

METALS

The Province of Quebec produced the following metals in 1938, enumerated in the order of their importance as regards value: gold, copper, silver, selenium, zinc, tellurium, titaniferous iron ore. In 1938, the value of the Quebec metal production was \$43,152,345 as compared with \$38,615,175 in 1937, a proportional increase of 11.7 per cent.

Before the coming into production of the metal mines of Western Quebec, which began shipping about twelve years ago, the metallic output of the Province of Quebec was very irregular and consisted, in the main, of copper ores from the Sherbrooke district, zinc and lead from Portneuf county, all of which contained a little gold and silver recovered as by-products. For the five years 1921 to 1925, preceding the coming into production of the Western Quebec mines, the average yearly value of our metal production was but \$325,000. For the following five years, 1926 to 1930 it exceeded \$8,000,000. Since then, it has advanced year by year, to reach an all time record of \$43,152,345 in 1938, of which 99 per cent is to be credited to Western Quebec mines.

Gold.—Returns of production of gold were received from thirty operating companies; of these, eight mines are new producers; *East Malartic, Francœur, Halliwell, Lapa Cadillac, Lake Rose, Pan-Canadian, Payore, Sladen-Malartic*; all but one of the new mines are situated in the Rouyn-Harricana region in Western Quebec.

Since 1926, when the first shipment of gold was effected from a Western Quebec mine, each year has seen a new record established in the Quebec annual production of gold, the curve presenting an unbroken upward trend. In 1938 it reached 875,285 ounces, valued at \$30,788,150 a proportional increase of 23 per cent as compared with 1937, when it was 711,482 ounces, valued at \$24,894,755.

Alluvial Gold.—A little prospecting for alluvial gold was carried out in Beauce county on the Famine river, and also in Compton county on the Salmon river. A very small production was reported but was not sold.

LIST OF THE PRINCIPAL MINES WHICH PRODUCED GOLD IN 1938

PROPERTY	ORE RAISED TONS	ORE TREATED TONS	GOLD RECOVERED FINES OUNCES	SEE FOOT-NOTE
Aldermac mine (3).....	358,349	358,902	2,162	(c)
Arntfield mine.....	97,982	95,259	9,707	(b)
Beattie mine.....	606,040	606,040	64,920	(b)
Belletierre mine.....	28,395	26,878	4,365	(b)
Canadian Malartic mine.	243,640	243,640	32,122	(b)
Cournor mine.....	74,000	(1) 61,788	7,679	(b)
East Malartic mine.....	44,334	44,334	5,568	(b)
Franceeur mine.....	22,299	22,299	3,466	(c)
Halliwell mine.....	2,718	2,718	1,165	(b)
Lake Rose mine.....	4,500	3,806	2,199	(a) (b)
Lamaque mine.....	393,715	393,715	129,357	(b)
Lapa Cadillac mine.....	21,338	21,338	1,474	(a)
McWatters mine.....	36,145	(2) 34,044	11,282	(a) (b)
Noranda mine (3).....	1,996,436	1,998,437	297,487	(c)
Normetal mine (3).....	110,685	110,685	2,072	(c)
O'Brien mine.....	55,795	55,628	40,938	(a) (b)
Pan-Canadian mine.....	8,837	5,837	1,072	(a)
Payore mine.....	4,113	4,764	451	(a)
Perron mine.....	186,410	124,247	35,614	(b)
Powell Rouyn mine.....	159,430	159,430	25,567	(c)
Shawkey mine.....	49,574	41,761	6,566	(a) (b)
Sigma mine.....	201,176	224,861	51,485	(b)
Siscoe mine.....	215,174	187,767	66,788	(a) (b)
Sladen-Malartic mine....	103,709	103,709	16,925	(b)
Stadacona mine.....	157,497	157,497	22,137	(b)
Sullivan mine.....	65,174	65,174	22,453	(a) (b)
Thompson Cadillac mine	71,711	78,247	6,556	(a)
Waite-Amulet:—				
Amulet mine (3).....	103,911	123,779	1,834	(c)
Waite mine (3).....	43,236	22,895	1,680	(c)
Other mines.....	194	
Total.....			875,285	

(a) Amalgamation; (b) cyanidation; (c) Smelter.

