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THE MINING INDUSTRY OF THE PROVINCE OF QUEBEC IN 1942

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PROVINCE OF QUEBEC, CANADA

DEPARTMENT OF MINES

Honourable EDGAR ROCHETTE, Minister — A. O. DUFRESNE, Deputy-Minister

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PREFATORY NOTE

In the statistical tables and in the review of the mining industry of the Province appearing in this volume, the term production is synonymous with *quantity sold, shipped, or used* and does not necessarily represent *output.*

Unless otherwise stated, the ton specified in the text and tables of this report is that of 2,000 pounds, and the year referred to is the calendar year ending December 31st. Values are given in Canadian funds.

By mutual decision of the Federal and Provincial Governments, the publication of detailed tables of mineral production, and of exports and imports of metals and industrial minerals, is withheld for the duration of the war. The last report of the Department in which complete statistics of this nature are given was that for the year 1939.

Besides the annual report on the Mining Industry, the Department issues a series of consecutively numbered publications designated *Geological Reports,* with accompanying maps, presenting the results of field-work of the geological staff. A *General Report of the Minister of Mines* is also published, dealing mainly with administrative matters. It covers the fiscal year, which ends on March 31st.

Preliminary reports, in the form of photo-litho or mimeograph pamphlets, are issued from time to time to render available to the public, at an early date, the main results of the field-work.

A. O. DUFRESNE
Deputy Minister

DEPARTMENT OF MINES, QUEBEC
JUNE, 1943

TABLE OF CONTENTS

	Page
General review	5
Table of annual value of mineral production since 1898	5
Table of mineral production in 1942	6
Metals	7
Dividends paid by mining companies operating in Western Quebec	7
Non-metallic minerals (industrial minerals and building materials)	8
Legislation	9
Prospecting and staking of mining claims	9
Mining operations in 1942	10
Metals	10
Aluminium	10
Antimony	10
Arsenic	11
Chrome	11
Copper	14
Gold and silver	15
Lead	17
Molybdenum	17
Selenium	19
Tellurium	19
Titaniferous iron ore	19
Tungsten	20
Zinc	21
Non-metallic minerals	22
I.—Industrial minerals	22
Asbestos	22
Feldspar	27
Garnet	27
Kaolin (China clay)	27
Lime and limestone and marl (industrial)	28
Magnesitic dolomite and brucite	29
Mica	30
Ochre and iron oxides	31
Peat	32
Petroleum	33
Phosphate (apatite)	37
Quartz and industrial sand	38
Soapstone and talc	38
II.—Building materials	39
Cement	40
Clay and shale products	41
Granite	42
Lime and limestone (building)	42
Marble	44
Sand and gravel	45
Sandstone and shale	45
Mining operations and development in Western Quebec in 1942	46
Employment, wages, and accidents	86
List of mining companies and operators	91
Alphabetical index	113

TABLE OF CONTENTS—*Continued*

ILLUSTRATIONS

PLATES

(At end of volume)

I.—A.—Belleterre Quebec Mines, Limited, No. 2 shaft, April 1942.
B.—Mill of Indian Molybdenum, Limited, Preissac township. Headframe for 20-degree adit at left, July 1943.

II.—A.—New Lamaque Hospital, April 1942.
B.—Vavasour mica mine, Hull township (Blackburn Brothers, Limited), April 1942.

III.—A.—Wakefield plant of Aluminum Company of Canada, May 1942.
B.—Wartime Metals Corporation, Lacorne Molybdenum Project. General view of headframe and mill, July 1943.

IV.—Simard muscovite mine, Bergeronnes township (Claim M.C.883 No. 2). Open pit, No. 2 workings.

THE MINING INDUSTRY

OF THE

PROVINCE OF QUEBEC

IN 1942

GENERAL REVIEW

The total value of the mineral production of the Province of Quebec in the year 1942 surpassed all previous figures and, for the first time in the history of the mining industry of the Province, it exceeded one hundred million dollars. The actual figure was $104,404,146 as compared with $99,700,027 in 1941, an increase of nearly 5 per cent. A large part of the unprecedented activity in mining was a consequence of the increasing demand for metals and other mineral products for war materials and munitions.

This is the tenth year in succession that the value of the mineral production of the Province has shown a substantial increase, and in this decade the annual value has increased four-fold (see accompanying table).

ANNUAL VALUE OF THE MINERAL PRODUCTION OF THE PROVINCE OF QUEBEC SINCE 1898

YEAR	VALUE	YEAR	VALUE	YEAR	VALUE
1898.....	$ 1,673,337	1913.....	$13,119,811	1928.....	$ 37,325,237
1899.....	2,083,272	1914.....	11,732,783	1929.....	46,454,820
1900.....	2,546,076	1915.....	11,465,873	1930.....	41,158,740
1901.....	2,987,731	1916.....	13,287,024	1931.....	36,051,366
1902.....	2,985,463	1917.....	16,189,179	1932.....	25,683,066
1903.....	2,772,762	1918.....	18,707,762	1933.....	28,164,540
1904.....	3,023,568	1919.....	20,813,670	1934.....	31,310,752
1905.....	3,750,300	1920.....	28,392,939	1935.....	39,141,734
1906.....	5,019,932	1921.....	15,522,988	1936.....	49,755,985
1907.....	5,391,368	1922.....	18,335,153	1937.....	65,203,976
1908.....	5,458,598	1923.....	21,326,314	1938.....	68,877,345
1909.....	5,552,062	1924.....	18,952,896	1939.....	77,312,141
1910.....	7,323,281	1925.....	23,824,912	1940.....	86,418,853
1911.....	8,679,786	1926.....	25,740,002	1941.....	99,700,027
1912.....	11,187,110	1927.....	29,124,110	1942.....	104,404,146

TABLE OF THE MINERAL PRODUCTION OF THE PROVINCE OF QUEBEC
DURING 1942

SUBSTANCE	No. of Workmen	Wages	Quantity	Value in 1942	Value in 1941
METALLICS					
Gold....oz.	5,738	$ 9,954,576	1,090,659	$ 41,990,372 (a)	$41,750,632 (a)
Silver....oz.	.....	.....	1,654,184	697,503	633,812
Arsenic, chrome, copper, iron, titaniferous iron ore, magnesium, molybdenite, lead, selenium, tungsten, zinc.....	3,634	5,546,435	.....	18,396,089	16,742,350
Diamond drilling contractors.....	368	497,015	.....	.....	.....
Assessment work on claims.....	91	111,247	.....	.....	.....
SUB-TOTALS.....	9,831	$16,109,273		$ 61,083,964	$59,126,794
NON-METALLICS					
I.—INDUSTRIAL MINERALS					
Barite.....	6	$ 300	.....	.....	$ 808
Coal.....	5	506	.....	.....	.....
Feldspar....tons	93	79,362	16,802	$ 164,588	137,160
Garnet.....	3	843	.....	.....	.....
Industrial lime....tons	394	413,038	332,860	2,167,583	1,832,857
Industrial limestone....tons	.....	.....	266,640	408,898	296,220
Kaolin....tons	4	1,510	408	6,130	30
Marl....tons	.....	.....	15,879	6,352	16,454
Mineral water....gal.	15	3,246	129,062	60,316	58,062
Ochre and iron oxide....tons	49	35,113	8,866	147,049	139,185
Peat....tons	340	108,398	12,982	197,560 (b)	173,639 (c)
Petroleum.....	16	23,983	.....	.....	.....
Phosphate....tons	29	6,246	930	12,973	33,376
Quartz and industrial sand...tons	223	278,392	203,219	543,817	388,948
Soapstone....tons	91	47,910	14,369	136,529	155,925
Asbestos, magnesitic-dolomite and brucite, mica, pyrite.....	4,485	5,380,620	.....	24,773,246	23,329,782
SUB-TOTALS.....	5,753	$ 6,379,467		$ 28,625,041	$26,562,446
II.—BUILDING MATERIALS					
Building lime....tons	.....	.....	14,555	$ 150,435	$ 225,564
Building limestone....tons	1,200	$ 882,311	2,646,003	2,157,848	2,268,165
Cement....brl.	466	706,940	4,446,416	6,487,078	5,798,188
Clay products:					
Brick....M.	607	595,265	61,300	1,067,253	1,384,876
Other products.....			.....	667,424	559,452
Granite....tons	614	691,892	1,178,765	1,449,838	866,180
Marble....tons	40	28,117	7,869	50,645	88,943
Sand and gravel....tons	2,292	957,933	11,026,249	2,485,853	2,673,300
Sand lime brick....M.	21	23,946	6,279	85,394	62,205
Sandstone....tons	115	50,301	72,895	92,725	82,701
Slate and shale....tons	.....	.....	428	648	1,213
SUB-TOTALS.....	5,355	$ 3,936,705		$ 14,695,141	$14,010,787
TOTALS.....	20,939	$26,425,445		$104,404,146	$99,700,027

(a) Value in Canadian funds. The standard value at the rate of $20.671834 per ounce troy is $22,545,922 for 1942 and $22,417,198 for 1941.

(b) Value including containers $286,651.08.

(c) Including containers.

Increases were recorded in each of the three subdivisions, Metals, Industrial Minerals, and Building Materials, for which the totals were, respectively, $61,083,964, $28,625,041, and $14,695,141.

SUBDIVISION OF THE ANNUAL VALUE OF MINERAL PRODUCTION OF THE PROVINCE OF QUEBEC, 1938-1942

YEAR	METALS	PER CENT	INDUSTRIAL MINERALS	PER CENT	BUILDING MATERIALS	PER CENT
1938	$43,199,795	63	$14,931,649	22	$10,745,901	15
1939	47,650,509	61	18,360,017	24	11,301,615	15
1940	54,235,364	63	19,229,099	22	12,954,390	15
1941	59,126,794	59	26,562,446	27	14,010,767	14
1942	61,083,964	59	28,625,041	27	14,695,141	14

METALS

The value of the metals produced from Quebec mines in 1942 was an all-time record. Until about twenty-five years ago, the metal mining industry of the Province was of comparative unimportance. Production of metals fluctuated from year to year but the value was consistently lower than that for either industrial minerals or building materials. Since that time, the discovery and development of important gold and copper deposits in the Rouyn-Harricana belt has put the 'metals' group in the lead, and each year since 1932 they have accounted for more than half the total value of the mineral production of the Province. From present appearances, they will retain this lead for many years to come. Heading the very diversified list of metals, or their ores, produced are gold, copper, silver, and zinc. Others appearing in the list include arsenic, chromium, lead, magnesium, tungsten, molybdenum, selenium, tellurium, and titanium.

In 1942, metals contributed 59 per cent to the total value of the production. Gold continued to hold first place, with copper next. Both were derived almost wholly from Western Quebec mines, all of which were as active as the scarcity of labour permitted.

DIVIDENDS PAID BY MINING COMPANIES OPERATING IN WESTERN QUEBEC (To January 1st, 1943)

COMPANY	AUTHORIZED CAPITAL (shares)	DATE OF FIRST DIVIDEND	DIVIDENDS, 1942		TOTAL DIVIDENDS (To end of 1942)
			TOTAL	RATE PER SHARE	
Beattie Gold Mines, Limited	5,000,000	June 1st, 1936	.....	.....	$ 1,438,481.20
Beattie Gold Mines (Quebec), Limited	5,000,000	Aug. 15th, 1939	$ 650,000.00	$0.13	2,796,541.44
Canadian Malartic Gold Mines, Limited	4,000,000	Sept. 8th, 1937	292,108.40	0.08	1,714,911.87
East Malartic Mines, Limited	4,000,000	June 1st, 1940	200,000.00	0.05	2,200,000.00
Francoeur Gold Mines, Limited	3,000,000	Dec. 20th, 1940	.....	.....	208,833.31
Lake Dufault Mines, Limited	3,000,000	Jan. 20th, 1942	46,220.00	0.02	46,220.00
Lamaque Gold Mines, Limited	3,000,000	Jan. 2nd, 1939	1,650,000.00	0.55	6,510,000.00
McWatters Gold Mines, Limited	2,000,000	Dec. 18th, 1935	.....	.....	653,577.10
Malartic Gold Fields, Limited	4,000,000	Aug. 1st, 1941	.....	.....	400,000.00
Noranda Mines, Limited	2,250,000	Jan. 2nd, 1930	8,959,088.00	4.00	80,774,648.13
O'Brien Gold Mines, Limited	4,000,000	Feb. 1st, 1939	97,500.00	0.03	1,235,000.00
Perron Gold Mines, Limited	2,000,000	Dec. 21st, 1938	340,000.00	0.17	1,740,000.00
Powell Rouyn Gold Mines, Limited	1,500,000	Oct. 16th, 1939	25,000.00	0.02	212,500.00
Sigma Mines, Limited	3,000,000	Sept. 1st, 1937	.....	.....	30,000.00
Sigma Mines (Quebec), Limited	1,000,000	July 27th, 1940	600,000.00	0.60	1,350,000.00
Siscoe Gold Mines, Limited	5,000,000	Mar. 31st, 1932	301,603.90	0.06½	7,745,597.16
Sullivan Consolidated Mines, Limited	4,000,000	June 15th, 1937	360,000.00	0.09	1,720,000.00
Waite-Amulet Mines, Limited	3,500,000	July 15th, 1940	1,320,000.00	0.40	2,970,000.00
TOTAL			$14,841,520.30		$113,746,310.21

AVERAGE MARKET PRICE OF BASE-METALS, 1942
(In United States)

Copper (New York)	11.775	cents per lb.
Lead (New York)	6.481	" "
Zinc (St. Louis)	8.250	" "
Antimony (New York)	15.559	" "
Aluminium (99+% grade)	15.0	" "

An interesting new item in the 'metals' list is magnesium. Shipments of dolomite and brucite, both important ores of magnesium, were made to the plant of Dominion Magnesium, Limited, at Haley's Station, near Renfrew, Ontario, from deposits of magnesian limestone of Precambrian age in range XVI of Hull township. Dominion Magnesium, Limited, is using a process developed by Dr. Lloyd Pidgeon in the laboratories of the National Research Council, in Ottawa, for extracting magnesium metal from dolomite or brucite. The plant at Haley's Station was erected under a Dominion Government-financed plan.

In 1919, the presence of scheelite in some of the gold deposits of the Harricana region was noted by A. Mailhiot in the course of geological field-work carried out for the Quebec Department of Mines. Specifically, he reported the occurrence of scheelite on the 'Siscoe claims', now the Siscoe mine, and on the property of Martin Gold Mines, now owned by the Shawkey Gold Mining Company, both in Dubuisson township(1). Since then, tungsten minerals have been identified in many of the mines of Western Quebec, but generally in very small quantity. In 1942, the Quebec Department of Mines made an investigation of the possibilities of such deposits as a source of the metal, which was in great demand for war purposes. Shipments of scheelite concentrate were made during the year from several mines. The recovery of this scheelite was an important contribution to the war effort, but in general was not a profitable operation.

NON-METALLIC MINERALS

I—*Industrial Minerals*

Production of asbestos, our most important industrial mineral, was higher, both in quantity and in value, than in any previous year. There was a considerable increase also in the output of industrial lime and limestone. These materials are used mainly in the pulp and paper industry and in the manufacture of calcium carbide. Lesser uses are in sugar refining, in agriculture as soil amendment, and in tanning. Limestone used for the manufacture of cement is included with the Building Materials. High production figures were also recorded for magnesite and brucite, mica, quartz, and phosphate.

Production of industrial minerals as a class showed an increase of 7¾ per cent in value over the 1941 figures, rising from $26,562,446 to $28,625,041.

(1) Report on Mining Operations in the Province of Quebec in 1919, page 139.

II—*Building Materials*

The main item in the list of mineral building materials for many years has been cement, the manufacture of which is an important industry in the Province. It is followed by building-stone, which includes limestone, granite, and sandstone. Other important items are sand and gravel, building lime, and various clay products (brick, tile, sewer pipe, pottery).

The total value of these materials produced in 1942 was $14,695,141, as compared with $14,010,787 in 1941, an increase of 5 per cent. For cement, the increase was 10 per cent, and for stone, 1½ per cent. The output of clay products was lower by 6 per cent.

Legislation

The session of the Legislature opened on February 24th, 1942, and prorogued on May 29th. In the course of the session, the following measures concerning the mining industry of Quebec were passed:

An Act, assented to on May 13th, divided the Department of Mines and Maritime Fisheries into two separate departments. There was thus created a distinct Department of Mines, administered by a Minister of Mines having under his direction and control a Deputy Minister of Mines.

By another measure, assented to on May 29th, holders of mining claims or of development licenses are relieved, for the duration of the war, from performing the statutory work required by the mining law. This measure remains in force for one year after the termination of the war.

Particulars of these measures are given in the *General Report of the Minister of Mines* for the fiscal year ending March 31st, 1942.

Prospecting and Staking of Mining Claims

During the fiscal year ending March 31st, 1943, the number of miners' certificates issued by the Department of Mines was 1,710, and the number of claims staked was 4,420. Comparative figures for the previous fiscal year were 1,589 and 4,991. It may be added that the annual average for the ten-year period, 1931-1940, was 3,314 miners' certificates issued and 11,503 claims staked.

Tables of the various titles issued by the Department of Mines over a period of years are given in the *General Report of the Minister of Mines* for the fiscal year ending March 31st, 1943.

MINING OPERATIONS IN 1942

METALS

ALUMINIUM

The Province of Quebec is a major producer of the metal aluminium, although it possesses no known deposits of bauxite, the ore of aluminium, nor of cryolite, the flux used in its treatment. These raw materials are imported, the bauxite from British Guiana and the United States, and the cryolite from Greenland. However, aluminium is produced from its ore by an electrolytic process, and an adequate supply of cheap electric power is essential to the commercial success of the operation. The immense water-power resources of the Saguenay-Lake St-Jean region were the determining factor in the decision of the *Aluminum Company of Canada, Limited*, to establish their plant in that region.

As indicating the importance of cheap and plentiful electric power for the production of aluminium, it may be noted that, in general practice, the reduction of alumina to the metal requires from 31 to 41 kw.-hr. per kilogram of aluminium produced, depending on the efficiency of the plant. This is equivalent to between 344 and 447 pounds of aluminium per horse-power-year(1).

The Saguenay Power Company, in recent years, has developed an important water-power at Ile Maligne, in the Grande Décharge of the Saguenay river, about six miles from lake St-Jean. The plant here, of 540,000 h.p., supplies power for the aluminium works and also for pulp and paper mills. Some twenty-five miles farther down the Saguenay, at Chute-à-Caron, the Aluminum Power Company has constructed a plant of 280,000 h.p., to which two units of 55,000 h.p. each were added during 1942. At the present time, a still more extensive hydro-electric development is nearing completion at Shipshaw, on the Saguenay river about two miles below Chute-à-Caron. Two units of this plant were brought into operation during 1942. The addition of eight similar units, which, it is expected, will be installed by the end of 1943, and the transference of the two 55,000 h.p. units temporarily installed at Chute-à-Caron, will give the Shipshaw station an installation of 1,020,000 h.p. The bulk of this power will be available for the aluminium industry.

ANTIMONY

No work has been done at the old antimony mine on lot 28, range I of South Ham township since the summer of 1940, when *Reed Realties, Limited*, owner of the property, had several men clearing the adit, and timbering where needed, to give access to the stibnite deposit for the purpose of sampling the vein and doing some exploratory work. The work lasted about six weeks.

(1) See ANDERSON, R. J., *The Metallurgy of Aluminium and Aluminium Alloys*, p. 122; Henry Carey Baird & Co., Inc., New York.

In 1941, *J. J. Leclerc*, of Campbellton, did some exploratory work on an antimony prospect in New Richmond township. The property, which he holds under development license, comprises part of lot 9, ranges VI and VII, and part of lot 10, range VII. The showing consists of a narrow quartz vein containing stibnite and gold. In 1942, no work was done on this property.