(1) Treated 6,460 tons of tailings in addition.

(2) Treated 3,514 tons of tailings in addition.

(3) These mines are on complex ore deposits and produce also base metals.

Copper.—The production of copper metal in 1938 amounted to 112,645,797 pounds, valued at \$11,233,039. Compared with 1937, it is an increase of 19 per cent in tonnage, but owing to the lower market price of copper, there is a decrease of 10 per cent in value.

Returns were received from six mines, as follows, enumerated in alphabetical order: Aldermac, Amulet, Eustis, Noranda, Normetal, Waite. All of these, with the exception of the Eustis which is in the Sherbrooke district, are situated in Western Quebec. The Rouyn-Harricana mining field, in 1938, is to be credited with approximately 97 per cent of the total production of copper of the Province of Quebec.

The Western Quebec mines which operate on complex ores, copper-gold-zinc, also produce the metals selenium and tellurium as well as some silver.

The following notes on some of the metal mines of Western Quebec, were abstracted from the periodical reports made by the Inspector of Mines for the Rouyn-Harricana district, Mr. R. H. Taschereau:

The Horne mine, in Rouyn township, operated by *Noranda Mines, Ltd.* easily remains the "premier" metal mine of the Province. It was the third largest producer of gold in Canada in 1937 and from present indications it will retain its rank in 1938; it is also one of the most important producers of copper. *Waite-Amulet Mines, Ltd.*, continued to operate both its mines, the Waite and the Amulet. An aerial tramway was constructed from the Waite to the Amulet mill, which now daily treats 450 tons of ore from the Waite mine. The *Aldermac* mill was treating 1,000 tons a day. The resulting copper concentrate was sold, and the pyrite concentrate was stored pending the erection of a plant to produce elemental sulphur; construction on the first unit of this plant was started at the end of the year. The *Normetal* mine was in continuous operation throughout the year; the capacity of the mill was increased from 250 to 500 tons a day, the copper concentrate being shipped to the Noranda smelter; some shipments of zinc concentrate were made to Europe.

The Western Quebec gold-quartz mines, as distinguished from the mines operating on complex-sulphides deposits, have been very active throughout 1938. At the *Francœur* mine a 150-ton mill was erected and production started in the summer. The *Arntfield* mine and mill were operated continuously. A small body of high-grade ore was mined at the *Halliwell*, after which operations were suspended. The *Powell Rouyn Gold Mines'* production was increased to 700 tons a day; this is shipped by truck to the Noranda smelter. At the *Stadacona Rouyn* the grade of the mill-heads was improved and the tonnage increased. At the *Beattie* mine, the roasting plant gave complete satisfaction and the mill, rated at 1500 tons a day, steadily treated 1700 tons and frequently exceeded this figure. Production was increased at the *O'Brien*; the main shaft deepened to 2,000 feet and lateral work started on four new levels. The *Thompson-Cadillac* mine

produced steadily. At the *Lapa-Cadillac* mine a 200-ton mill was constructed and put into operation. Construction of a 100-ton mill at the *Amm* mine was begun late in the year. At the *Sladen-Malartic* mine a 250-ton mill was started in January, it has treated 300 tons, and later in the year preparations to double the capacity were under way. The *East Malartic*, mill, of 1000-ton capacity, started to produce in November. *Canadian-Malartic* continued to operate on a basis of 700 tons a day and plans were made to sink a new shaft in the east section of the property.

In the Bourlamaque-Dubuisson area, the *Sigma* mill, originally designed for 300 tons a day, gradually worked up to 500 tons a day in 1937 and to over 600 tons in 1938 without important addition of machinery. The *Lamaque* mill, rated at 1000 tons treated an average in excess of 1100 tons a day in October. At the *Sullivan* mine a new crushing plant has been set up, raising the capacity of treatment to 300 tons a day; the No. 1 shaft has been deepened to 1200 feet, and a large headframe and skips have been installed. At the *Payore* mine a 50-ton mill was erected and put into operation. *Siscoe* maintained a steady production. The *Gale* mine was acquired by the Provincial government, and converted into a miners' training school. At the *Perron* mine the sinking of a new main shaft was carried out; the mine production increased as compared with previous years. The *Cournor* maintained a steady output.

In Guillet township a new shaft was sunk at the *Belleterre* mine. This mine acquired a water-power site on the Winneway river, 13 miles distant, developed it and the mine is now supplied with an additional 1500 H.P. from its hydro-electric power plant. In the spring of 1938, buildings to house a 25-ton milling plant were erected at the *Lake Rose* mine, 75 miles north of Senneterre; the equipment was transported by aeroplane and milling operations were commenced in June.

Silver.—The production of silver in the Province of Quebec is derived from the treatment of the copper-gold, zinc-gold and gold-quartz ores of Western Quebec mines. It is therefore a by-product recovered in the course of refining other metals.

The production in 1938, amounted to 1,188,426 ounces, valued at \$516,692, against 908,590 ounces valued at \$407,784 in 1937.

Selenium and tellurium.—These metals are by-products, from the refining of the copper anodes of the Noranda smelter. In 1938, the quantity of selenium produced was 217,952 pounds and tellurium 41,577 pounds.

Zinc.—Returns of shipments of zinc concentrate were received from one producer only. The zinc concentrate was sent to Europe for treatment. The contents of metallic zinc was reported as having been 5,315,852 pounds, valued at \$163,356.

A very substantial tonnage of zinc concentrate was recovered from the milling operations of the Waite-Amulet Mines, Limited, but no shipments were made by these producers, the total output of zinc concentrate having been stock-piled, awaiting better market conditions.

TABLE I

PRODUCTION OF ASBESTOS IN THE PROVINCE OF QUEBEC FOR 1938

GROUPING OF GRADES	SHIPMENT AND SALES		AVERAGE VALUE PER TON
	TONS	VALUE	
Crudes.....	2,911	\$ 955,423	\$ 328.21
Fibres.....	163,097	9,710,899	59.54
Shorts.....	123,785	2,223,873	17.97
Totals.....	289,793	\$ 12,890,195	\$ 44.48
Sand, gravel and stone, (waste rock only).....	3,279	\$ 2,464	\$ 0.75
Totals.....	293,072	\$ 12,892,659	

Quantity of rock mined during the year 1938: 5,816,368 tons.

Quantity of rock milled during the year 1938: 4,874,548 tons.

TABLE II

PRODUCTION OF ASBESTOS IN THE PROVINCE OF QUEBEC FOR 1937

GROUPING OF GRADES	SHIPMENTS AND SALES		AVERAGE VALUE PER TON
	TONS	VALUE	
Crudes.....	3,845	\$ 947,667	\$ 246.47
Fibres.....	200,246	10,235,820	51.12
Shorts.....	205,933	3,322,054	16.13
Totals.....	410,024	\$ 14,505,541	\$ 35.38
Sand, gravel and stone, (waste rock only).....	3,980	\$ 3,301	\$ 0.83
Totals.....	414,004	\$ 14,508,842	

Quantity of rock mined during the year 1937: 6,477,805 tons.

Quantity of rock milled during the year 1937: 5,440,607 tons.

NON-METALLIC MINERALS

The figures of production of non-metallic minerals show a very appreciable falling off in 1938, as compared with 1937. It may be recalled that the 1937 value was the highest recorded in the history of Quebec mining. For 1938 practically all items of the list show decreases.

Asbestos.—The shipment of asbestos fibre amounted to 289,793 tons in 1938, valued at \$12,890,195. While it is a falling off of nearly 30 per cent in tonnage, and of 11 per cent in value, as compared with the preceding year, the figures of production are satisfactory. Apparently the consumers had accumulated stocks of short fibre in 1937, and while the demand decreased in 1938 the prices were well maintained. It may be stated that the asbestos mining industry has resumed its normal level, after having passed through several trying years of depression, followed by the years of recovery which culminated to a peak in 1937.