ARSENIC

Returns of shipments of white arsenic were received from two producers: *O'Brien Gold Mines* and *Beattie Gold Mines*, both in Abitibi county. The shipments in 1942 were considerably higher than during the preceding year. In the case of each mine, they exceeded the year's output, but there was no difficulty in satisfying the demand as large stocks had accumulated at both mines from operations in past years.

Of the white arsenic shipped, about one-quarter was exported to the United States and the balance was sold in Canada.

The Quebec white arsenic is a by-product recovered in the treatment of gold ores containing arsenopyrite, and it is shipped from the mines in the unrefined state. In the past, the market for the product has been very limited and the excess production has had to be stored at the mines in barrels or in cement bins. At the mines where such arsenical ores are roasted, it is compulsory for the operators to eliminate the highly toxic arsenic fumes from the roaster gases before releasing them into the atmosphere.

Detailed statistics of arsenic production and shipments are withheld for the duration of the war.

CHROME

The revival of interest in the chromite deposits of Quebec, which started in the second half of 1940, was accentuated throughout 1941 and continued to grow steadily in 1942. As a consequence, production of chromite in the year under review increased greatly as compared with 1941. Returns of shipments were received from five producers.

Chromite, Limited.—Since 1940, this organization has been operating the Sterrett mine, near St-Cyr, an important producer of chromite during the world war of 1914-1918. The property is on lots 7 and 8, range X of Cleveland township. In 1941, the mine was reconditioned, a programme of exploration by diamond drilling was started, and a small tonnage of rich 'crude ore' was shipped. Erection of a mill was also commenced. This mill, in which the ore is concentrated by a gravity process, was completed early in 1941 and it was in full operation for the rest of the year. Further diamond drilling was also carried on. Chromite, Limited, was the largest producer of chrome ore in the Province in 1942.

H. Bruce Fletcher, of the Fletcher Pulp and Lumber Company, Sherbrooke, made substantial shipments of chromite from two properties, respectively on lot 28, range IX of Brompton township, and on lot 7, range XII of Orford township. The ore shipped was concentrated by hand sorting only. From July, 1942, the Orford property was operated by the *Orford Mining Company*, with Mr. Fletcher as manager.

Orel Paré, manager for St. Lawrence Alloys and Metals, Limited, of Beauharnois, was active during the summer and fall at the Montreal mine, on

lots 25 and 26, range II of Coleraine township, which had been re-opened in 1941. Some thirty-five men were employed steadily in mining and sorting ore, and exploratory diamond drilling aggregating about 3,000 feet was also carried out. This property was one of the large producers of chromite in 1942.

Chromeraine Project, an undertaking of the Wartime Metals Corporation, took over the Bélanger and Reed properties, consisting of the whole of lot 19, range X, Coleraine township. The chromite deposit on these properties is the most extensive discovered to date in the Province.

The work of preparing the mine for production was started in early summer. A new shaft was sunk to a depth of 500 feet, at which horizon it was connected with the old shaft by a level 300 feet long. Drifts, cross-cuts, and a winze were opened, and some exploratory diamond drilling was carried out. On surface, a new headframe was erected, and also a 600-ton concentration plant and a crushing plant, and a pipe-line was laid to supply water from Black lake. The water is raised 300 feet, from the lake to the plant, in three pumping stages.

It is expected that both mine and mill will be in full operation early in the spring of 1943.

Wilfrid Roberge, of Thetford Mines, mined chromite on lots 17 and 18, range *A*, Coleraine township, from January to November, 1942, and made several substantial shipments of ore.

Chrome Association, Enregistré, of Black Lake, of which Messrs. Siméon Bergeron, Wilfrid Grégoire, L. A. Brochu, and C. Louis Roger are members, did some surface work and mining at the Greenshield mine, on Block *A* of Coleraine township. They stock-piled a certain amount of chromite but made no shipments.

J. Louis Matte, of Thetford Mines, did some prospecting and exploration work on a chromite occurrence on lot 8, range XII, Coleraine township, from June to November.

Alchrome Prospecting Syndicate, of Toronto, acquired, through David Lieberman, the chromite prospect on lot 11, range IV of Awantjish township, which was formerly held under development license by Pantaléon Plante, of Ste-Angèle-de-Rimouski. They report having done only preliminary work in 1942.

Chromium Mining and Smelting Corporation, Limited, with furnace plant at Sault-Ste-Marie and head office in Hamilton, did considerable exploration work, including diamond drilling, in a search for chromite deposits in two separate areas underlain by serpentinized peridotite in Gaspé peninsula. These are, respectively, in Weir township, Bonaventure county, and on Mount Albert, in a tract embracing the adjoining corners of the townships of Courcelette, Lemieux, Lapotardière, and Lesseps, all in the county of Gaspé North.

Weir Township.—The serpentine occurrence in Weir township has been known for many years. It has been prospected for asbestos, and in 1906 a mining patent was issued to MacLaurin Bros. covering the north half of lots 32 and 35, range II. The area occupied by the serpentine is mostly in the northern half of range II, which has been partly surveyed, from lot 38 in the east to beyond lot 28 in the west. The serpentinized peridotite mass is

elongated in a northeast direction, and it has been traced over a distance of two miles, its width ranging up to 1,000 feet or more. At the end of August, 1941, the area was examined by H. W. McGerrigle, of the Quebec Department of Mines, in the hope of finding deposits of chromite. "No important deposit of this mineral was noted. Chromite grains occur throughout the serpentine and locally they are abundant. A concentration of chromite was observed at one place only. This was in the northern part of lot 29, range II, near the top of a serpentine ridge, about 2,000 feet west of Port Daniel river and 200 feet north of a large and conspicuous outcrop of altered sedimentaries (hornblende schist). At this place, several chunks of chromite lay loose among a rubble of serpentine. The quantity of chromite seen would total about 100 pounds, with one block weighing about 30 pounds and another 20 pounds. It does not appear likely that this occurrence would be of economic value. However, if the occurrence were more easily accessible, trenching would be recommended in the hope that it might, nevertheless, prove to be of some importance".

A preliminary report on McGerrigle's observations was issued by the Quebec Department of Mines early in 1942. Mention, in that report, of the finding of chromite float on lot 29 brought a few prospectors to the area during the summer of 1942 and some 600 acres was staked out, as mining claims, on lots 28-31, 33-34, and 36-38.

In the fall of 1942, all of these mining claims, as well as the MacLaurin concession on lots 32 and 35, were acquired, on option, by the Chromium Mining and Smelting Corporation, who immediately put some parties in the area to explore its possibilities.

Mount Albert.—The serpentinized peridotite mass of Mount Albert outcrops on the surface in a heart-shaped area slightly more than six miles in its longest part and four miles at its widest. Geological conditions appear favourable for the occurrence of chromite deposits of workable size.

Mount Albert is within the limits of the Gaspé National Park, which has been withdrawn from prospecting and staking of mining claims. However, as a war measure, permission to search for chromite was granted to two prospectors, J. M. Wood and W. T. Brown, who carried out some surface exploration in June and July. They found chromite in the serpentinized rock in several localities, mainly in the projected townships of Courcelette and Lapotardière. Permission to explore was then extended to the Chromium Mining and Smelting Corporation, who planned a diamond-drilling campaign to test the discoveries of Messrs. Wood and Brown.

I. W. Jones, of the Quebec Department of Mines, visited the area in August, 1942. He found that the work was proceeding systematically and that the results were encouraging. In some of the occurrences, the chromite is solidly in place, but for the most part it is in loose fragments and blocks. These loose pieces, however, are believed to belong at their place of discovery or, if transported, to have moved a very short distance, measurable possibly in feet. In some cases, the fragments are scattered over an irregularly shaped area, and in others they lie in line. (An example of the latter type is an occurrence where chromite was found as angular lumps, weighing up to 30 pounds, strung along a narrow east-west zone over a distance of 300 feet). In some

places, only a small quantity of chromite is visible, but in others a ton of the loose material could be gathered in a short time.

A communication received later by the Department of Mines stated that operations were continued until October 6th, 1942, when severe weather conditions led to the postponement of further exploratory work until the spring of 1943. The results obtained to that date, it was said, justified the continuation of the search.

COPPER

There are no changes to record in the copper mining situation in Quebec. All the producing mines worked at capacity. Properties which were at the development stage, however, suffered some neglect owing to shortage of labour and to the fact that efforts were diverted mainly to increasing the output of mines already producing. Thus, for example, the diamond drilling and exploration of copper claims in Holland township, Gaspé, which was being carried out by Noranda Mines, Limited, has been suspended for the duration of the war.

On the other hand, it is interesting to note that, during the summer of 1942, *Aldermac Copper Corporation, Limited,* carried out a programme of exploration in the Eastern Townships, principally in the Sherbrooke region. This work was under the direction of the Company's geologist, K. W. Fritzche. From the information obtained in this preliminary work, a few areas were selected for more detailed study. In one of these areas, in Ascot township, about a mile and a quarter south of the Moulton Hill mine, a geophysical survey by the self-potential method was carried out. On lot 20, range III, the 'indications' were very favourable, and trenching through the overburden disclosed a zone of sulphide ore which yielded good assays in copper, zinc, lead, and precious metals. Diamond drilling gave such satisfactory results that it was decided to proceed with development work on a large scale. In March, 1943, sinking of a two-compartment shaft was started. Later in the year steps were being taken to bring in electric power, and plans were drawn up for a concentrating mill.

Four companies made returns of production of copper in 1942. As in 1941, they were: *Noranda Mines, Limited,* at Noranda, in Rouyn township; *Aldermac Copper Corporation, Limited,* at Arntfield, in Beauchastel; *Waite-Amulet Mines, Limited,* who operate two mines, the Waite and the Amulet, in Duprat and Dufresnoy townships, respectively; and *Normetal Mining Corporation, Limited,* whose property is in Desmeloizes township. The two first named mines produce copper, gold, silver, and iron pyrites; the Waite, Amulet, and Normetal mines produce copper, zinc, gold, and silver. All are situated in the adjoining counties of Témiscamingue and Abitibi, in Western Quebec.

Details of operations at these mines, and at others in Western Quebec, in 1942, will be found in the report by M. O. Lafontaine, Inspector of Mines for the western district, which forms a later section of this volume.

GOLD AND SILVER

GOLD

As was to be expected, the gold mining industry of the Province was adversely affected during the year by various factors arising out of the war conditions, and particularly by shortage of labour and supplies. In such matters, mines producing base-metals, or 'strategic' metals or minerals, are naturally favoured, as being more essential to the war effort. Despite these conditions, however, there was actually a small increase in gold production, from 1,084,432 ounces, valued at $41,750,632, in 1941, to 1,090,659 ounces, valued at $41,990,372 in 1942. This small increase of 6,227 ounces gives an unbroken chain of successive high records since 1935. Practically the whole of the gold is produced by the mines of Western Quebec, thirty-two of which contributed to the 1942 output. In addition, an appreciable amount came from the mill of the Provincial Mine School at Val d'Or, which treated gold ores from a number of Western Quebec mines and prospects that were at various stages of development but not sufficiently advanced to justify the construction of a mill. There was also a small production from the Tétreault zinc and lead mine, in Portneuf county, and of a few ounces of alluvial gold from deposits in the Chaudière River valley. In the accompanying table, this miscellaneous output is included in the total for 'other mines'.

Of the thirty-two mines named in the list, three were reporting production for the first time. They are the Golden Manitou, the Mic-Mac, and the West Malartic.

The *Golden Manitou* mine is a new zinc-gold producer, in Bourlamaque township. The Company was organized late in 1941, to acquire the developed western half of the property of Quebec Manitou Mines. Construction of a 600-ton concentration mill was started early in January, 1942, and it started crushing ore in the first week of August. Production for the rest of the year was very satisfactory and, at the end of December, plans were being prepared to increase the capacity of the mill to 1,000 tons a day.

Mic-Mac Mines, Limited, in which the United States Smelting, Refining and Mining Company holds a controlling interest, operates a mine in Bousquet township, the ore of which yields gold and copper. The property consists of ground formerly owned by Cassels Duval Mines, Limited, and Norgold Mines, Limited. The mill, construction of which was started in 1941, was completed and placed in operation in June, 1942. Some 40 per cent of the gold is recovered by amalgamation and the remainder stays with the copper concentrate, which is shipped to the Noranda smelter.

The *West Malartic* mine, which is in the eastern part of Cadillac township, is a straight gold producer. The property consists of the eastern, or No. 1, part (12 claims) of the property of Pan Canadian Gold Mines and was acquired by West Malartic Mines, Limited, in 1939. The ore is treated by cyanidation in a 300-ton mill.

Details of operations and development at the mines and mining properties in Western Quebec during the year 1942 will be found in a later section of this report under the title "Mining Operations and Development in Western Quebec".

Gold Production of Mines of the Province of Quebec in 1942

Property	Year of First Production	Ore Raised (Tons)	Ore Treated (Tons)	Gold Shipped (Fine ounces)	See Footnote
Aldermac (1)	1930	297,201	297,185	1,441	(*c*)
Arntfield	1935	23,809	23,809	2,636	(*b*)
Beattie	1933	657,619	657,619	64,924	(*b*)
Belleterre	1936	116,347	116,377	42,908	(*b*)
Canadian Malartic	1935	358,732	358,732	37,167	(*b*)
Central Cadillac	1939	73,132	61,315	9,099	(*b*)
Cournor	1932	45,000	30,000	7,510	(*b*)
East Malartic	1938	448,691	449,016	69,289	(*b*)
Francoeur	1938	69,477	69,477	10,996	(*b*)
Golden Manitou (1)	1942	63,579	60,125	1,306	(*b*) (*c*)
Lamaque	1935	376,561	376,551	112,416	(*b*)
Lapa Cadillac	1938	72,480	72,553	12,195	(*a*) (*b*)
McWatters	1934	43,958	43,066	8,432	(*b*)
Malartic Gold Fields	1939	258,171	248,807	51,608	(*b*)
Mic-Mac (1)	1942	74,544	74,266	8,960	(*a*) (*c*)
Noranda (1)	1927	1,862,966	1,863,707	259,772	(*c*)
Normetal (1)	1937	255,676	255,676	3,900	(*c*)
O'Brien	1926	69,406	69,203	27,648	(*a*) (*b*)
Pandora	1940	32,297	32,297	5,306	(*b*)
Perron	1933	208,175	141,638	45,882	(*b*)
Powell Rouyn	1937	307,062	301,194	34,810	(*b*) (*c*)
Senator Rouyn	1940	107,157	107,351	23,597	(*b*)
Sigma	1937	403,467	403,467	76,861	(*b*)
Siscoe	1929	363,516	318,197	47,630	(*a*) (*b*)
Sladen	1938	255,181	255,388	29,639	(*b*)
Stadacona	1936	151,481	151,481	23,534	(*b*)
Sullivan	1934	200,010	168,209	43,367	(*a*) (*b*)
Waite-Amulet:					
Waite (1)	1930	122,776	122,787	2,612	(*c*)
Amulet (1)	1928	6,961	6,932	64	(*c*)
Amulet Dufault (1)	1941	416,085	416,243	12,787	(*c*)
West Malartic	1942	55,955	55,055	6,935	(*b*)
Wood Cadillac	1939	28,893	27,025	4,337	(*a*) (*b*)
Other mines	....	.....	.....	1,091	
Total	....	.....	.....	1,090,659	

(*a*) Amalgamation; (*b*) cyanidation; (*c*) smelter.

(1) Ores of these mines are complex and base-metals and silver also are produced.

Production of Gold in the Province of Quebec 1898 to 1942

Year	Quantity (Ounces)	Value	Year	Quantity (Ounces)	Value	Year	Quantity (Ounces)	Value
1898.....	370	$ 6,500	1913.....	738	$14,794	1928.....	60,006	$ 1,240,435
1899.....	272	4,916	1914.....	998	21,064	1929.....	90,798	1,876,900
1900.....	*nil*	*nil*	1915.....	1,158	23,082	1930.....	141,747	2,930,480
1901.....	80	1,440	1916.....	632	13,041	1931.....	300,075	6,476,103
1902.....	300	5,400	1917.....	1,116	22,570	1932.....	401,105	9,417,576
1903.....	55	1,000	1918.....	1,578	32,615	1933.....	382,886	10,950,540
1904.....	20	160	1919.....	1,446	29,420	1934.....	390,103	13,458,554
1905.....	191*	3,940	1920.....	935	19,346	1935.....	470,545	16,558,478
1906.....	165*	3,412	1921.....	648	12,317	1936.....	666,905	23,361,682
1907.....	*nil*	*nil*	1922.....	*nil*	*nil*	1937.....	711,482	24,894,755
1908.....	*nil*	*nil*	1923.....	667	13,340	1938.....	876,628	30,835,390
1909.....	193*	3,990	1924.....	881	18,372	1939.....	951,681	34,394,703
1910.....	124*	2,565	1925.....	1,834	37,909	1940.....	1,016,162	39,122,237
1911.....	590	11,800	1926.....	3,679	76,070	1941.....	1,084,432	41,750,632
1912.....	980	19,924	1927.....	8,331	172,214	1942.....	1,090,659	41,990,372

*Figures from the Federal Department of Mines.

Silver

Production of silver during 1942 totalled 1,654,184 ounces, valued at $697,503.

The silver produced in the Province of Quebec is a by-product recovered in the course of treatment of gold-quartz ores, and of complex sulphide ores of copper-gold and zinc-gold. Some of the complex sulphide ores also yield selenium and tellurium.

LEAD

Returns of production of lead ore were received from one producer only. This ore was from the Tétreault mine in Portneuf county, some forty-five miles west of Quebec city. In July, 1942, the mine was acquired by *Siscoe Metals, Limited,* a subsidiary of Siscoe Gold Mines, Limited, and during the balance of the year it was operated as a war measure, under the supervision of the Wartime Metals Corporation. This was the first production of lead ore in Quebec since 1935, when a shipment was made from the Tétreault mine, at that time owned and operated by the Pierre Tétreault estate. The mine also produces zinc ore.

New Calumet Mines, Limited, did a considerable amount of development work during the year on their property on Calumet island, but shipped no ore. Details of the operations of the Company are given under the heading of *Zinc* (p. 21)

The Federal Zinc and Lead Company and *Lyall and Beidelman,* both of whom hold mineral lands with important deposits of zinc and lead ore in Lemieux township, Gaspé North county, report that, although no actual development work was undertaken in 1942, a considerable amount of trenching, test pitting, stripping, and other surface exploration was carried out, mostly on the strike of the various veins.

MOLYBDENUM

The keen demand for molybdenum for war needs increased the interest aroused the previous year in the known Quebec deposits of ores of this metal. Although only three producers sent in returns of shipments, important exploratory and development work was carried out by private interests, and also by a Company acting for Wartime Metals Corporation.

The largest shipments of molybdenite, or rather of molybdenum trioxide made by roasting the ore, were by the *Quyon Molybdenite Company, Limited,* who operated the Moss mine, near Quyon, throughout the year. The property consists of lots 9 and 10, range VII of Onslow township, the main deposit, the mill, and the roasting plant being on the south half of lot 9. Development and exploration work carried out at the mine during the year included 305 feet of raising and drifting, and 5,218 feet of diamond drilling.

Early in the year, Wartime Metals Corporation optioned the property of the Molybdenite Corporation of Canada, Limited, and other ground adjoining it, in Lacorne township, Abitibi county, about midway between Val d'Or and Amos, and appointed Siscoe Gold Mines, Limited, as manager, to re-open the mine and bring it to production. This undertaking is known as the *Lacorne Molybdenum Project.* Underground development during the

year included the driving of 945 feet of cross-cuts and drifts, and, in addition, a programme of 4,971 feet of diamond drilling was carried out. A test mill for treatment of bulk samples was erected and was in operation from July until the end of the year. The molybdenite concentrate produced was shipped to the Quyon roasting plant for production of molybdic acid. At the end of the year plans were prepared for a 200-ton mill, and its construction was begun early in 1943.

This property was first staked by A. Odjick, in the early summer of 1916, on a discovery made by him on the south half of lot 1, range I of Lacorne township, Abitibi county. In 1917 the mining rights were transferred to L. N. Benjamin and associates. In 1922 the property was acquired by the Molybdenite Reduction Company, Limited, and named by them the Eureka mine. A mining plant was installed in 1926, and a 30-ton flotation plant in 1929, in which year the first shipment of molybdenite was made from the property. In the fall of 1930, the Molybdenite Reduction Company went into liquidation. The property was then acquired in turn by Lamotte Mines, Limited, and the Molybdenite Corporation of Canada, Limited.

The *Farley Mining Company* carried on mining operations for a short period during the year on a molybdenite prospect on lot 69, range IV of Egan township, fifteen miles north of the town of Maniwaki. This deposit has been known for many years and was described in the "Report on the Mines of the Province of Quebec for 1898" by Joseph Obalski, at that time Inspector of Mines of the Province. The Farley Mining Company made substantial shipments of crude molybdenite ore to the Zenith mine at Ashdad, ten miles south of Renfrew, Ontario, a property operated by Wartime Metals Corporation.

Dome Exploration Company (Quebec), Limited, wholly-owned subsidiary of Dome Mines, Limited, early in 1942 acquired control, by ownership and by options, of a block of some 5,000 acres in Preissac township, Abitibi county. The property covers part of ranges III, IV, and V of Indian peninsula, on which some of the earliest discoveries of molybdenite in the Province were made, one of which dates back to 1901. Dome Exploration performed a great deal of work from June 14th to December 31st. Diamond drilling aggregating 11,000 feet, with most of the holes about 200 feet deep, outlined an important body of ore. The results were very satisfactory and at the end of the year it was decided to erect a large mill. Early in 1943, a subsidiary Company of Dome Mines, Limited, was organized and incorporated, under the name *Indian Molybdenum, Limited*, to take over and operate the property, which is likely to be an important producer of molybdenite in 1943.

M. P. Manolovici and *Bruce Robson* did some extensive sampling of molybdenite deposits on the Kert and Bain groups of claims, mainly on lots 53, 54, and 55, range X of Masham township, in October and November. A bulk sample of three tons was sent to the testing laboratories of the Mines Branch, Ottawa, and is reported to have yielded good results. In December, *Vic-Ore Molybdenite Mines* was organized, as a subsidiary of Goodrock Gold Mines, Limited, to operate these properties.

Norwin Molybdenite Mines, Limited, had several men working for four months during the summer on their molybdenite property on parts of lots 1 and 2, range X, Eardley township. From the development work done, some 12 to 15 tons of sorted ore was piled on the main dump, but none was shipped.

Sullivan Consolidated Mines did some exploratory work on a molybdenite prospect on lot 59, range IX of Lacorne township. An average of nine men were employed for three months. In addition to trenching and stripping, 1,634 feet of diamond drilling was completed. Camp and office buildings were also erected.

SELENIUM

The production of selenium from Quebec ores was appreciably higher in 1942 than in 1941, as a consequence of increased demand for this metal. The selenium is recovered as a by-product in the refining of copper anodes produced at the Noranda smelter from the complex copper-gold ores of Western Quebec. The anodes, which contain gold, silver, selenium, tellurium, and other metals in very small quantities, totalling about one-half of one per cent, are sent to the refinery of *Canadian Copper Refiners*, subsidiary of Noranda Mines, at Montreal East. In the process of electrolytically refining the copper, the gold, silver, selenium, and tellurium fall to the bottom of the tanks as a sludge or 'mud'. The whole of the gold and silver in this sludge are recovered and refined, but only as much of the selenium and tellurium are saved as may be required to meet the probable demand for these metals. The wide fluctuation of production of these two metals is due to the irregularity of the demand, and not to the capability of output.

TELLURIUM

What has been said above regarding selenium applies also to tellurium. In 1940 and 1941 there had been little demand for this metal, but in 1942 the market was much more active and a very appreciable quantity was produced.

TITANIFEROUS IRON ORE

Two producers reported shipments of titaniferous iron ore in 1942: *Baie Saint-Paul Titanic Iron Ore* and *J. A. Coulombe and Company.* They operated, respectively, the mine of the Loughborough Mining Company (on a royalty basis), and the Coulombe mine of the American Titanic Iron Company. Both properties are in the St-Urbain region, some sixty-five miles northeast of Quebec city, and at each the ore is ilmenite.

Production of titaniferous iron ore in the past three years has been appreciably higher than in preceding years owing to the demand caused by the war.

In 1941 and 1942, research work was carried out under the supervision of the Department of Mines on *The Utilization of Titaniferous Magnetites* for the production of pig-iron, steel, and malleable iron. Particular attention was given to the St-Charles deposits in Bourget township, the ores of which are comparatively low in titanium.

Mr. Louis Bourgoin, Professor of Industrial Chemistry and Metallurgy at Polytechnic School of the University of Montreal, had charge of this investigation. His report, published early in 1943 by the Department of Mines (*Preliminary Report No. 179*), is available in both French and English editions.

TUNGSTEN

Although it has been known for years that scheelite (calcium tungstate) occurs in numerous localities in the Province of Quebec, it is present in such small quantities that it had been regarded as of purely mineralogical interest. In 1940, however, the war demand for tungsten became so insistent that interest was aroused in these occurrences, since it appeared that even the minute quantities of scheelite which accompany some of the gold-quartz ores of Western Quebec might, in the emergency, prove an important source of the much-needed metal. In peace time, both Canada and the United States have imported their requirements of tungsten from China and Burma, the two largest tungsten producing countries of the world.

In 1941, both the Federal and the Provincial Departments of Mines conducted investigations at all the mines where the presence of tungsten minerals had been observed. These studies were greatly facilitated by use of the ultra-violet lamp, under the rays of which scheelite emits a characteristic brilliant fluorescence. The Quebec Department of Mines acquired several of these lamps, and an engineer of the staff made observations on the mill feed of many of the gold mills and also gave demonstrations on the possibilities of these lamps in the sure and rapid detection of the presence of scheelite in the ore as exposed in the mine workings or on picking tables. There was a small production of scheelite in 1941 as a result of these efforts, and the campaign was continued in 1942.

The testing laboratories of the Federal Bureau of Mines, Ottawa, will treat tungsten ore, either crude or concentrates, from properties in any part of Canada. The Quebec Department of Mines, with some financial aid from the Dominion, has set up a tungsten ore treatment plant in the ore dressing laboratory of the Mine School at Val d'Or, where, in 1942, scheelite ore lots shipped from the following mines were treated: *Lamaque, Perron, Sigma, Wood Cadillac, Central Cadillac, Canadian Malartic,* and *McWatters.* In addition, *Sullivan Consolidated Mines, Limited,* installed equipment to produce scheelite concentrate from material sorted from their ore.

The Mine School concentrating plant for tungsten, which began operating on November 11th, 1942, has a capacity of treatment of 1,200 pounds per hour. Two concentrates are produced: a high grade one from a Wilfley table and a low grade one by flotation. The sulphides which the ores from various sources contain are first separated by flotation. These sulphides contain 80 per cent of the gold content of the tungsten ores.

The crushing and the sampling of the tungsten ore are effected in the sampling plant proper.

The high grade concentrate (70 per cent tungsten trioxide) is disposed of through the Metals Controller. The low grade concentrate (4 to 5 per cent tungsten trioxide) obtained by flotation is stored until a sufficient quantity has accumulated to constitute a shipment.

The gold-bearing sulphide concentrate is in part treated in the cyanidation plant of the Mine School and in part returned to the original shipper of the ore.

The quantity of scheelite recovered from Quebec ores in 1942 was more than three times the 1941 production. Publication of the exact figure is

withheld for the present, but it may be said that the contribution of the Province to the domestic supply was very appreciable. Despite the effort made in Quebec and in other provinces, however, the production of tungsten ore in Canada was far from sufficient to meet the country's war needs.

The main industrial use of tungsten metal, accounting for nearly 90 per cent of the total supply, is in the production of steel alloys for the manufacture of high-speed cutting tools. Such tools may attain almost red-heat temperatures without having their hardness or toughness impaired. To alleviate the shortage of tungsten and to conserve the supply, molybdenum is often substituted for a part of the tungsten, but for high-speed tools a pure tungsten steel is more reliable than a tungsten-molybdenum steel.

ZINC

Returns of shipments of zinc ore were received from four producers, who operated six mines. They were: *Waite-Amulet Mines, Limited,* who operated three mines—the Waite, the Amulet, and the Amulet-Dufault; *Normetal Mining Corporation, Limited; Golden Manitou Mines, Limited;* and *Siscoe Metals, Limited.*

The production of zinc ore was by far the highest ever recorded from Quebec mines. This is to be ascribed to war needs for the metal.

The largest production came from the Amulet-Dufault mine, in Dufresnoy township. This mine is the property of *Amulet-Dufault Mines, Limited,* subsidiary of Waite-Amulet Mines, who manage and operate the mine. Amulet-Dufault Mines was organized in December, 1940, to acquire a block of ground from the adjoining properties of Waite-Amulet Mines and Lake Dufault Mines.

Normetal Mining Corporation, Limited, operated their mine in Desmeloizes township throughout the year. This is the property originally owned and developed by Abana Mines, Limited. The deposit is a complex copper-zinc-gold ore.

Golden Manitou Mines, Limited, was organized in November, 1941, to acquire from Quebec Manitou Mines, Limited, a part of its property in Bourlamaque township. The ore is zinc-gold-silver. Golden Manitou is a new producer, operation of the 600-ton mill having started in August, 1942.

Details of operations at the above mines, which are all in Abitibi county, are given in a later section of this report, entitled "Mining Operations and Development in Western Quebec".

The production by *Siscoe Metals, Limited,* came from the Tétreault mine in Portneuf county, reference to which has already been made under the heading of *Lead* (p. 17). Development work at the Tétreault mine in 1942 included 1,270 feet of drifts and cross-cuts, and 6,560 feet of exploratory diamond drilling. The zinc concentrate and lead concentrate produced were shipped to the United States, through the Wartime Metals Corporation.

New Calumet Mines, Limited, was incorporated in May, 1942, to take over the properties of Calumet Mines, Limited, on Calumet island, in the Ottawa river some sixty miles above the city of Hull. The existence on this island of zinc and lead deposits, containing some silver and gold, has been known for more than fifty years, and since 1937 they have been the object

of renewed interest. From 1937 to April, 1940, a considerable amount of exploratory diamond drilling was carried out by Calumet Mines, Limited, an organization in which Ventures, Limited, and Nesbitt, Thomson and Company, Limited, were jointly interested. Work was suspended in 1940 and through 1941. Early in 1942, plans were elaborated to resume work on the property, and in the reorganization of Calumet Mines as New Calumet Mines, Ventures, Limited was replaced by its subsidiary, the Frobisher Exploration Company, Limited. During 1942, a shaft was sunk to a depth of 340 feet, and 582 feet of drifting, 200 feet of cross-cutting, and 4,156 feet of diamond drilling were completed. Mine roads were repaired and improved, and several camp buildings were completely or partially constructed. At the end of the year, steps were being taken toward the erection of a concentrating mill.

Siscoe Gold Mines, Limited, acquired an option during the year on a zinc-lead property in range IX of Montbeillard township, twelve miles southwest of Noranda. The property is owned by P. E. Firlotte and associates. Siscoe commenced a programme of exploratory diamond drilling, in which fourteen holes totalling 3,462 feet were put down. The option was still in force at the end of the year.

In the Gaspé zinc and lead region of Lemieux township, both the *Federal Zinc and Lead Company, Limited,* and *Lyall and Beidelman* did a certain amount of exploratory trenching and stripping. No systematic development work was undertaken on these properties in 1942.

NON-METALLIC MINERALS*

I.—INDUSTRIAL MINERALS

ASBESTOS(1)

The asbestos mining industry had a very satisfactory year in 1942. There was a keen demand for all grades of fibre, and most of the mines and mills worked continuously night and day and at maximum capacity.

For the present, no detailed figures of production may be published, as asbestos is a 'war mineral'. Complete data relating to shipments, exports, and other trade figures for the industry, were last given in our annual report for 1939. Since that year, both tonnage of output and total value of shipments of fibre have greatly increased. Shipments during 1942 were slightly lower in quantity, but appreciably higher in total value, than in 1941.

Returns of production were received from the following companies:

Asbestos Corporation, Limited, Thetford Mines
Bell Asbestos Mines, Limited, Thetford Mines
Canadian Johns-Manville, Limited, Asbestos
Johnson's Company, Thetford Mines
Nicolet Asbestos Corporation, Limited, Norbestos
Quebec Asbestos Corporation, Limited, East Broughton

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* Unless otherwise stated, the notes on Non-Metallic Minerals are by Paul E. Bourret, Engineer, Division of Mineral Deposit.

(1) From notes of periodical inspections.

Asbestos Corporation, Limited

This Company operated five of its mines, all of them without interruption throughout the year. These mines were the *King, Beaver,* and *Bennett-Martin,* in Thetford Mines; the *British-Canadian,* in Black Lake; and the *Vimy Ridge,* seven miles north of Coleraine station.

King Mine:

Both mine and mill were in full operation the whole year. The block-caving system of mining, which was introduced in 1932, continued to give entire satisfaction. The main shaft, which gives access to the underground workings, has been deepened to 1,100 feet, and a row of 'blocks' is being developed at this lower level. The blocks to be 'caved' measure 100 feet by 100 feet in horizontal section and are 400 feet high(1).

During the year, asbestos-bearing rock was drawn from blocks 506, 511, 512, 513, and 515. In addition, production included all the rock mined in the course of the development of new blocks, a very appreciable tonnage, as each block, before it is undercut to start caving, has to be 'fringed' with a series of drifts on the four sides of the huge prism of rock, and haulage and service drifts also have to be opened.

On the 500-foot level, development of block 518 was started, but the main work of that nature was on the 900-foot and 855-foot levels, where blocks 901, 903, and 905 were traced out and their development started.

At the bottom of the shaft, a sump was constructed and an electric pump installed.

Beaver and Bennett-Martin Mines:

The Beaver mine, on lots 31 and 32, range *C*, Coleraine township, and lot 36, range XI, Ireland township, and the adjoining Bennett-Martin mine, were in continuous operation throughout the year, as also was the Beaver mill, which treats the ore from both these mines.

The Beaver mine is an open pit operation. Cars on the floor of the pit are loaded by mechanical shovel and hauled through a tunnel to an inclined shaft, which also services the adjoining Bennett-Martin mine. Here the ore from both mines is hoisted to surface and conveyed to the mill.

The Bennett-Martin mine is operated both as an open pit—the floor of which is at a higher level than that of the Beaver—and by underground workings from which glory-holes are broken through to the pit floor. Raise No. 4 from these workings was opened to the floor of the pit early in 1942. The ore is hauled from the underground workings to the inclined shaft already referred to.

The work of removing and carting away the old tailing dump along the edge of the Beaver pit was continued, and by the end of the year some 50,000 cubic yards out of an estimated total of 175,000 cubic yards had been cleared

(1) For a detailed description of this system of mining see *Block Caving at the King Mine,* by J. G. Ross and Staff; Trans., Can. Inst. Min. and Met., Vols. XXXVII (1934) and XXXIX (1936).

away. When this work is completed, the open-cast workings will be extended. Removal of the dump will also eliminate danger of slides into the pit.

During the year, ventilation fans were installed in the mill at the discharge of the hammer crushers. This has greatly improved the dust situation. Construction of a change-house was completed in the fall.

British-Canadian Mine:

This mine is at Black Lake, on Block *A*, Coleraine township. In January, operations at one of the open pits of the mine, the Standard pit, were suspended for the winter, and the mechanical shovel used there was moved to the Company's Vimy Ridge mine in Ireland township. The main pit and the mill were in operation throughout the year. In July, measures were taken to re-open the Standard pit and the mechanical shovel was returned from the Vimy Ridge mine. In the latter part of the year both pits were actively worked, the main one on a 24-hour schedule of three shifts, and the Standard on two shifts.

For the greater part of the year the mill was treating 3,000 tons of rock a day on a three-shift schedule. A two-story annex has been added to the mill, the equipment of which is being constantly improved. During the year, three new dust-fans were installed, and other additions included a new fibre bagging machine similar to the one at the King mine. British-Canadian fibre is in great demand.

Vimy Ridge Mine:

This mine, on lots 23 to 25, range III, Ireland township, was operated steadily throughout the year. It consists of two adjoining open pits, in which the rock is loaded with mechanical shovels. The mill, also, was in operation night and day and treated up to 110 tons of rock per hour.

Following is a list, for purposes of record, of other asbestos properties of the Asbestos Corporation which have not been in operation for some years:

Asbestos Mines (pits), lot 13, range IV, and lot 14, range V, Broughton township
Asbestos Fibre Mine, lot 18, range IV, Thetford township
Belmina Mine, lots 23 and 24, range II, Wolfestown township
Black Lake Asbestos and Chrome Mine (Union pits), lots 27 and 28, range *B*, Coleraine township
Broughton Mine, lot 13, range VIII, Broughton township
Consolidated Mine, lot 28, range VI, Thetford township
Federal Mine, lot 9, range V, Thetford township
Fraser Mine, lot 14, range VII, Broughton township
Maple Leaf Mine, lots 28 and 29, range VIII, Coleraine township

Bell Asbestos Mines, Limited

The Bell mine, on lot 27, range V of Thetford township, was in operation throughout the year. The mine is an open pit in which the rock is broken by benching and falls through mill-holes and ore-passes to the 300-foot haulage level, where it is loaded from chutes into cars, to be hauled to a grizzly and ore pocket. From the latter, it passes to the 400-foot level, where it is loaded in skips and hoisted to the surface. There are at present ten mill-holes in the floor of the pit. Scrapers are used to bring the broken rock to the mill-holes.

Much of the long-fibre crude asbestos is recovered by hand sorting on the floor of the pit.

A great deal of surface stripping was done during the year on the northwest, west, and southwest sides of the pit. This is in preparation for extending the pit in these directions. In addition, more than 5,000 feet of exploratory diamond drilling was carried out on the property.

The mill was in operation during the whole year. It has a rated capacity of 1,200 tons per day.

Johnson's Company

This is the oldest asbestos mining company in the Province, having been incorporated in 1885. It is a private Company, wholly owned by the descendants of the original shareholders, who operate two properties, one at Thetford Mines and the other at Black Lake. Some of the employees represent the third generation of men who were employed by the Company in the early years of operation.

The *Johnson's Thetford mine*, on lot 27, range VII of Thetford township, is the oldest of the Canadian asbestos mines. Mining, on a very small scale, was started in 1876 on the site of the present open-cast workings, and the first shipment of asbestos fibre was made in 1878.

After more than sixty years of open-pit quarrying, the block-caving method of mining was adopted in 1940, following the example of its neighbour, the King mine. In 1942, the asbestos rock for the mill was drawn from blocks 1, 5, and 6, and also from development work on other blocks. However, a very appreciable amount of long-fibre crude asbestos is still recovered from certain faces of the open-cast pit.

The Company reports having done 10,800 feet of exploratory diamond drilling during 1942. Underground, drifts totalling 9,000 feet and raises totalling 4,000 feet were completed in development work and in preparation of blocks for mining. Work has been proceeding on the development of blocks 2, 3, and 8.