Asbestos Corporation, Limited, operated four of its asbestos properties: the King, whence comes the main production, the Beaver, the British Canadian, and the Vimy Ridge mines. *Johnson's Company* worked its two mines, situated at Thetford and Black Lake respectively, and did some work on an asbestos property near the Beaver mine, with good results. *Bell Asbestos Mines, Quebec Asbestos Corporation* and *Canadian Johns-Manville* operated normally.

Pyrite.—Pyrite, the disulphide of iron, is used as a source of sulphur. The total shipments in 1938 amounted to 33,179 tons valued at \$135,091, against 56,760 tons, valued at \$194,496 in 1937.

The greater part of the shipments of pyrite were made by the *Consolidated Copper and Sulphur Company*, the operators of the Eustis mine, near Sherbrooke; as in the past this pyrite was shipped to chemical works in the United States.

The *Aldermac Copper Corporation*, operators of the Aldermac mine in Beauchastel township, also made some shipments of pyrite, but the larger proportion of the pyrite concentrate resulting from their flotation mill was stocked, awaiting the construction of a plant to manufacture elemental sulphur from pyrite.

Feldspar.—Feldspar production in 1938 was valued at \$63,304 against \$105,612 in 1937. Sales of crude spar consigned mainly to United States consumers decreased 66 per cent in volume as compared with 1937, on the other hand shipments of feldspar pulverized in grinding mills located in the Province of Quebec declined only 20 per cent during the same period. With the exception of a small shipment of feldspar mined at Mont-Laurier, Labelle County, the whole of the output came from the Buckingham district.

Industrial lime and limestone.—The value of the production of Industrial Lime and Industrial Limestone decreased from \$1,007,798 in 1937 to \$859,251 in 1938. The falling off is ascribable almost entirely to a slackening in the pulp and paper and the chemical industries.

Magnesitic dolomite.—The value of the production of magnesitic dolomite was \$465,035 against \$677,207 in 1937. The substantial falling off as compared with the previous years is a consequence of the lack of activity during 1938 in metallurgical works in Canada and foreign countries. The output was extracted from two deposits located respectively in Grenville and in Harrington townships. Magnesitic dolomite is used mainly in the manufacture of refractory materials.

Silica.—The production of quartz and silica sand was valued at \$315,215, a decline of 30 per cent as compared with 1937. The production of silica comes mainly from the region to the north of the Ottawa river, between Montreal and Hull and also from Mélocheville, Beauharnois County. It is used largely in the ceramic and abrasive industries, and in the manufacture of carborundum and of ferro-silicon.

Mica. The production of mica decreased from \$124,594 in 1937, to \$72,058 in 1938. A considerable amount of development work was carried on in mica mines during 1938, especially in the upper Gatineau district and along the north shore of the Lower Saint-Lawrence.

Other non-metallic minerals. Shipments of other non-metallic products, *viz*: soapstone, natural iron oxides and ochre, peat, marl, and mineral waters, were lower than in the preceding year. The small output of apatite obtained as a by product in mica mining shows an increase as compared with 1937.

BUILDING MATERIALS

The preliminary figures of production show an increase of 8.5 per cent in the value of mineral building materials produced in Quebec as compared with 1937. The output valued at \$10,157,401 is the highest recorded since 1931. Increases were reported in the sales of all quarry products with the exception of granite and sandstone. There was a higher production of dimension stone, the increase in the output of building limestone being noteworthy. The slight decrease recorded in the production of building brick was largely compensated by the higher returns received from the producers of other clay products.

It is estimated that 11,710,000 tons of sand and gravel was extracted from sand pits of Quebec in 1938. This tonnage exceeds the previous peak, attained in 1937, by 22 per cent.

The total value of building permits issued in the Province of Quebec was \$66,577,600, a decrease of 7.5 per cent as compared with 1937.