The mill has a rated capacity of 2,400 tons per 24 hours. In 1942, steps were being taken to improve dust conditions in the mill. At the end of the year, plans were prepared for enlarging the drying plant in order to install two additional rotating cylindrical dryers.

The *Johnson's Black Lake mine*, and also the mill, were active throughout the year. The demand for asbestos fibre was so brisk that it was shipped as fast as produced. During the year some 34,500 feet of exploratory diamond drilling was done on the main property and on the adjoining lots 30 and 31, range *B* of Coleraine township. On the latter ground, some stripping was done and a small pit was opened, operated with a steam shovel. A cement road was constructed leading from this pit to the mill.

The mill has a rated capacity of 960 tons of rock per 24 hours. The 'jumbo' fiberizers were eliminated and replaced by rolls in the hope that the latter would reduce the breakage of the fibre. Dust conditions in the mill were improved by the installation of additional fans.

The Johnson's Company also carried out some prospecting and exploratory diamond drilling on a serpentine occurrence in Talon township.

Quebec Asbestos Corporation, Limited

This Company owns several asbestos properties in ranges VI, VIII, and IX, Broughton township. For the past five years, the main supply of asbestos rock for the mill has come from what was formerly known as the Montreal mine, on lot 13 of range IX.

In 1942, the mine and mill were operated from the beginning of January until the end of November, with the exception of the usual stoppage in the spring for overhaul and repairs. Operations were resumed at both mine and mill in the last week of January, 1943.

The Company did some exploratory diamond drilling on their properties during the summer of 1942.

Canadian Johns-Manville Company, Limited

Responding to the urgent demand for asbestos to be used for war matériel, this Company carried on mining work at high pressure throughout the year in the large, open pit of their Jeffrey mine. The mill also was operated at capacity. No changes were made in the method of mining. The mill is rated to treat 6,000 tons of rock per 24 hours. Additional fans were installed, which appreciably improved the dust condition.

A spacious machine-shop, fitted with the most modern equipment, was erected south of the mill building. It is of steel-frame construction on a concrete foundation. A part of the shop is set aside for the electricians. Another new structure was an annex to the main office building. It is occupied by the engineering staff.

During the year, the Company did 23,500 feet of exploratory diamond drilling.

Nicolet Asbestos Mines, Limited

The property of this Company comprises lots 20 and 21, range XI, Tingwick township. The mine is five and a half miles northeast of the Jeffrey mine of the Canadian Johns-Manville Company.

Throughout the year, both mine and mill were operated on a schedule of two ten-hour shifts a day. The mill has a rated capacity of 1,100 tons per day of 24 hours. Installation of some additional jumbos (fiberizers) resulted in an increased yield and a better quality of fibre.

During the year, a building was erected to serve mainly for storing mine and mill supplies. This building has floor dimensions 60 ft. by 50 ft. and is set on concrete foundations. A part of the ground floor is used as offices for the manager and for the accountant.

Canadian Refractories, Limited

It is of interest to note that Canadian Refractories, Limited, produced a small amount of asbestos in 1942. Some two tons of 'crude' fibre was hand-picked in the course of mining in the Company's underground magnesitic-dolomite quarry on lot 15, range IX of Grenville township. The chrysotile asbestos, a very pure variety containing only a trace of iron, was found in quite appreciable amount in a mass of serpentine included in the

dolomite orebody. The mine workings have barely exposed the serpentine mass but it appears to be quite large, of the order of several thousand tons.

FELDSPAR

Shipments of feldspar in 1942 were 16,802 tons valued at $164,588 as compared with 14,218 tons valued at $137,160 in 1941. The increase in sales over the preceding year is due mainly to new customers who formerly purchased their feldspar from United States producers. The output, for the most part high-potash feldspar, was derived from eleven mines, all situated within twenty miles of Buckingham, Papineau county.

The main producers were the Canadian Flint and Spar Company, Limited, and United Mining Industries, Limited.

The *Canadian Flint and Spar Company, Limited,* operated the Back mine, on lot 15, range II, Derry township; the Derry mine, on lot 8, range I, Derry township; the New York mine, on lot 27, range IX, Buckingham township; and a new property, the Wakefield mine, on lot 28, range XIII, Templeton township. The bulk of the production was ground in the Company's own mill at Buckingham; the remainder was shipped as crude feldspar to pulverizing mills in Canada, the United States, and England. The ground feldspar was marketed mainly in Ontario and Quebec to the ceramic and cleanser trades.

United Mining Industries, Limited, operated the Bigelow mine, on lot 16, range IX, Buckingham township. The output, which included a large tonnage of dental spar, was consigned to grinding mills in Canada and the United States.

Intermittent operations were carried on during the year at the following properties: Pedneault mine, on lot 14A, range XII, Buckingham township; Betty mine, on lot 20, range XII, Buckingham township; Bush Winning mine, on lot 27, range VII West, Portland township; Alcidas Charron mine, at Saint-Pierre-de-Wakefield. Small shipments of feldspar were reported from some of these properties.

The average price of crude feldspar was $6.35 per ton f.o.b. Buckingham.

GARNET

No sales of garnet were reported in 1942. The mine and concentrator of *Canada Garnet, Limited,* remained idle throughout the year. At the close of 1942, this Company was reported to have in stock several hundred tons of garnet-bearing products, accumulated in the course of the mining operations of the preceding year.

KAOLIN (China-Clay)

Sales of kaolin in 1942 were 408 tons valued at $6,130. *Canada China Clay and Silica, Limited,* was the sole producer. The output was obtained as a by-product in the recovery of silica from kaolin-bearing quartzite deposits at Saint-Rémi-d'Amherst, Papineau county.

La Société Minière Gatineau, Enregistrée, did a considerable amount of development work on a china-clay deposit on lots 21, 22, and 23, range VIII,

Blake township, on the shore of the southeast end of Thirty-One-Mile lake. Operations consisted in blocking out the deposit by hydraulic drilling.

The deposit is completely covered by overburden and in part lies beneath the lake. Edmond Brégent, consulting mining engineer, states that trenching and upwards of 200 bore-holes have outlined a semi-crescent shaped kaolin deposit with a length of 900 feet and a maximum true width of 106 feet. The deepest hole was still in kaolin at the bottom, at a depth of 292 feet. The deposit dips to the northwest at 76 degrees. The clay varies in colour from light cream to buff.

As the deposit lies almost entirely below the level of the lake, ordinary mining methods by means of open pits or underground workings cannot be economically resorted to. Plans have been made by Mr. Brégent to work the deposit by hydraulic mining through bore-holes. In making use of this method, it is expected that most of the coarse sand contained in the deposit will remain in place and that a high clay recovery will be possible at low cost. Plans have also been made for a clay washing and dehydrating plant, to be built in two sections, one on a floating dock and the other on the shore of the lake.

No operations were conducted in 1942 by *Laurentian Art Pottery, Inc.*, on their china-clay deposit on lots 27 and 28, range VIII, Arundel township. Clay from this deposit mined in 1941 was used last year by this firm as an ingredient in the manufacture of ornamental pottery.

LIME, LIMESTONE, AND MARL (INDUSTRIAL)

A new record was established in the production of industrial lime and industrial limestone. It was valued at $2,576,481 as compared with $2,129,077 in the preceding year. Shipments included 266,640 tons of crude limestone valued at $408,898; 253,737 tons of quicklime valued at $1,875,805; and 79,123 tons of hydrated-lime valued at $291,778.

The Joliette, Saint-Marc-des-Carrières, Bedford, and Limeridge quarries together contributed 52 per cent of the tonnage of crude industrial limestone, and 97 per cent of the tonnage of industrial lime, marketed in Quebec in 1942. The remainder was quarried mainly in Gaspé peninsula and in the Lake Saint-Jean, Montreal, Hull, and Saint-Hyacinthe districts. Industrial limestone was produced by thirty quarry operators, and industrial lime by eight lime-kiln operators. The increase in the sales of agricultural limestone from 79,393 tons in 1941 to 139,078 tons in 1942 is noteworthy. The consumption of industrial lime and limestone in other industries was practically the same as in 1941.

Marl.—The production of marl was 15,879 tons valued at $6,352, against 41,136 tons valued at $16,454 in 1941. The output, used entirely as a soil corrective, came from forty deposits. Sixty-five operators had reported sales of this material in 1941. The whole of last year's production came from deposits in Gaspé peninsula and in Témiscouata county.

DISTRIBUTION OF THE PRODUCTION OF INDUSTRIAL LIME IN 1941 AND 1942
(In Tons)

CLASSIFICATION	1942		1941	
	QUICKLIME	HYDRATED LIME	QUICKLIME	HYDRATED LIME
Sugar refineries	30	30	20	180
Tanneries	1,214	431	1,080	356
Pulp and paper mills	106,394	5,172	105,740	6,514
Agriculture and fertilizer plants	130	643	2	6,134
Iron and steel furnaces	5,985	.....	3,876	.....
Non-ferrous smelters	10,559	59,585	1,724	37,739
Cyanide and flotation mills	2,473	5,267	4,163	4,788
Carbide and other industrial uses	126,952	7,995	111,980	213
TOTAL	253,737	79,123	228,585	55,924

QUANTITY AND VALUE OF INDUSTRIAL LIMESTONE PRODUCTS SOLD IN 1941 AND 1942

CLASSIFICATION	1942		1941	
	QUANTITY (Tons)	VALUE	QUANTITY (Tons)	VALUE
Flux	2,229	$ 2,026	2,369	$ 3,205
Pulp and paper mills	122,959	159,585	128,986	144,646
Agricultural limestone	139,078	236,711	79,393	141,407
Poultry grit	917	4,017	316	1,396
Other industrial uses	1,457	6,559	1,430	5,566
TOTAL	266,640	$408,898	212,494	$296,220

MAGNESITIC-DOLOMITE AND BRUCITE

Production figures for magnesitic-dolomite and brucite are withheld for the duration of the war.

MAGNESITIC-DOLOMITE

Magnesitic-dolomite was produced by two operators: *Canadian Refractories, Limited,* in Grenville township, and the *International Magnesite Company, Limited,* in Harrington township. During the year, the properties of the latter Company were taken over by Canadian Refractories.

J. W. Craig, Manager of the Development and Research Division of Canadian Refractories, has kindly supplied the following information with regard to the operations of that Company during 1942:

"Canadian Refractories, Limited, own and operate a large deposit of magnesitic-dolomite and a manufacturing plant at Kilmar, Grenville township, ten miles north of Calumet. Underground mining is carried on at various levels down to 700 feet; the ore is taken out partly by shrinkage stoping and partly by diamond-drill stoping. A considerable amount of exploratory drilling work was carried out throughout the year. A fourth

rotary kiln was added to the equipment for the dead burning of the magnesite in order to take care of wartime demands. Operations were continuous throughout the year in the plant devoted to the preparation of special products, from chrome and magnesite, and both burned and chemically bonded basic brick.

"The products marketed include a wide variety of dead-burned grain magnesite, cements and plastics, basic brick, heat insulating materials, refractory cements, and a small tonnage of magnesia for the building trade. Magnesitic refractories are essential for the production of steel, both in basic open hearths and basic electric furnaces, and in the smelting of copper and nickel ores.

"The property of the International Magnesite Company was worked by open-pit method throughout the year on a larger scale than previously, and the product marketed from here is stack-kiln calcined magnesitic-dolomite for steel furnaces and in fertilizer.

"At Kilmar, certain other minerals are mined on a very small scale, namely, magnesium silicate, a particularly pure variety of serpentine, for use in pigments, and very low-iron long fibre asbestos".

Brucite

During the year, the *Aluminum Company of Canada, Limited,* put into operation a concentration plant at the Maxwell mine, on lot 26A, range XVI, Hull township. The brucite-bearing limestone deposit on this property is worked by open-pit methods. F. E. Dickie, plant manager, reports as follows on operations at the mine and plant during 1942:

"The brucitic-limestone deposits of the Wakefield district are now being used commercially, and a large plant for this purpose has been operated by the Aluminum Company of Canada, Limited, since the spring of 1942. About one hundred people are employed.

"The brucitic-limestone is crushed, sorted, screened, and calcined. Magnesia is separated from lime by hydration, screening, and washing.

"The magnesia is sold for the manufacture of refractory bricks, which are used in the smelting of steel, copper, and nickel. Being very pure, it is suitable also for the manufacture of chemicals and for the production of magnesium metal.

"The hydrated lime is sold for a variety of uses in the building trades, agriculture, mining, and the paper industry.

"Both magnesia and lime are supplying an important need in our wartime economy".

MICA

More than ninety-nine per cent of the quantity and value of the mica marketed by Quebec mine operators in 1942 was phlogopite. Only a very minor amount of muscovite was produced.

Returns of shipments were received from sixty-two phlogopite mines and three muscovite mines. Fourteen other operators reported mining operations and development work but no sales.

Phlogopite mica came mainly from mines in the adjoining Gatineau River and Lièvre River basins, which accounted for 96 per cent of the total quantity, and 90 per cent of the total value, of the 1942 shipments. The leading producer was *Blackburn Brothers, Limited,* who operated the Vavasour and the Phosphate King mines.

The Vavasour mine, on lot 11, range XII, Hull township, supplied the bulk of the output. This mine worked two shifts per day throughout the year, and a considerable quantity of high grade mica was recovered.

Work at the Phosphate King mine, on lot 15, range VIII, Templeton township, was confined to sinking a shaft to a depth of 80 feet and opening drifts from the bottom. One thousand feet of diamond drilling was also completed. It is reported that this work failed to reveal any new deposits of mica or phosphate.

The Blackburn mine, on lot 9, range XI, Templeton township, for many years the main mica producer of Quebec, was not worked in 1942. The mica grinding plant was moved from this property to the Vavasour mine. It operated continuously throughout the year.

During 1942, the assets of *Papineau Mica Mines, Limited,* and also of the *White Mica Mining Syndicate, Limited,* were taken over by *A. W. White Mica, Limited.* A large quantity of amber mica (phlogopite) of good quality was mined by this operator from deposits on lots 47 to 50, range I, Wells township.

Phlogopite mica suited for use in the manufacture of aeroplane spark-plugs was produced by the *Saint Lawrence Mining Corporation, Limited,* at Kilmar, Grenville township, and by the *Saint Lawrence Mica Corporation,* at Petit-Pré, Côte-de-Beaupré seigniory.

The demand for knife-trimmed and ground mica was strong throughout the year. Also, shipments of mica scrap to grinding mills were exceptionally large. The bulk of this latter material was recovered from abandoned mine dumps. It is reported that operations in the phlogopite mines were seriously handicapped by shortage of labour.

Shipments of muscovite were made by *Eugène Simard* and by *Edouard Boulianne,* who carried on intermittent operations on properties in Bergeronnes township, and also by *Orphila Saint-Amour,* who worked the Villeneuve mine, in Villeneuve township.

In September, 1942, the Simard mine (claim M.C.883 No. 2), in Bergeronnes township, was taken over by *Jos. Beauchemin, Enrg.* The necessary equipment for mechanical drilling was installed at the property and mining operations were started in October. At the close of the year, the operation had yielded twenty-five tons of mine-run mica.

An extensive programme of development work was carried out by the *Roy Kelley Mineral Exploration Partnership* on a claim in Callières township (M.C. 3955 No. 3). A certain quantity of ruby mica (muscovite) was taken out but no sales were made in 1942.

OCHRE AND IRON OXIDES

Sales of ochre and iron oxides totalled 8,866 tons valued at $147,049, against 9,770 tons valued at $139,185 in 1941.

A decrease of 16 per cent as compared with the preceding year was recorded in sales of air-dried crude ochre. The material came from five deposits in the Trois-Rivières district. These operations were at Pointe-du-Lac, Saint-Maurice county, by *Thos. H. Argall;* at Les Forges, Saint-Maurice county, and at Almaville and Saint-Louis-de-France, Champlain county, by *Charles D. Girardin;* and at Saint-Adolphe, Champlain county, by the *Mauricy Oxide Company.* The average price of air-dried crude ochre was $3.60 per ton f.o.b. mine, against $3.38 per ton in 1941. Ochreous iron oxides are used mainly for the purification of coal gas.

The production of calcined iron oxides exceeded that of 1941 by 9 per cent. Shipments were made by one producer only, the *Sherwin-Williams Company of Canada, Limited.* The raw material extracted from deposits in Champlain county is calcined in the Company's plant at Red Mill. The crude iron oxides are first dehydrated and then calcined at high temperatures in a series of small furnaces. After cooling, the calcined oxides are very finely pulverized in ball-mills, making use of an air-float separator to remove any coarse material which would otherwise be present in the finished product.

Anticipating a shortage of wood fuel, the Company has developed a process which permits the use of bituminous coal. As the sulphur gases evolved during the combustion of bituminous coal are detrimental to most of the finished products, special means were provided to absorb these fumes. At the close of the year, three furnaces were being equipped with underfeed mechanical stokers of special design to try this process on a commercial scale.

High-grade calcined iron oxides are used as pigments in various industries and as a buffing material for plate-glass and optical lens polishing. Eighty per cent of the 1942 output was used in war industries.

PEAT*

Sales of peat moss amounted to 12,982 tons valued at $286,651.08, against 7,265 tons valued at $173,639.00 in 1941. Peat moss is used principally as an absorbent material, for improving the physical condition of mineral soils, and as a bedding for animals. Other uses are as an insulating and packing material. Returns of shipments were received from eight operators, as follows: *Premier Peat Moss, Limited, Canada Peat Limited, F. X. Lambert, Quebec Peat Moss Company, La Tourbière de Pointe-au-Père, Louis Roy, Waterville Moss and Peat Mines,* and *Clovis Bourque.*

As for many years past, a small tonnage of peat was produced in the St-Hyacinthe, St-Isidore, and Ste-Barbe districts for use locally as domestic fuel. The blocks of peat, dug manually with spades, are stacked and air-dried on the ground during the warm, dry season of the year and stored under cover for winter use. They form a compact and efficient fuel, slightly higher in calorific value than wood. It would be difficult to compute the amount or value of the peat used in this way and it has been neglected in the general table of mineral production.

To encourage the establishment of a peat-fuel industry in the Province, and particularly in anticipation of a possible shortage of wood-fuel during the winter of 1943-44, the Quebec Department of Mines has developed a

*By Henri Girard, Inspector of Mines.

machine for manufacturing peat fuel. It is a modification of the 'Dolberg' machine, which has been used extensively in Europe. Briefly, it consists of two intermeshing worms, one right-handed and the other left-handed, about 9 inches in diameter and 50 inches long, enclosed in a cast-iron casing. This 'macerator' is provided with a feed hopper at one end and a delivery spout at the other. Hinged to the hopper is a light chain feed conveyor, and the delivery spout has three openings, 3 in. by 3 in., side by side. In operation, therefore, three parallel streams of peat pulp are extruded from the macerator and received on wooden pallets made of laths, three feet long and one foot wide. These pallets are then carried away by hand and either built up into racks or transported to a drying area.

The peat macerating machines were not ready until the end of the 1942 season, but one was operated for a short time on an experimental basis at St-Charles-de-Bellechasse by Eugène Belleau, and a small quantity of peat fuel was made. The results of this experimental work were distinctly encouraging and gave promise of successful operation in the future.

PETROLEUM*

During 1942, several deep wells and drill-holes were put down in a search for oil in widely separated parts of the Province. One of these borings was in the eastern part of Gaspé peninsula, in continuation of the prospecting campaign initiated in 1939. Another was in the Noyan seigniory, Missisquoi county, where the drilling started in Utica shale and penetrated into the underlying Trenton limestone. In St-Maurice county, in the village of Saint-Elie-de-Caxton, a drill-hole which had previously been put down to 400 feet was deepened in 1942 to more than 900 feet; the rocks intersected are of Precambrian age. In Beauce county, at Saint-Georges, a hole was started in steeply dipping schistose slates, and the drilling was being continued in 1943. A shallow well was drilled for gas south of Ville St-Laurent, on the island of Montreal, in Trenton limestone.

Details of these various operations are given in the following pages.

Haldimand No. 1 Well, Gaspé

Imperial Oil, Limited, began the drilling of their Haldimand No. 1 well on December 10th, 1941, on lot 2, range II North, Douglas township, county of Gaspé South. Drilling was continued in 1942 until March 18th and was again carried on from May 2nd to 13th, August 23rd to September 19th, and October 5th to November 16th, when the well was abandoned at a depth of 4,779 feet. No oil was encountered.

A double wind-braced timber derrick was employed, 84 feet high and, at the base, 20 feet square. Drilling was by the cable-tool (Standard) method, with an Imperial Ideal rig and six-inch standard irons. Power was supplied by a 185 h.p. Diesel engine.

From the surface to a depth of 9 feet, the diameter of the hole is 20 inches; from 9 feet to 67 feet, 16 inches; from 67 feet to 677 feet, 13 inches; from 677 feet to 2,012 feet, 10 inches; and from 2,012 feet to the bottom of the hole at 4,779 feet, 8 inches.

*By I. W. Jones, geologist.

Fresh water was encountered at 130-150 feet (2 barrels per hour), at 365 feet (3 barrels per hour), and at 390-395 feet (large flow). There was a strong flow of salt water at 1,066 feet and again at 1,200 feet; the flow at the latter depth stopped after a further fifty feet of hole had been drilled.

A very small flow of gas was obtained at a depth of 780 feet and, at 1,060 to 1,066 feet, there was just sufficient gas flowing to burn with a small flame at the casing head.

Caving caused frequent difficulties, having been encountered at the following depths: 440, 800, 1,210-1,300, 1,495, 1,890, 2,030, 2,300, 2,395-2,400, 2,500, 3,570-3,575, 3,710-3,715, 3,724-3,808, 3,925, 4,055, 4,140, 4,287, and 4,325 feet. In most cases, this caving resulted from the crumbly nature of the shale rather than from any fracturing by faults.

Casing of the following outside diameters and weights was set to the depths indicated: 20-inch, to 9 feet; 13⅜-inch, 48-lb., to 67 feet; 10¾-inch, 45-lb., to 676 feet 8 inches; and 8⅝-inch, 32-lb., to 2,012 feet.

When abandoned, only the 20-inch casing and about 360 feet of the bottom end of the 8⅝-inch casing was left in the hole, it having been impossible to loosen this lower section of the casing when attempts were made to draw it out. In the abandonment operations, the hole was bridged with broken rock, sand, and about 30 feet of cement at each of the following depths: 2,050, 1,650, 1,100, and 700 feet. About 15 feet of mud was introduced above the plug at 1,100 feet, whose top is above the zone at 1,060-1,066 feet at which the second small flow of gas had been encountered. A soldered cap was made on the 20-inch casing, which stands three feet above the ground. The derrick was taken down, the machinery stored nearby, and the casing was shipped to western Canada.

The objective of this operation had been to explore the Middle Devonian formations and to penetrate into the underlying Lower Devonian limestones, which the Company hoped to reach at a depth of about 4,000 feet. Only the Middle Devonian sandstones and shales were encountered. The limestones would possibly have been reached if drilling had continued for an additional depth of 800 to 1,200 feet.

The Middle Devonian of this region, formerly known as the Gaspé Sandstone series, has now been divided into two formations: the Battery Point, and, underlying it, the York River. One of the features distinguishing the two formations is the nature of the feldspars which, with quartz, make up the sandstone members. Pink to red grains of orthoclase are common in the Battery Point sandstones, but are scarce or absent in the sandstones of the York River formation. Shales are common in both formations; much more so than the old name, 'Gaspé Sandstones', would imply.

Haldimand No. 1 well began in the Battery Point formation and continued in that formation for about 1,400 feet. The remainder of the hole was in the York River formation. Following is a summary description of the rocks encountered in the well, compiled from examination of samples taken generally at depth intervals of ten feet:

Log of Haldimand No. 1 Well

Depth (Feet)	
0-85	*Sandstones*, medium- to coarse-grained, quartzose, feldspathic (flesh- to pink-coloured feldspars), in part pebbly (zone 1).
85-585	*Shales*, grey, bluish-grey, and greenish-grey, in part quite silty, with interbeds of *sandstones* varying from fine to coarse in grain, otherwise as in zone 1.
585-765	*Sandstones*, generally medium to coarse in grain with some of fine grain, otherwise as in zone 1.
765-990	*Shales*, bluish-greenish-grey, often silty, with interbeds of fine- to medium-grained *sandstones*.
990-1,060	*Sandstones*, medium- to coarse-grained and in part pebbly, with some *shale*.
1,060-1,240	*Shales and Sandstones*, greenish-bluish-grey, silty shales and medium-grained sandstones in about equal proportions.
1,240-1,370	*Sandstones*, generally medium to coarse in grain, perhaps pebbly, with flesh to pale brown feldspars.
1,370-1,460	*Sandstones*, generally fine to medium in grain.
1,460-1,560	*Shales*, bluish-grey to dark grey soft shale and lighter grey, silty shale.
1,560-1,860	*Sandstones*, grey to greenish-grey and yellowish-grey, fine to medium in grain, with shale to siltstone at 1,740-1,770 feet.
1,860-1,990	*Shales and Sandstones*—particularly notable for the apparent interbeds of *reddish-brown to brownish-grey shale.*
1,990-4,779	*Sandstones and Shales;* the sandstones are greenish-grey, medium to fine in grain, sometimes calcareous, and always feldspathic (grey feldspars); the shale is dark greenish-grey, often silty, and sometimes grading to siltstone. No well-defined zones are recognized, although zones up to 100 feet thick may be predominantly either shale or sandstone. Interbedding of the shales and sandstones is general.

Senigon No. 1 Well, Noyan Seigniory

The *Vicomte Roger de Roumefort* had a hole sunk by diamond drill on lot 136, range 2, concession III of Noyan seigniory, Missisquoi county. Known as Senigon No. 1 well, the hole is on a farm belonging to Omer Benoit, about two miles north-northwest of the village of Clarenceville.

Drilling began on August 12th and continued until September 25th, when operations ceased at a depth of 2,296 feet. The work was done by N. Morissette Diamond Drilling, Limited, Haileybury, Ontario, using a Canadian Longyear (Ingersoll-Rand) machine, driven by a Ford 4-cylinder motor. A 36-foot tripod-type timber derrick made with 50-foot poles allowed the use of 30-foot rods. Two-inch casing was set to a depth of 34 feet, beyond which a 1½-inch hole was drilled, giving a ¾-inch core.

Below the overburden of 25 feet, the rocks encountered to a depth of 2,124 feet were of the Iberville Shale formation of Utica age and the Stony Point Shale formation of Trenton age. The boundary between these two formations is uncertain, but may be at about 368 feet, above which the shales have a brownish tint. While these formations consist predominantly of shales, they contain also some thin layers of limestone. From 2,124 feet to the bottom of the hole at 2,296 feet, the rock is Trenton limestone with interbeds of shale and calcareous shale. The strata are almost horizontal and the well is believed to be situated near the axis of a syncline.

No oil, gas, or water were encountered. Water for drilling purposes was obtained from another hole drilled to a depth of 90 feet at a point near

the road, 400 feet away. This water-well, after passing through 25 feet of overburden, penetrated 65 feet of dark grey shale. The water has a slightly sulphurous taste.

St-Elie-de-Caxton No. 2 Well, Caxton Township

Les Mines d'Huile et Pétrole Tremblay-Joubert Cie, Ltée (*Tremblay-Joubert Coal Oil Co., Ltd.*) resumed the drilling of their well on lot 10, range IV of Caxton township, St-Maurice county. This well, known as St-Elie-de-Caxton No. 2, is in a field about 2,200 feet southeast of the church in the village of St-Elie-de-Caxton. Prior to 1942, it had been drilled to a depth of 400 feet. During 1942, drilling operations were carried on from June 3rd to September 4th and again from November 1st to 30th, when operations were suspended for the season. The well at that time had reached a depth of 913 feet.

An Armstrong No. 50 drilling machine was used in this work. To 905 feet, the diameter of the hole is six inches; below this depth it is four inches.

The rocks encountered in the drilling, and those outcropping in the vicinity, are of Precambrian age, probably of the Grenville formation. Judging by the drilling samples submitted by the Company to the Department, the log of this well would appear to be as follows: 0-130 feet, overburden; 130-400 feet, quartz-biotite gneiss; 400-780 feet, crystalline limestone; 780-910 feet, impure quartzite; 910-913 feet (the bottom of the hole), mica schist.

St-Georges No. 1 Well, Municipality of St-Georges

Edouard Lacroix, on August 8th, began the drilling of a well, known as St-Georges No. 1, on cadastral lot 600-45, municipality of St-Georges, Beauce county. The drilling machinery, which was made locally, is patterned somewhat after the Star type of churn drill, with bits, rods, and tools of the usual oil-well Standard drill. The drilling tools are suspended on a steel cable operating over a post between 35 and 40 feet high. The machine is operated by electric power.

By the end of 1942, a depth of about 400 feet had been reached and drilling was being continued in 1943. Ten-inch casing was set at 208 feet and, below that depth, the hole is eight inches in diameter.

To the depth attained at the end of 1942, the rock encountered by the drilling was uniformly a dark grey, schistose slate cut by veinlets of quartz and calcite. The uniform character of the rock suggests that it represents a relatively small thickness of steeply dipping strata, a view which is supported by the fact that 100 feet away, along Ruisseau d'Ardoise (Slate brook), similar rock is exposed, dipping steeply toward the southeast. It belongs to the Beauceville formation, which is believed to be of Ordovician age. The rocks of this formation are reported by MacKay(1) to be complexly folded and faulted.

Continental Petroleums Well, Galt Township

Continental Petroleums, Limited, which was incorporated in 1942, with head office in Montreal, acquired a special exploration license for oil and gas

(1) MacKay, B. R., *Beauceville Map-area, Quebec;* Geol. Surv. Can., Mem. 127, 1921, pp. 27-28.

on approximately 85,000 acres of land in the townships of Galt, Larocque, Fletcher, and De Beaujeu, counties of Gaspé South and Gaspé North. A geologist made a brief examination of the territory for the Company in September, and in 1943 drilling operations were begun in block 42, Galt township.

Goyette Well, Côte de la Liesse

A. E. Goyette, of Montreal, had a hole drilled during 1942 in a search for gas on the property of the Youville Crèche, Côte de la Liesse, in the parish of St-Laurent, Jacques Cartier county, island of Montreal.

A churn drill was used, and the hole has a diameter of eight inches to a depth of 100 feet and of six inches for the remainder of the distance to the bottom, at 620 feet.

No gas was discernible when the well was inspected at the termination of the operations. Water is said to have been encountered at 450 feet and 485 feet and, when examined, the hole was full of water to within three feet of the surface.

The rocks encountered were Trenton limestone.

PHOSPHATE (APATITE)

The production of apatite or phosphate rock was 930 tons valued at $12,973, against 2,487 tons valued at $33,376 in 1941. The notable decline as compared with the previous year is attributable to the suspension of operations at the Emerald and Little Union mines in February, 1942. These mines, operated by the *Commercial Mineral Products Company*, supplied the bulk of the 1941 output.

Two phosphate mines, the Brazeau and the Squaw Hill, which had been idle for many years were re-opened during 1942. At the Brazeau, on lot 27, range V, Bowman township, there are several small openings in bodies of green or greyish-green apatite. The largest is about 40 feet long, 20 feet wide, and 45 feet deep. Two lenses of massive apatite, one of which is over six feet wide, are visible in this pit, and several pockets of commercial ore are exposed in the walls of the pit. The deposit is worked by *Robert Bigelow*, of Glen Almond. More than five hundred tons of apatite were shipped from this property in 1942. A two-mile road, built last year by the Quebec Department of Mines, connects the main workings with the public highway.

The Squaw Hill mine, on lot 18, range XII, Buckingham township, was taken over by the *J. K. Crang Corporation*, of Toronto. During the year, the main shaft, which is about 140 feet deep, was unwatered and the underground workings were cleared in preparation for mining operations. This mine was worked extensively from 1876 to 1893 and has produced several thousand tons of apatite.

A small part of the 1942 output of apatite came from the High Rock mine, in Portland West township, and from a deposit on lot 30, range IX, Wakefield township.

The bulk of the output was consigned to the *Electric Reduction Company*, at Buckingham, where the apatite is used in the manufacture of phosphorus and phosphorus compounds.

QUARTZ AND INDUSTRIAL SAND

The 1942 output of quartz and industrial sand is the highest ever recorded from Quebec deposits. It amounted to 203,219 tons valued at $543,817, against 147,318 tons valued at $388,948 in 1941.

Quartz and silica sand are used mainly as an ingredient for the production of glass, carborundum, and ferro-silicon; other uses are as an abrasive, as flux in the electro-chemical industry, and as foundry sand.

Sandstone of the Potsdam formation was the chief source of silica for use in the manufacture of carborundum and ferro-silicon. A quarry near Saint-Canut, Deux-Montagnes county, supplied the silica sand used by the *Canadian Carborundum Company*, at Shawinigan Falls, for the manufacture of carborundum. Large tonnages of sandstone from the quarry of *Euclide Montpetit*, at Melocheville, Beauharnois county, were shipped to the Beauharnois plant of *Saint-Lawrence Alloys, Limited*, where it was used in the production of ferro-silicon and also of elemental silicon.

The East Templeton quarry and grinding plant of the *Ottawa Silica and Sandstone Company* was leased to the *Industrial Sands & Minerals Corporation*, of Montreal. Several grades of washed sands for use in steel foundries and as an abrasive were marketed by this firm during the year.

Glass sand, core and moulding sand, and other silica products were shipped from the grinding and washing plant of *Canada China Clay and Silica, Limited*, at Saint-Rémi-d'Amherst, Papineau county. The raw material was obtained from a kaolin-bearing quartzite deposit on the property of the *Canadian Kaolin Silica Products, Limited*, about one mile southeast of the grinding plant. Canada China Clay and Silica has abandoned operations in the underground workings on its own property.

Quartz from pegmatite dykes in the lower Lièvre River area was used as flux in the electro-chemical plant of the *Electric Reduction Company*, at Buckingham.

Included in the output figures given above are 5,481 tons of foundry and filter sand, valued at $7,341, extracted from alluvial sand deposits at Farnham and in the Joliette district.

SOAPSTONE AND TALC

Shipments of soapstone and talc in 1942 were valued at $136,529, as against $155,925 in 1941. The average for the five pre-war years, 1935-39, was only $32,600, from which it will be apparent that war demands have greatly stimulated the soapstone and talc industry.

Returns were received from eight producers. Four of these were operators of talc or soapstone deposits, and four were small 'jobbers' who, in answer to the demand, shipped material from waste dumps, which involved no quarrying work.

The *Baker Mining and Milling Company*, who operate a white talc deposit, and also a mill, on lots 5 and 6, range II of Potton township, report having had an active year in 1942, and that much of the talc they produced was sent to England. The talc is mined underground, by shrinkage stoping. The output is all ground in the mill before shipment.

The *Broughton Soapstone & Quarry Company* has several soapstone properties, the principal one being on lot 12, ranges X and XI of Broughton township. This mine was operated throughout the year, as also was the surface plant, which includes a saw-mill to saw shaped furnace bricks and a pulverizing mill. The number of men employed varied between twenty and sixty, according to circumstances. There was at times a scarcity of labour, and at others a decline in the demand. The products of this Company comprise ground talc, bricks and shapes for furnace linings, and crayons, the latter made from the softer waste of the saw-mill.

This Company also worked their quarry at St-Antoine-de-Pontbriand, on lot 13, range III of Thetford township, and their Leeds quarry, on lot 15, range XV of Leeds township. The output from these two quarries is usually transported to the Broughton plant for treatment.

L. C. Pharo operated his quarry on lot 12, range IV of Leeds township, and also his saw-mill and pulverizing mill.

Charles Fortin worked his quarry and saw-mill at Robertsonville, on the east half of lot 2, range V of Thetford township, during the greater part of the summer. Furnace bricks and shapes were shipped to paper mills, and waste from the saw-mill to grinding mills in Montreal.

The 'jobbers' who contributed to the production picked over waste dumps of various quarries and made small shipments to pulverizing mills.

II.—BUILDING MATERIALS*

Sales of mineral building materials were appraised at $14,695,141, against $14,010,787 in 1941. The slight increase over the preceding year is attributable to the larger tonnage of materials such as cement, crushed granite, and sand, used as concrete aggregate. On the other hand, notable decreases were registered in the production of building and ornamental stone, and also of clay products.

Statistics compiled by MacLean Building Reports, Limited, show that building and engineering contracts let in the Province of Quebec in 1942 were appraised at $92,235,500, against $154,541,600 in 1941. For the whole Dominion, comparative figures were $281,594,100 in 1942, and $393,991,300 in 1941.

Of the $62,308,100 drop in value of building contracts of all kinds as compared with 1941, 89 per cent was in the sub-division of engineering construction. Some exceptionally large engineering contracts were let in 1941, including those for the immense Shipshaw and Passe Dangereuse power developments. Construction work on these two projects was still in progress during 1942 and it absorbed much of this year's building materials output.

Fifty-seven commercial, and twelve non-commercial, quarries produced crushed stone in 1942. Their combined output was 3,589,648 tons valued at $2,911,556, against 3,019,195 tons valued at $2,197,405 in 1941.

*By Paul E. Bourret.

BUILDING CONTRACTS LET IN THE PROVINCE OF QUEBEC, 1938-1942

YEAR	RESIDENTIAL	BUSINESS	INDUSTRIAL	ENGINEERING	TOTAL
1938	$15,044,600	$20,166,100	$ 5,827,700	$24,740,500	$ 65,778,900
1939	20,398,200	17,183,400	5,395,300	19,869,700	62,846,600
1940	20,195,400	21,353,100	38,259,200	16,518,600	96,326,300
1941	26,304,700	28,888,900	33,116,500	66,231,500	154,541,600
1942	24,043,000	21,425,700	35,579,500	11,187,300	92,235,500

PRODUCTION OF CRUSHED STONE IN THE PROVINCE OF QUEBEC, 1941 AND 1942

CLASSIFICATION	1942			1941		
	QUANTITY (Tons)	VALUE	AVERAGE PER TON	QUANTITY (Tons)	VALUE	AVERAGE PER TON
LIMESTONE:						
Commercial quarries:						
Montreal and Jésus Is.	1,442,802	$1,096,100	$0.76	1,766,540	$1,097,286	$0.62
City of Quebec district	219,938	192,209	0.87	227,485	197,299	0.87
Other parts of Province	660,377	485,468	0.74	634,729	467,660	0.74
Total	2,323,117	$1,773,777	$0.76	2,628,754	$1,762,245	$0.67
*Non-commercial quarries	99,396	116,542	1.17	85,974	78,372	0.91
TOTAL	2,422,513	$1,890,319	$0.78	2,714,728	$1,840,617	$0.68
GRANITE:						
Commercial quarries	155,243	$ 225,816	$1.46	193,253	$ 250,480	$1.30
*Non-commercial quarries	951,435	713,901	0.75	59,990	45,760	0.76
TOTAL	1,106,678	$ 939,717	$0.85	253,243	$ 296,240	$1.17
SANDSTONE:						
Commercial quarries	45,107	$ 62,503	$1.39	27,758	$ 37,082	$1.34
*Non-commercial quarries	15,350	19,017	1.24	23,466	23,466	1.00
TOTAL	60,457	$ 81,520	$1.35	51,224	$ 60,548	$1.18
TOTALS	3,589,648	$2,911,556	$0.81	3,019,195	$2,197,405	$0.73

*Municipal and government owned quarries, and contractors who, themselves, use the whole of their output.

CEMENT

Shipments of cement totalled 4,446,416 barrels valued at $6,487,078, as compared with 4,048,749 barrels valued at $5,798,188 in 1941. The average market price of cement, f.o.b. plant, was $1.46 per barrel, against $1.43 per barrel in the preceding year.

The entire output came from the Montreal East and Hull plants of the *Canada Cement Company*. The raw materials, and their amounts, quarried in the Province of Quebec and used for the manufacture of cement were as follows: limestone and dyke rock, 1,106,730 tons; clay, 30,312 tons; sandstone, 2,260 tons.

No changes or improvements of noteworthy interest were made in the Quebec cement plants during the year.

CLAY AND SHALE PRODUCTS

Domestic clay and shale products marketed in 1942 were valued at $1,734,677, against $1,944,328 in 1941. The output consisted of building brick, structural and drain tile, sewer pipe, and ornamental pottery.

The raw materials used in the brick and tile industry were marine clays of Champlain age; Utica, Lorraine, and Sillery shales; and sand. Of thirteen common and face brick producers, four used ground shale as raw material; all the others used superficial clay. Brick made with ground shale accounted for 91 per cent of the quantity, and 94 per cent of the value, of the total output of building brick, as compared with 84 per cent and 87 per cent, respectively, in 1941.

The average market price of common brick made by the soft-mud process dropped from $10.05 per thousand in 1941 to $8.77 per thousand in 1942. There was little or no change in the average price of brick made by other processes.

During 1942, large quantities of brick made by *Citadel Brick, Limited,* at Boischatel, Montmorency county, were used in the construction of the Arvida plant of the Aluminum Company of Canada, Limited. Brick produced at Laprairie by *Saint-Lawrence Brick, Limited,* were used in building the Montreal works of Defence Industries, Limited, and also the Hotel-Dieu-de-Saint-Vallier Hospital, Chicoutimi.

An increase of 10 per cent was recorded in the production of sewer pipe as compared with 1941. Sewer pipe is manufactured by *Standard Clay Products, Limited,* at Saint-Jean-d'Iberville. This firm used as raw materials a local clay with addition of imported fire-clay.

In 1942, glazed and unglazed ornamental pottery was produced and marketed by *Laurentian Art Pottery, Incorporated,* at Saint-Jérôme, Terrebonne county, and by *La Poterie du Saguenay, Limitée,* at Chicoutimi, Chicoutimi county. The former Company used as raw materials a local clay, kaolin mined by themselves in Arundel township, and imported fire-clay; La Poterie du Saguenay employed domestic clay and imported fire-clay.

CLAY AND SHALE PRODUCTS IN 1941 AND 1942

CLASSIFICATION	1942		1941	
	QUANTITY	VALUE	QUANTITY	VALUE
BRICK:				
Common brick, soft mud process.....M	1,136	$ 9,960	3,954	$ 39,741
Face brick, stiff mud process .....M	12,610	278,200	19,135	423,734
Common brick, stiff mud process.....M	35,399	525,595	41,362	614,264
Face brick, dry press.....M	1,531	43,676	2,931	83,587
Common brick, dry press.....M	10,624	209,822	11,319	223,550
SUB-TOTAL.....	61,300	$1,067,253	78,701	$1,384,876
OTHER PRODUCTS:				
Structural tile.....Tons	39,307	$ 397,896	37,763	$ 335,141
Drain tile.....No.	995,113	40,328	917,113	37,860
Sewer pipe.....	.....	189,800	.....	172,530
Pottery.....	.....	39,400	.....	13,921
SUB-TOTAL.....		$ 667,424		$ 559,452
TOTAL.....		$1,734,677		$1,944,328

GRANITE

Sales of granite products totalled 1,178,765 tons valued at $1,449,838, as compared with 316,372 tons valued at $866,180 in 1941. Shipments consisted of 11,159 tons of building and monument stone, 7,579 tons of curbstone and paving blocks, and 1,160,027 tons of crushed granite, rubble, and rip-rap.

Granite is used mainly in the construction of public and large commercial buildings. Due to the war, very few of these were constructed in 1942, and, as a consequence, the production of building granite, which amounted to 13,941 tons valued at $253,526 in 1941, dropped to 2,471 tons valued at $90,711 in 1942. Seventeen granite quarry operators reported sales of building and monument stone. Of these eleven marketed grey granite quarried in the Little Mount Mégantic, Scotstown, and Stanstead areas, and in the vicinity of Saint-Gérard in Wolfe county; three produced black or dark grey granite quarried at Saint-Gédéon, Roberval county, and at Mount Johnson, Iberville county; and three produced granite of various colours quarried in other parts of the Province. Grey granites constituted 63 per cent of the quantity and 47 per cent of the value of building and monument granite sold in 1942. Among the outstanding buildings in which Quebec granite was employed in 1942 is the Université de Montréal building, in Montreal, built in part of Stanstead granite.

The crushed granite produced in 1942 was obtained, for the most part, in the course of the excavation of a diversion canal north of the Saguenay river at Chute-à-Caron, and was used in the construction of a dam and hydro-electric power plant at Shipshaw. Other data relating to crushed granite are given in the table on page 40.

QUANTITY AND VALUE OF GRANITE SOLD IN 1941 AND 1942

CLASSIFICATION	1942		1941	
	QUANTITY (Tons)	VALUE	QUANTITY (Tons)	VALUE
Building stone, rough	539	$ 6,797	753	$ 4,552
Building stone, dressed	1,932	83,914	13,188	248,974
Monument stone, rough	5,663	83,867	5,874	62,623
Monument stone, dressed	3,025	267,125	4,137	198,426
Curbstone	5,571	28,780	3,379	14,483
Paving blocks	2,008	12,776	2,106	16,931
Asphalt filler	.....	.....	425	1,635
Rubble and rip-rap	53,349	26,862	33,267	22,316
Crushed stone	1,106,678	939,717	253,243	296,240
TOTAL	1,178,765	$1,449,838	316,372	$866,180

LIME AND LIMESTONE (BUILDING)

The total quantity of limestone quarried in Quebec in 1942 was estimated at 4,604,290 tons, against 4,937,456 tons in 1941. The production was used as follows: 1,130,171 tons in the manufacture of cement and building lime;

2,646,003 tons in the building trade, as dimension stone, crushed stone, and rubble; and 828,116 tons for industrial purposes. Industrial lime and limestone, classed with the 'industrial minerals', are dealt with on page 28.

BUILDING LIME:

Thirteen lime kiln operators reported sales of 8,423 tons of quicklime and 6,132 tons of hydrated-lime for use in the building trade. The leading producers were *Dominion Lime, Limited,* Limeridge, Wolfe county; *Henri Limoges,* Montreal; and the *Standard Lime Company, Limited,* St-Marc-des-Carrières and Joliette. A small tonnage of building quicklime was also produced in the vicinity of the cities of Hull, Saint-Hyacinthe, and Trois-Rivières.

The 1942 output includes hydrated-lime recovered as a by-product in the concentration of brucite by the *Aluminum Company of Canada, Limited,* at Wakefield, Gatineau county, and in the manufacture of acetylene gas by *Shawinigan Chemicals, Limited,* at Shawinigan Falls.

DIMENSION STONE:

Forty-eight per cent of the total tonnage of building and ornamental stone quarried in Quebec during 1942 was limestone, against 41 per cent in 1941. The output amounted to 10,935 tons valued at $92,601, against 16,769 tons valued at $180,153 in the preceding year. The bulk of the production was derived from quarries on Ile-Jésus and at Saint-Marc-des-Carrières, Portneuf county; the remainder was quarried in the Hull and Quebec City districts.

CRUSHED STONE:

In 1942, thirty-nine commercial and eight non-commercial quarries produced 2,422,513 tons of crushed limestone, valued at $1,890,319, a decrease of 12 per cent in quantity but an increase of 3 per cent in value as compared with the all-time record output of 1941. The increase in the total value is to be attributed solely to the higher market price of crushed stone in the Montreal area. The price of crushed limestone in other districts remained unchanged. Other data relating to crushed limestone are given in the table on page 40.

DISTRIBUTION OF THE PRODUCTION OF BUILDING LIME IN 1941 AND 1942
(In Tons)

CLASSIFICATION	1942		1941	
	QUICKLIME	HYDRATED LIME	QUICKLIME	HYDRATED LIME
Building trade	6,095	2,927	7,425	1,664
Dealers and unspecified uses	2,328	3,205	8,894	3,113
TOTAL	8,423	6,132	16,319	4,777

QUANTITY AND VALUE OF BUILDING LIMESTONE PRODUCTS SOLD IN 1941 AND 1942

CLASSIFICATION	1942		1941	
	QUANTITY (Tons)	VALUE	QUANTITY (Tons)	VALUE
Building stone, rough	7,762	$ 13,902	7,759	$ 13,504
Building stone, dressed	3,010	76,736	8,850	165,523
Monument stone, rough	.....	.....	148	434
Monument stone, dressed	163	1,963	12	692
Flagstone	22	62	47	106
Asphalt filler	7,063	28,792	10,389	37,233
Rubble and rip-rap	205,470	146,074	373,433	210,056
Crushed stone	2,422,513	1,890,319	2,714,728	1,840,617
TOTAL	2,646,003	$2,157,848	3,115,366	$2,268,165

MARBLE

The 1942 production of building marble amounted to 7,869 tons valued at $50,645, as compared with 9,883 tons valued at $88,943 in 1941.

The entire output of building and ornamental marble was produced by the *Missisquoi Stone & Marble Company, Limited.* This firm quarries at Philipsburg, Missisquoi county, several varieties of fine grained, light grey marble, some of which are tinted green or pink, and also a black marble. Outstanding buildings in the construction of which Philipsburg marble was used in 1942 include the Université de Montréal and the Canadian National Railways terminal, both in Montreal, the Naval College, Halifax, the Bell Telephone building, Ottawa, and the Aluminum Company of Canada's plants at Arvida and Shawinigan Falls.

Granulated and pulverized marble for use in terrazzo flooring, in artificial stone, for stucco work, and for agricultural purposes, was marketed by the *Missisquoi Stone & Marble Company* and by two other operators, viz., the *White Grit Company*, at Portage-du-Fort, Pontiac county, and *Mab, Limited*, at Saint-Joseph, Beauce county.

During the year under review, Mab, Limited, re-opened a red marble quarry that had been worked prior to 1923 by the British Canadian Marble Company, Limited. The deposit, which is on lots 422 to 425 of the parish of Saint-Joseph-de-Beauce, consists of a steeply dipping band of fine grained red marble traversed by narrow, white, calcite veinlets. The whole of the 1942 output was crushed marble.

The 4,925 tons of rubble shown in the table was shipped by the Missisquoi Stone & Marble Company and went for the most part to grinding mills in Montreal.

Statistics pertaining to marble and dolomite used for industrial purposes are included with 'industrial limestone' (page 28).

MARBLE PRODUCTS SOLD IN 1941 AND 1942

CLASSIFICATION	1942	1941
Building and ornamental stone, rough	214 tons	61 tons
Building and ornamental stone, dressed	146 "	422 "
Crushed marble	2,584 "	4,160 "
Rubble and rip-rap	4,925 "	5,240 "
TOTAL	7,869 tons	9,883 tons

SAND AND GRAVEL

Sand and gravel production was estimated at 11,026,249 tons appraised at $2,485,853, against 11,681,390 tons valued at $2,673,300 in 1941.

The output came from 2,939 pits opened in sand and gravel deposits in practically all settled areas of the Province. Approximately 5,000,000 tons of gravel and sand was used for road construction and maintenance, 1,100,000 tons as railway ballast, and 4,900,000 tons in engineering and general construction work. Exceptionally large quantities of sand and gravel were used by the *Foundation Company of Canada, Limited*, in work connected with the Shipshaw hydro-electric power development, and by *Dufresne Engineering Co., Limited*, in the construction of the Passe Dangereuse retaining dam.

As usual, the production of washed sand and gravel was used for the most part as concrete aggregate. The average selling price of this material was $0.38 per ton, against $0.35 per ton in 1941.

QUANTITY OF SAND AND GRAVEL SOLD IN 1941 AND 1942

CLASSIFICATION	1942	1941
Washed and screened sand and gravel	813,788 tons	552,633 tons
Ballast	1,126,395 "	1,020,762 "
Sand and gravel for building, concrete, and roads	7,482,531 "	7,530,142 "
Crushed gravel	1,594,365 "	2,539,495 "
Other sands	9,170 "	38,358 "
TOTAL	11,026,249 tons	11,681,390 tons

SANDSTONE AND SHALE

Production of sandstone in 1942 totalled 72,895 tons valued at $92,725, against 76,928 tons valued at $82,701 in 1941.

The output, made up of crushed stone and rubble, came mainly from quarries in the vicinity of the cities of Quebec and Sherbrooke and along the south shore of the Lower Saint-Lawrence. The material was used locally in general construction and road work.

Sales of slate and shale amounted to 428 tons valued at $648. Red shale quarried by *Citadel Brick, Limited*, at Lauzon, Lévis county, and slate from the waste dumps of the New Rockland slate quarry, in Melbourne township, constituted the entire output.

QUANTITY AND VALUE OF SANDSTONE SOLD IN 1941 AND 1942

CLASSIFICATION	1942		1941	
	QUANTITY (Tons)	VALUE	QUANTITY (Tons)	VALUE
Building stone, rough	.....	.....	38	$ 100
Building stone, dressed	.....	.....	1	16
Rubble and rip-rap	12,438	$11,205	25,665	22,037
Crushed stone	60,457	81,520	51,224	60,548
TOTAL	72,895	$92,725	76,928	$82,701

MINING OPERATIONS AND DEVELOPMENT IN WESTERN QUEBEC IN 1942

By M. O. Lafontaine, Inspector of Mines

INTRODUCTORY NOTE

The district of 'Western Quebec' comprises the counties of Abitibi and Témiscamingue, and Abitibi Territory to the north of these counties.

During 1942, four gold producers in the district discontinued their operations, mainly because of wartime restrictions, labour shortage, and increased cost of labour and supplies. They are: the Cournor Mining Company, Limited, Wood Cadillac Mines, Limited, Pandora Cadillac Gold Mines, Limited, and Arntfield Gold Mines, Limited.

Four new properties reached the production stage during the year: Golden Manitou Mines, Limited, West Malartic Mines, Limited, Lacorne Molybdenum Project, and Mic-Mac Mines, Limited. Two base-metal producers, Waite-Amulet Mines, Limited, and Normetal Mining Corporation, Limited, considerably increased the rated tonnage of their plants.

Gold mines, and even base-metal mines, experienced a severe shortage of labour. There was also a notable increase in absenteeism, and at some properties the labour turnover was at times as high as 25 per cent per month.

In the pages that follow, details are given of operations at all properties that were active during the year.

BEAUCHASTEL TOWNSHIP

Aldermac Copper Corporation, Limited

The ore reserve position of the mine has not changed materially since 1941, at the end of which year the Company estimated there was about sixteen months' ore supply in sight. Owing, however, to the fact that the rate of mining and milling was somewhat lowered during 1942, it is now probable that the mine will remain in operation until the late summer of 1943 and that the shipping of pyrite from surface piles will continue for a few months after the mine is closed.

The Company was active during the year in prospecting, in an effort to locate a new base-metal mine. In his annual report, the mine manager states that " Company's engineers examined twelve properties in Quebec and four in Ontario. The geologists reconnoitred about 500 square miles in Quebec and mapped the geology of about sixty-five square miles. Geophysical measurements were made on about ten square miles. One of the better geophysical anomalies was being tested by diamond drill at the end of the year.

"Considerable labour unrest was experienced during 1942. This condition was enhanced at Aldermac because the employees are aware of the unfavourable ore-reserve position".

Arntfield Gold Mines, Limited

Mining and milling operations were carried on during the first four months of the year. During this period, 23,809 tons of ore were milled and production amounted to 2,622.058 oz. gold and 2,300.54 oz. silver.

Due to financial difficulties, all operations were suspended in April and the plant was sold to pay creditors.

Francoeur Gold Mines, Limited

The following paragraphs are taken from the annual report of the Company for the year ending December 31st, 1942:

"Production:

Ore hoisted, 1942.....	69,477 tons	Tailing loss, total.....	1,455.09 oz.
Waste hoisted, 1942...	1,462 "	Tailing loss, per ton...	0.021 oz./ton
Gold produced.....	10,996.41 oz.	Gold in heads, total...	12,451.50 oz.
Silver produced.....	1,380.62 "	Average heads.....	0.179 oz./ton
Recovery.....	0.158 oz./ton	Recovery in the mill...	88.3%

"Development:

"*No. 2 Area.*—An ore-pass 85 feet long from the 400 station to the third level was driven and a grizzly installed at the third level. Twenty feet of raising from an old stope on the third level was driven to complete the ore-pass system from the second to the third level. This ore-pass system now handles all the ore from the mine. A total of 124 feet of diamond drilling was done in this area.

"*No. 8 Area.*—Development was confined to diamond drilling on surface and underground for the purpose of outlining the ore in this area. A total of 2,631 feet of surface drilling and 1,055 feet of underground drilling was done.

"*No. 3 Area.*—301-2 drift west was extended 7 feet.

"302-2 drift was extended 54 feet into the footwall to facilitate the mining of the central orebody.

"303-2 drift west was driven 61 feet to open ore in footwall under 301-2 *E* stope or the western orebody.

"301-102 raise driven 389 feet to surface.

"Total drifting, 122 feet.

"Total raising, 389 feet.

"Diamond drilling amounted to 932 feet.

"Ore Reserves:

"329,000 tons of ore averaging 0.25 oz. per ton as indicated by mine assays.

"Milling:

Source of Mill Feed	Tonnage	Grade (gold)
No. 2 zone.....	9,044 tons	0.146 oz./ton
No. 8 zone.....	29,028 "	0.171 "
No. 3 zone.....	29,161 "	0.221 "
Development.....	2,244 "	0.154 "
Total.....	69,477 tons	0.188 oz./ton

"Prior to the installation of the second cyanide plant in December of 1941, the tailings loss for the period January to November inclusive, 1941, was 2,088.58 ounces from a tonnage treated of 71,000 tons or a loss per ton of 0.0294. Applying this loss to the tonnage of 69,477 for 1942, it may have been expected that tailings loss would have amounted to 2,042 ounces; actual loss of 1,455 ounces indicates that 588 ounces were recovered by the second cyanide plant, for a value of $22,628. Current tailings loss as indicated for November and December, 1942, of 0.0179 and 0.0154, respectively, would indicate that even better results may be expected in the future.

"There are about 224,000 tons of tailings retained in the tailings dams containing 5,900 ounces of gold for a grade of 0.027 ounces per ton".

Buffam-Beauchastel Claims

This property was optioned to Noranda Mines, Limited, who carried out some diamond drilling on claims 11975, 11980, and 11981. Eight holes, totalling 1,497 feet, were put down.

Horne Fault Mines, Limited

This Company holds sixty-six claims (35,000 acres) in ranges VI and VII of Beauchastel township. Following a geological and magnetometric survey of the property, a diamond-drilling programme aggregating 3,559 feet in nine holes was completed.

ROUYN TOWNSHIP

McWatters Gold Mines, Limited

The annual report of the Company gives the following account of operations for the year ending December 31st, 1942:

"Underground:

	Current Year	To Date
Drifting	366.0 feet	25,970.0 feet
Cross-cutting	169.5 "	14,831.0 "
Raising and box-holes	95.5 "	5,236.0 "
Winze sinking	—	820.5 "
Shaft stations	—	418.0 "
Winze stations	57.0 "	493.8 "
Shaft stations	—	120.0 "
	688.0 feet	47,889.3 feet
Diamond drilling (underground)	5,430.0 feet	85,182.0 feet
Diamond drilling (surface)	1,835.0 "	31,092.0 "

"PRODUCTION SUMMARY:

Recovery...98.14% Tons milled...43,066 tons Average milled per day...118 tons

Total gold recovered	8,432.242 oz. at $38.50	$324,641.99
Total silver recovered	159.67 oz. at $0.38887	426.29
Total market value of bullion		$325,068.28
Average market value of bullion per ton		$7.548
Average tailing loss per ton		$0.143
Average mill head value (bullion *plus* tailing)		$7.691

"ORE RESERVES ($35.00 gold):

Broken in mine	20,000 tons at $6.30	$126,000.00
Unbroken in mine	10,000 tons at $6.30	63,000.00
TOTAL	30,000 tons at $6.30	$189,000.00

"Owing to the scarcity of labour and other restrictions, underground development work was severely curtailed during the year. This accounts for the decrease in the cost per ton milled.

"The remaining ore reserves, broken and unbroken, are practically all contained in the *702* stope. This orebody is located above the 900-foot level, 2,600 feet east of the winze. Although some high-grade ore has been obtained in the stoping operations to date, the over-all grade is 0.18 oz. In the diamond drilling below the 900-foot level for the extension of this shear, only one hole showed ore. The shear has been stoped above the 900-foot level to a vertical height of 200 feet. Very little information has been obtained to date on the upward continuation of this shear beyond the present stope back. The average stoping length so far is 250 feet.

"Diamond drilling below the 1,200-foot level showed interesting values and favourable structure but no definite ore. Preparations have been made for the sinking of a winze to further explore this area.

"It is possible that sufficient ore will be available to operate the mill for another year. The grade will be such that it will carry only a limited amount of development work. The future of the mine depends on the results that are obtained in this work".

SENATOR-ROUYN, LIMITED

The Annual Report of the Company for the year ending December 31st, 1942, gives the following review of operations:

"MINE:

"Lateral development to the limits of the orebody were completed on all levels to a depth of 875 feet.

"The main shaft was deepened from the 875-foot level to a vertical depth of 1,430 feet. Stations were cut at the 1,000-, 1,125-, 1,250-, and 1,375-foot levels, and a loading pocket at 1,322 feet. At the close of the year, lateral development was just started on the 1,000- and 1,125-foot levels.

"Diamond drilling from the 875-foot level disclosed a continuing of the ore zone to a vertical depth of 1,625 feet, and the values obtained warrant further development below the 875-foot level.

"Surface diamond drilling was done on the northeast corner of the property adjoining Noranda Mines property. Some low copper values were obtained but further drilling would be necessary to thoroughly explore this area.

"DEVELOPMENT:

Shaft sinking	533 feet	Drifting	929 feet
Shaft station cutting	22,240 cu. ft.	Raising and ore passes	877 "
Sumps	492 "	Loading pocket	4,340 cu. ft.
Diamond-drill station	240 "	Box-holes	407 feet
Cross-cutting	272 feet	Underground diamond drilling	8,210 "

"MILLING:

"The mill continued to operate throughout the year and treated 105,701.8 dry tons for an average of 289.6 tons daily.

Dry tons treated	105,701.8 tons	Tailing loss, total	1,877.45 oz.
Recovery, total	23,597.24 oz.	Tailing loss, per ton	0.017 oz./ton
Recovery, per ton	0.223 oz./ton	Gross value, total	25,474.69 oz.
Extraction, per cent	92.6%	Gross value, per ton	0.241 oz./ton

"ORE RESERVES:

"The estimated ore reserves as at January 1st, 1943, were:

	TONS	GRADE (gold)
Available	101,736 tons	0.171 oz. ($6.58) per ton
Not readily available	23,460 "	0.229 " ($8.22) "
TOTAL	125,196 tons	0.181 oz. ($6.97) per ton

"This includes broken ore, which is estimated at 19,086 tons.

"PLANT AND EQUIPMENT:

"A new compressor was installed on surface, and underground an electric sinking hoist was purchased and set up. Two new electric pumps were also put into service.

"A new steel sharpening shop was constructed, and an addition to the mill warehouse.

"Plant and equipment were maintained in good order".

POWELL ROUYN GOLD MINES, LIMITED

The annual report of the Company for the twelve-month period ending March 31st, 1942, contains the following review of operations:

"SUMMARY OF PRODUCTION:

Dry tons flux treated at Noranda	286,931 tons
Average tonnage treated per day	786 tons/day
Fine ounces gold produced	32,258.470 oz.
Average ounces gold per ton treated	0.1124 oz./ton

"SUMMARY OF MINING, DEVELOPMENT, AND EXPLORATION:

Ore broken in stoping	283,095 tons	Shaft sinking (No. 2 shaft)	468.6 feet
Ore broken in develop't	9,160 "	Drifting	3,553.7 "
Total ore broken	292,255 tons	Raising	229.1 "
Waste broken	25,296 "	Slashing	44,844 cu. ft.
		Cross-cutting	1,842.4 feet
		Shaft stations	213.2 "
		Diamond drilling	9,502.0 "

"ORE RESERVES:

"The following summary of ore reserves has been prepared by the geological department under the direction of Dr. R. C. McMurchy:

	TONS	GRADE	WIDTH
Ore in bins and in transit	1,195 tons	0.135 oz./ton	...
Broken ore in stopes	83,136 "	0.129 "	...
Box-hole pillars	5,620 "	0.171 "	9.8 feet
Stope sills	82,594 "	0.145 "	11.6 "
Stope pillars	51,090 "	0.138 "	8.4 "
Above working stopes	183,850 "	0.126 "	10.4 "
Developed and partly developed	176,368 "	0.113 "	9.6 "
	583,853 tons	0.126 oz./ton	

"The above estimates do not take in ore indicated by drilling in upper levels and between the 1,550-foot and 2,000-foot levels in the *1550C stope* area.

"SILLS AND PILLARS:

"Pillars standing in the mine mainly consist of support left in the area around the No. 2 shaft. Nothing should be done at this time toward their extraction.

"Stope sills in the mine serve as support for working levels. There are, however, some isolated areas on the upper levels, and portions of the surface sills, that can soon be extracted. This work will be undertaken as conditions warrant, but the tonnage extracted will only form a small part of the total for the coming year.

"DEVELOPMENT:

"Development during the year was principally concentrated on deepening No. 2 shaft. Three stations were cut, at 1,700 feet, 1,850 feet, 2,000 feet, a waste pocket at 1,700 feet, a loading pocket at 2,100 feet, and a pump station at 2,150 feet. Cross-cuts were started on the 1,700-foot and 2,000-foot levels and the work is at present well under way.

"The 1,700-foot and 2,000-foot levels are expected to reach the most favourable areas, as shown by drilling, about July next. The 1,850-foot level cross-cut has not yet been started and will be left until the new hoist is installed.

"The fact that this work was undertaken during the year does not indicate the belief that possibilities for orebodies in the upper levels are exhausted. Development is still proceeding on these levels, but as the pro-

bability of the existence of good grade ore was indicated by drilling to the 2,000-foot level, the capital outlay seemed fully justified rather than await the outcome of upper level development, the scope of which is obviously more limited.

"Drifting on the 1,550-foot level is now proceeding south. Owing to the distance to be covered, about 800 feet, it will be some months before any results can be expected from this work. There are, however, some indications from work done on the 1,100-foot level that the intervening area is not without promise.

"Development work north of the shaft on the 800-, 950-, and 1,100-foot levels has disclosed some short, narrow sections of ore.

"This ore is above mine grade and is not expected to add materially to the tonnage developed. However, due to improved grade, it is expected that a reasonable profit will be secured above the cost of this work.

"TREATMENT:

"The mill was shut down and cleaned up during April, 1942, and since that date all the Company's output has been taken by Noranda Mines smelter.

"PLANT AND EQUIPMENT:

"Additions to plant and equipment consisted chiefly of hoisting and tramming equipment. This was necessitated by increased depth of development and distance of stoping areas from the shaft. In addition, a chlorinator was installed, since reports from the local health department indicated the water supply to be in need of treatment. The installation of the hoist, with necessary buildings and alteration to the headframe, is now under way.

"GENERAL:

"Due to increasing inflationary tendencies on all sides, predictions for the future are extremely hazardous as regards costs of operation.

"Labour was in reasonable supply during the winter, but is expected to become scarcer during the summer months, as a number of settlers are employed who are primarily interested in farming, but take employment in the mines during the winter.

"The supply situation has been facilitated due to the shipments of fluxing ore, and some of the difficulties encountered by the gold mines have been avoided.

"Increased production from lower levels will have to be looked forward to and problems arising from deeper mining will begin to be more manifest".

NORANDA MINES, LIMITED

The following paragraphs are taken from the annual report of the Company for the year ending December 31st, 1942:

"A total of 8,872 feet of drifting, 3,767 feet of raising, and 55,516 feet of exploratory diamond drilling was done.

"Exploration drifts were driven in a westerly direction from No. 6 shaft on the 4,475-foot (37th), 4,975-foot (41st), 5,475-foot (45th), and 5,975-foot (49th) levels and at the end of the year the headings of these drifts were 1,410 feet, 1,270 feet, 1,420 feet, and 1,215 feet, respectively, from the shaft. After passing through the north-south 'later diabase' dyke, at an average distance of approximately 375 feet west of No. 6 shaft, all four of these drifts have, for the most part, been driven in the large, heavily mineralized (50 per cent pyrite) body, underlying the *Lower-H* orebody, which has been described in considerable detail in several previous annual reports. Taken as a whole, the mineralized zone so far explored by these drifts, supplemented by some 9,750 feet of lateral diamond drilling, appears to be of sub-marginal grade, but within it some segregations of marginal ore and one shoot of good grade gold ore have been indicated. In this respect, as well as in geological structure, it appears to be about the same as on the 3,975-foot (33rd) level, where it has been quite accurately outlined and sampled by extensive diamond drilling during the past few years. One of the segregations or ore shoots which was indicated in a diamond-drill hole put down at a vertical angle of 75 degrees from the 3,975-foot level in 1939, has recently been intersected in the 4,475-foot level drift about midway between No. 6 and No. 5 shafts, which are approximately 1,670 feet apart. Channel samples over a length of 110 feet along the drift averaged 0.35 oz. ($12.25) per ton gold. The above-mentioned drill hole cut 45 feet of core averaging 0.346 oz. ($12.10) per ton gold about 20 feet above this ore in the drift and another section of 165 feet averaging 0.218 oz. ($7.63) per ton gold between depths of 135 and 300 feet below this 4,475-foot level. The extent of this ore shoot on the 4,475-foot level has not yet been determined, but it seems probable that it will be found to have a vertical extent of at least 360 feet.

"As the drifts on the four levels mentioned above are advanced toward the west, horizontal diamond-drill holes are being drilled to the north and south at intervals of 200 feet, and it is planned to roughly explore in this way a large area between No. 6 shaft and the downward projected location of No. 5 shaft and to follow up this programme later by driving levels at closer intervals and by closer diamond drilling on all levels.

"Owing to the war, it has been considered advisable this year, as in the past two years, to omit information regarding metal production and ore reserves from the annual report. However, it is felt that the shareholders should know and will doubtless be interested to learn that the estimated copper and gold content of the ore indicated above the 2,975-foot level, as of January 1st, 1943, is sufficient to maintain production of those metals for fifteen years at the 1942 rate of production".

Stadacona-Rouyn Mines, Limited

This property is still operating under the supervision of a liquidator and inspectors. Exploration and development work for the year ending December 31st, 1942, was as follows:

Diamond drilling	15,271 feet	Raising	3,730 feet
Drifting	5,669 "	Shaft sinking	621 "
Cross-cutting	202 "	Station cutting	203 "

Development work was confined to the main No. 2 shear and, in point of footage, was very little less than in 1941, despite the fact that deepening of the main shaft was started in April and continued until the end of the year. The shaft was sunk an additional 621 feet and four new levels were established, the lowest at 2,325 feet below the collar.

Ore hoisted and treated during the year totalled 151,481 tons, an average of 415 tons per day. The mill operated 97.4 per cent of the possible running time and produced 23,533.990 oz. gold and 3,824.53 oz. silver.

Ore reserves at the year end were estimated at 375,000 tons, exclusive of ore in ground opened by the new levels.

In 1942, the 'safety' campaign was continued and the accident frequency rate per 1,000 men employed was lower than that of any other mine in Western Quebec.

DUFRESNOY TOWNSHIP

Waite-Amulet Mines, Limited

The following review of operations is taken from the annual report of the Company for the year ending December 31st, 1942:

Waite-Amulet Section

"Mining:

"The following is a summary of the year's work:

Waste hoisted	4,087 tons
Drifting	389 feet
Raising	1,675 "

"A total of 47,091 feet of diamond drilling was completed by the stope drills. Ore drilled-off and ready to be blasted totals 140,000 tons. Most of the stope drilling was done in the zinc orebody above the 200-foot level.

"A programme of cleaning up remnants of orebodies previously mined and of mining out small, isolated lenses of high-grade copper ore was started. One series of small lenses between the 300-foot and 500-foot levels added 11,355 tons to the ore reserves.

"C" Shaft

Waste hoisted	23 tons
Drifting	7 feet
Raising	56 "

"The *C* shaft workings were de-watered in July but, due to slowness of delivery of equipment, production of ore did not start until November.

"Very little work was required to get the mine into production. Underground work was concentrated in the *C* orebody.

"Development and Exploration:

"Surface drilling at the Waite mine exhausted all known favourable possibilities of finding more ore in the immediate vicinity of the open pit and of the known orebodies. Further drilling will be necessary to trace the downward extension of the mineralized zone on the 12th level.

"Exploratory drilling of the *C* orebody was started underground in August to determine the limits of the ore for mining purposes. An estimated 15,000 tons of low-copper, high-zinc ore was added to the ore reserves. There are indications that the *C* orebody will give an increased tonnage of zinc-bearing ore.

"Exploratory work on the *B*, *D*, and *E* orebodies in the *C* shaft area will be started in the spring of 1943.

"Two holes were drilled from the main haulage level midway between Central and *A* shafts to a depth of 2,000 feet below the level. No commercial ore was found but the encouraging mineralization of chalcopyrite and pyrrhotite in both holes will require more deep drilling.

"MILLING:

"A marked improvement in zinc recovery was effected early in the year as a result of experience gained from test work during 1941 and the addition of zinc flotation cells to the original mill circuit.

"Additional bays were added to the east and west sides of the mill building to provide mill capacity for increased zinc production. Due to delays in the receipt of equipment, the mill addition will not be in operation before February 1st, 1943.

Amulet Dufault Section

"MINING:

"The following is a summary of the year's work:

Waste hoisted	13,978 tons
Drifting (main haulage level)	1,236 feet
Raising from chutes to footwall of orebody	2,653 "
Grizzly manways	473 "
Sub-level drifting	1,791 "
Raising between sub-levels	834 "
Drifting on levels above orebody	795 "
Raising on levels above orebody	193 "
Drifting (for Waite-Amulet Mines)	430 "
Diamond drill station raise (for Waite-Amulet Mines)	72 "

"The footage drilled by the stope diamond drills was 143,529 feet. The tonnage drilled-off and ready to be blasted is 830,000 tons.

"Two new stopes were brought into production during the year. One stope will supply high-copper, low-zinc ore and the other will supply low-copper, high-zinc ore.

"DEVELOPMENT AND EXPLORATION:

"All the 6,000 feet of exploratory diamond drilling completed during the year was used to check on irregularities in the *Lower A* orebody contact. A total of 212,038 tons was added to the *Lower A* orebody reserves".

Amulet Dufault Mines, Limited, subsidiary of Waite-Amulet Mines, was organized in 1941 to mine the whole of *Lower A* orebody, which extends into Lake Dufault Mines ground.

LAKE DUFAULT MINES, LIMITED

The Company owns forty-four claims adjoining the property of Waite-Amulet Mines. The portion of the Amulet *Lower A* orebody on Lake Dufault

ground is being mined by Amulet Dufault Mines under an arrangement whereby the Company received 220,000 shares of Amulet Dufault stock. Lake Dufault, however, retains the mineral rights below the *Lower A* orebody.

During 1942, the Company carried out exploration and development from the main Amulet Dufault drift on the 1,150-foot level. This work included 6,625 feet of diamond drilling, and drifting and raising totalling, respectively, 775 and 44 lineal feet.

The drilling is reported to have disclosed the presence of a sulphide body, with encouraging zinc assays, some 500 feet east of the Amulet Dufault boundary.

Norbec Copper Mines, Limited

This Company, financed by Noranda Mines, Limited, was organized in 1942 to take over the properties of Newbec Mines, Limited, in Dufresnoy township. At December 31st, two diamond-drill holes totalling 1,707 feet had been put down on block No. 9 and the work is being continued in 1943.

DUPARQUET TOWNSHIP

Beattie Gold Mines (Quebec), Limited

The following paragraphs are reproduced from the annual report of the Company for the year ending December 31st, 1942:

"Production:

Tons ore milled	657,619 tons
Value per ton	$4.193
Gross value	$2,758,489.97
Net value recovered	$2,463,309.75
Net value recovered per ton milled and marketed	$3.75

"Mining:

Ore broken in glory hole	212,300 tons
Ore broken in stopes	435,652 "
Ore broken from development	9,667 "
Total ore broken	657,619 tons
Ore hoisted	657,619 "
Waste	25,375 "

"Summary of Mining Operations:

	Year Ending Dec. 31st, 1942	Total to Dec. 31st, 1942
Surface soil stripping	107,827 cu. yd.	430,978 cu. yd.
Diamond drilling	34,780 feet	191,782 feet
Drifting and cross-cutting	9,736 "	71,458 "
Raising	1,905 "	29,203 "
Slashing	1,125 cu. ft.	405,128 cu. ft.
Shaft sinking	.....	2,228 "
Ore broken (stopes)	647,952 tons	5,068,376 tons
Ore broken (development)	9,667 "	172,181 "
Ore milled	657,619 "	5,237,400 "

"EXPLORATION:

"During the year, at the east end of the North orebody, just east of the main fault and above the 1st level, diamond drilling, both from surface and underground, indicated a small tonnage of high-grade breccia and grey porphyry ore. This ore lies under heavy overburden and will not be included in ore reserves until the overburden is removed.

"The 4th and 5th levels were extended 300 feet farther to the east this year and some horizontal diamond drilling was done in this section on the 5th level. So far, this work has added about 50,000 tons of porphyry ore and it is expected an additional 100,000 tons will be added when the 1st level section is drilled.

"From the 6th level, the *69* drift was extended south of, and parallel to, the south porphyry contact to a junction with a drift driven west from the Central Duparquet Mines' shaft. This 10,050-foot drift passed through the Donchester claims and 854 feet into the Central Duparquet ground. Beattie purchased the Donchester claims in 1941 and has an option on the shares of Central Duparquet. Several bands of ore were cut, ranging up to five feet in width and 0.33 oz. gold in value. Diamond drilling is now being done from the drift and some recent horizontal holes have indicated one section 200 feet long, 7 feet wide, assaying 0.25 oz. gold on the Donchester ground. Other ore intersections have been encountered, but to date insufficient drilling has been done to form any new ore picture.

"From the internal shaft on the 7th level, a drift was driven west to the main shaft and one to the east 400 feet. The east drift on the 8th level was extended 1,000 feet and a raise driven to the 6th level, and on the 9th level the east drift was extended 200 feet. Diamond drilling on these three levels indicated about 500,000 tons of ore averaging 0.12 oz. gold.

"The North zone breccia-ore extends below the 9th level but has decreased considerably in area, and in none of the three levels has there been as high a proportion of ore as was found on the upper levels.

"Outside exploration work for the year consisted of examination work on some strategic war metal prospects and some further share interests were taken in the Frobisher Exploration Company, Limited. Some diamond drilling and surface trenching was completed on a group of claims just north of the Beattie mine, in Palmarolle township. These claims are owned by Beattie and a wide shear zone carrying some low copper values was explored. The drilling done did not show an improvement of the surface values.

"DEVELOPMENT:

"Considerable trouble was experienced this year with water seeping through the north wall of the glory hole into the ore; a drift was driven from the 3rd level in greenstone out under this section and diamond-drill holes put up along the glory hole wall which drains the water down into the 3rd level pump sumps. This arrangement has considerably improved the situation.

"There is a reasonable chance that some sloughing will occur from the south wall of the glory hole when mine pillars are being taken out, which will interfere with mining. In anticipation of this occurring, preparations are under way for a new shaft, and this year cross-cuts have been started on

the seven upper levels from the present shaft to the new shaft site. This shaft will be raised from level to level and will not interfere seriously with mine production. It is planned to use the same equipment for the new shaft that is now in use on the present shaft.

"A slough occurred this year along the North wall of the glory hole, allowing several thousand yards of wet clay to run into the mine. This material lodged in some of the stopes in the west end of the North orebody, freezing during the winter and blocking off this section of the mine. This has affected the grade of ore mined during the year, due to not being able to take ore from this higher grade section. The remainder of this material will be removed during 1943, and excavation work is now under way removing about 200,000 yards of the clay away from the glory hole to avoid a similar occurrence.

"ORE RESERVES:

"This year, 657,619 tons of ore were milled at an average grade of 0.1089 oz. gold, making a total of 5,237,400 tons milled to date at an average grade of 0.140 oz. gold.

"Ore reserves were reduced this year by 139,570 tons. The large proportion of ore added to reserves during the year came from below the 5th level and above the 9th level.

	TONS	GRADE (Gold)
NORTH ZONE:		
Reserves January 1st, 1942	3,359,490 tons	0.134 oz./ton
Reserves January 1st, 1943	3,255,580 "	0.132 "
"A" ZONE:		
Reserves January 1st, 1942	520,530 tons	0.131 oz./ton
Reserves January 1st, 1943	484,870 "	0.131 "
TOTAL RESERVES January 1st, 1943	3,740,450 tons	0.131 oz./ton

"MILLING:

"The tonnage milled during 1942 was 657,619 tons, assaying 0.1089 oz. gold. Mill recoveries on shipped-bullion basis were 89.95 per cent, which is a slight increase over 1941.

"Crude arsenic trioxide was shipped from current production and storage this year and a contract for further shipments has been made for 1943.

"Mill operations have generally improved and work is being continued for further improvement.

"GENERAL:

"Due to war conditions, very few improvements or betterments which involved the use of supplies were undertaken this year.

"An overtaxed water and sewage system in the Town of Duparquet necessitated preparations for supplying the town with filtered domestic water. This work is well along, consisting of supplying more water, and will shortly be completed.

"Operating profits decreased approximately 55 cents per ton of ore milled this year, chiefly due to milling lower grade ore; costs for the year were $2.34 per ton, the same as last year, although the cost-of-living bonus was 8 cents per ton higher than in 1941.

"It is hoped to improve the grade of ore mined this spring as the weather moderates, thawing out stopes in the west end of the North orebody. The arsenic production will also be increased, as ore from this section of the mine contains more sulphides".

DESTOR TOWNSHIP

Duquesne Mining Company, Limited

Because of wartime restrictions, this property ceased operations on March 17th, 1942. The workings were allowed to flood and a watchman was left in charge. Exploration work in 1942 amounted to 116 feet of drifting and 1,404 feet of diamond drilling.

The shaft is 515 feet deep. Main drifts have been carried 172 feet east and 242 feet west on the 500-foot level, and 190 feet east and 192 feet west on the 375-foot level.

MONTBEILLARD TOWNSHIP

Firlotte Claims

This property, consisting of eight claims totalling 600 acres in ranges IX and X of Montbeillard township, was optioned in July to the Siscoe Gold Mines, Limited. Encouraging zinc and lead assays were obtained from surface showings. Several diamond-drill holes, totalling 3,463 feet, were put down during July and August. The drilling indicated that the mineralization extends to depth, but assays of the ore intersected were lower than those from surface sampling and the option was abandoned.

GUILLET TOWNSHIP

McWatters' Option

Early in the year, McWatters Gold Mines, Limited, secured an option on three groups of claims in Guillet township, adjoining the property of Belleterre Quebec Mines, Limited. A programme of 11,079 feet of diamond drilling was carried out on claims 35838, 31481, and 31554-55, but results were not conclusive. The Company has arranged for an extension of its option on two of these groups of claims to cover the duration of the war and a period of ninety days thereafter, at which time, according to present intentions, exploration of the claims will be resumed.

Belleterre Quebec Mines, Limited

During the year ending December 31st, 1942, the Belleterre mill treated 116,377 tons of ore. Development and exploration work on the property included: cross-cutting, 852 feet; drifting, 7,823 feet; raising, 1,623 feet; and diamond drilling, 15,480 feet.

Work was continued on No. 11 vein on the 625- and 750-foot levels, and on the latter level development of No. 12 and No. 14 veins was commenced. Diamond drilling intersected good ore widths at the 1,200-foot horizon.

Drifting is now completed to the end of the vein on the first three levels, on which, it is estimated, there are three years' ore supply at the present milling rate. Stoping operations were commenced during the year on the 375- and 500-foot levels.

Ore reserves at March 31st, 1942, were estimated as follows:

	Tons	Grade (oz./ton)	Value Per Ton (Gold at $35)	Total Value
Broken ore	46,182	0.320	$11.20	$ 517,163.37
Unbroken ore	539,100	0.351	12.28	6,620,813.00
Total	585,282	0.348	$12.20	$7,137,976.37

Extensive work was carried out at the townsite at aux Sables Lake, about a mile and a half from the mine. Sewage and water lines were completed, and electric power was supplied.

The capacity of the Company's hydro-electric power plant on Winneway river was doubled by installation of a second 1,375 kv.a. unit.

Paquin Gold Mines, Limited

This Company was organized in 1942 to develop a group of fifteen claims optioned by Belleterre Quebec Mines, Limited. Fourteen of these claims (R-43185-43199) form a group adjacent to the west boundary of the township. The remaining claim, R-43185, is a mile and a half to the north of them.

Work during the summer included 8,200 lineal feet of trenching, mostly on claim 43185, on which, also, fifteen shallow diamond-drill holes totalling 3,500 feet were put down. A small amount of ore was discovered in a narrow gold-bearing quartz vein which was traced for a few hundred feet along its strike.

Andresen Property

This property consists of fourteen claims lying between the two groups of claims of Paquin Gold Mines, Limited. It is under the control of Belleterre Quebec Mines, who completed 6,000 feet of trenching and 355 feet of diamond drilling on the claims during 1942. This work is reported to have yielded encouraging results.

MONTBRAY TOWNSHIP

Connell Mining and Exploration Company, Limited

During 1942, this Company did 4,592 feet of diamond drilling on a group of claims at the southeast corner of Montbray township.

LA REINE TOWNSHIP

Anderson Claims

This property consists of twenty-three claims in range IV of La Reine township. During August and September, three diamond-drill holes totalling 2,324 feet were put down on lot 45, near the highway.

DESMELOIZES TOWNSHIP

Normetal Mining Corporation, Limited

The following review of operations is taken from the annual report of the Company for the year ending December 31st, 1942:

"Plant Operation:

"The plant extension, on which construction was started in 1941, was put into operation, and, as a result, tonnage treated was the highest in the mine's history. The total production of copper and zinc concentrates was shipped, the copper to Noranda smelter, the zinc to smelters in the United States.

"Mining:

"Development was completed on levels down to 2,000 feet and, once stope preparation was well under way, deepening of No. 3 shaft was resumed. The dimensions of the shaft below 2,000 feet were increased to provide a fourth compartment for a service cage. At the year end, sinking had been finished to a depth of 2,750 feet, stations had been cut 150 feet apart, and cross-cutting was started on four of the five new levels.

"No stoping was done below the 1,700-foot level, but by the end of the year most of the available ore above the 1,400-foot level, except that in No. 3 orebody, had been mined out. Two blocks between the 1,500-foot and the 1,700-foot levels were developed as open sub-level stopes, using diamond-drill blast holes for breaking. Performance in one block was moderately successful, but mining from the second block had to be stopped when it was about 75 per cent completed, due to excessive sloughing of ore from the benches and of waste rock from the walls. Increased use of filled-timber methods of stoping is indicated as the mine becomes deeper.

"In order to provide ore for test runs in the concentrator, stope preparatory work was undertaken on the upper levels in No. 3 orebody. Providing the test work reaches the successful conclusion that is indicated, it is planned to mine out the high-zinc portions, leaving the copper portion in such a way that it can be recovered later.

"Tons of ore broken reached a new high. Of the total tonnage, 23.5 per cent was supplied by development and stope preparatory work, 37.5 per cent by sub-level stopes, and 39 per cent by fill stopes.

"Ore Reserves:

"Although no new levels were opened up during the year, ore reserves calculated to the 2,000-foot level declined by only 10 per cent as compared with the reserve at the end of 1941. Ore added during the year included that developed on levels partially opened up previously, zinc ore in No. 3 orebody now considered as mineable, and overbreak beyond previously estimated limits. Broken reserve was reduced, as, with the exception of the two sub-level blocks, all stopes were of the filled type, which at no time contain any great amount of broken ore. The average grade of copper in the total reserve was substantially the same as that of the previous year, while grade of zinc increased by approximately 30 per cent.

"CONCENTRATOR:

"In addition to the entire new unit that went into operation in January, several changes were made involving the substitution of a new type of flotation equipment for that previously in use. These changes were designed to correct the slightly reduced recovery of copper that resulted from the increased grade of copper in the mill-feed. Grade of concentrates was satisfactory.

"POWER:

"Due to increased tonnage, power consumption was the highest for any year to date. While still hampered by inadequate water reserve, La Sarre Power Company provided an improved supply of power.

"Our Diesel-generator plant, one of the largest of its kind in Canada, operated satisfactorily at varying loads during the year, and produced 30 per cent of the total power consumed, but at a considerably higher cost per kilowatt hour than the purchased hydro-electric power.

"ADDITIONS TO PLANT AND EQUIPMENT:

"New construction was carried on almost continuously during the year, to provide increased and improved facilities commensurate with increased output. The addition to the concentrator, and the new hoisting plant at No. 3 shaft, begun in 1941, were completed.

"RAILWAY:

"The Normetal railway operated satisfactorily during the year. Company freight, consisting of concentrates, incoming supplies, and back-fill, amounting to 78,501 tons, was transported, as well as 85 cars of revenue freight.

"OPERATING COST:

"Operating cost, at $4.90 per ton milled, was 78 cents per ton higher than that in 1941. The increase was due mainly to the same reasons that pertained for the previous year's increase, *viz.*, problems of labour and supplies, and operational difficulties as mining operations are carried to greater depth. Approximately the same amount per ton milled was spent on development in both 1941 and 1942.

"LABOUR:

"A shortage of men prevailed throughout the year, to an extent to interfere with required development work, and at times even responsible for a reduction in output. A contributory factor was decreased efficiency of many of the men that were available. Of the various Government regulations directed toward relieving the situation, about the only one of apparent value was that granting deferment of military training for base-metal mine employees".

LANDRIENNE TOWNSHIP

BACON CLAIMS

These claims were optioned to the Inspiration Mining and Development Company, Limited, who, during the year, put down four inclined diamond-drill holes totalling 402 feet on the north half of lots 8 and 9, range II.

BARRAUTE TOWNSHIP

Claims of the Consolidated Mining and Smelting Company of Canada, Limited

The Consolidated Company holds a group of claims on lots 21 to 25, ranges III and IV, Barraute township. In the spring of 1942, four holes aggregating 658 feet were put down on the south half of lot 25, range IV.

LA PAUSE TOWNSHIP

La Pause Gold Mining Corporation

This property consists of twenty-six claims on lots 15 to 24, ranges III and IV of La Pause township. A road from Mic-Mac Mines, three and a half miles distant, leads to the property, on which there are occurrences of both gold and molybdenum ores. Five hundred feet of diamond drilling was carried out between October 28th, 1942, and January 15th, 1943, near the northwest corner of claim A-63252.

BOUSQUET TOWNSHIP

Mic-Mac Mines, Limited

The Mic-Mac copper-gold mine started production in June, 1942, immediately following completion of the surface plant. The housing for conveyors, crushers, and mill are of reinforced concrete.

During the year, the Company's townsite was incorporated under the name of the 'Municipality of the Mining Village of Bousquet'. The townsite includes at present thirty-seven houses, one store, a recreation hall, and a complete sewage and water system.

Production and development figures for the year ending December 31st, 1942, are as follows:

Ore hoisted	48,550 tons	Development, cross-cuts and drifts	3,039 feet
Ore taken from stockpile	25,544 "	Raises	2,454 "
Ore treated in mill	74,266 "	Diamond drilling	2,185 "

The following paragraphs are reproduced from the annual report of the Company:

"Mine operations from January 1st to June 19th, 1942, consisted for the most part of stope preparation and ore-pass development. From June 20th to the end of the year, production was continuous. Shortly before the end of the year plans were made, and a contract was let to a local contractor, to sink a winze to a point 300 feet below the present bottom level for further exploration and development. During the year the mine produced 48,550 tons of ore.

"The new mill was put into operation on June 20th. It has demonstrated a capacity of about 600 tons per day but, due to labour shortage in the mine, only an average of 380 tons per day was sent to the mill from the mine and stockpile. The mill treated 74,266 tons, of which 25,994 tons were taken from the stockpile".

PREISSAC TOWNSHIP

Indian Molybdenum, Limited

The following paragraphs are reproduced from the annual report of Dome Exploration Company (Quebec), Limited, for the year ending December 31st, 1942:

"The Preissac molybdenum property in Preissac township is situated on Indian peninsula, thirty miles southwest of Amos.

"A new Company, called Indian Molybdenum, Limited, with a capitalization of 2,000,000 shares, has been formed to take over the property. The present holdings amount to 5,600 acres. An orebody about 450 feet long by 35 feet wide was discovered. Tonnage and grade to an average depth down the dip of 200 feet indicate a volume and tenor sufficiently encouraging to warrant the opening up of a level at that horizon. In addition, ore is indicated to 250 feet below the proposed level and in a smaller overlying deposit to the northeast. A total of 10,880 feet of diamond drilling has been done on the property to date. Of this amount, 5,881 feet have been concentrated on delineating the main orebody.

"A contract was arranged with the Dominion Government for the production of 2,000,000 pounds of molybdenite. In view of the urgency of the situation, it became necessary not only to lay plans for the investigation of the orebodies indicated but also at the same time to make plans for the construction of a mill. Accordingly, this work is under way, preparatory to mining and milling 400 to 500 tons a day.

"At the end of the year, camps to accommodate 75 men were completed with water tank, water and sewer lines. The camps are a distance of about one-half mile from the plant.

"At the plant site, the following was completed: The site was cleared; office and warehouse with staff accommodation; power house with coal bin; boilers installed; stream-driven generator and compressor in place; water tanks erected; powder house; pump house, and 1,750 feet of six-inch water line laid. A machine shop and blacksmith shop have been started. Plans are well under way for the mill, and most of the building material is on the ground.

"Access to the orebody will be achieved by a shaft or slope inclined at 20 degrees, which will cut the orebody at a depth of 200 feet along the dip. This is down 43 feet from the collar, preparatory to regular sinking operations.

"A government road to the plant site is nearing completion.

"Arrangements are being made to bring hydro-electric power from Cadillac, a distance of 8.7 miles".

CADILLAC TOWNSHIP

Thompson Cadillac Mines, Limited

No underground operations were carried on at Thompson Cadillac during 1942, but pumping was maintained to keep the mine free of water. The mill operated throughout the year, treating ore from the Central Cadillac mine.

O'Brien Gold Mines, Limited

The following paragraphs are taken from the annual report of the Company for the year ending September 30th, 1942:

"Production:

"The following is a summary of the production for the year:

Ore treated		69,539 tons
Average grade	0.392 oz.	($15.09)/ton
Value in ore treated	(27,230.365 oz.)	$1,049,197.75
Recovery per ton treated	0.373 oz.	($14.38)/ton
Percentage recovered		95.29%
Bullion produced		26,152.698 oz.

"The average daily milling rate was 191.78 tons and the mill operated at 96.02 per cent of the possible running time.

"The source and grade of ore sent to the mill were as follows:

Source	Tons	Percent of Total Tons	Grade
Stopes and back-stopes	59,259 tons	85.24%	0.402 oz./ton
Development	10,258 "	14.76 "	0.332 "
	69,517 tons	100.00%	0.392 oz./ton

"Development:

"A summary of development work is as follows:

	Current Year	Total to Sept. 30, 1942
Drifting	5,649.6 ft.	49,134.1 ft.
Cross-cutting	924.7 "	13,518.2 "
Raising	93.5 "	4,086.5 "
Shaft sinking	*Nil*	4,150.4 "
Station cutting	*Nil*	1,336.5 "
Total	6,667.8 ft.	72,225.7 ft.
Diamond drilling:		
Underground	8,877.0 ft.	68,919.0 ft.
Surface	*Nil*	18,607.3 "
Total	8,877.0 ft.	87,526.3 ft.

"The lateral development of all levels from No. 4 shaft was practically completed and probable ore reserves in that area are estimated at 111,792 tons, grading 0.318 ounces per ton. Ore sections in No. 1 and No. 4 veins have been developed on all levels to the 2,500-foot level, and in No. 9 vein to the 2,375-foot level.

"Stoping operations at No. 3 shaft were started early in the year and 7,786 tons, 11 per cent of the ore milled, were obtained from this section with an average grade of 0.394 ounces per ton. In the No. 2 shaft area, stopes in No. 1 and No. 9 veins above the 1,750-foot level supplied the bulk of mill feed, as work on No. 4 vein was confined to recovery of floor sills and broken ore from old stopes.

"Backfilling of mined-out areas was carried on throughout the year.

"New ore to the amount of 152,012 tons, containing 51,618 ounces, was put in sight during the year with the result that the ore reserves are at the highest point in the history of the mine.

"ORE RESERVES AS AT OCTOBER 1ST, 1942:

	TONS	GRADE
Broken ore	11,982 tons	0.386 oz./ton
Probable ore	229,032 "	0.353 "
	241,014 tons	0.354 oz./ton

"ARSENIC:

"1,110 tons of crude arsenic were shipped, making a total to October 1st, 1942, of 2,140 tons containing 83 per cent As_2O_3 and 0.245 ounces of gold a ton. The gold-bearing residue from the refining of this crude arsenic was returned to the mine for treatment.

"OPERATING COSTS:

	TOTAL	PER TON OF ORE TREATED
Development and diamond drilling	$118,546.25	$1.71
Extraction	297,077.93	4.27
TOTAL, MINING	$415,624.18	$5.98
Milling, roasting and cyaniding	103,362.76	1.49
General	97,605.75	1.40
TOTAL OPERATING COSTS	$616,592.69	$8.87

"The advance in costs over the previous year was due to the enlarged development programme, increased taxes, and wartime cost-of-living bonus, and the decreased efficiency in mining operations by the employment of unskilled men".

CENTRAL CADILLAC MINES, LIMITED

Following is a summary of operations for the year 1942:

Diamond drilling	5,834.5 feet	Rock hoisted, total	79,186 tons
Drifting	2,000 "	Waste hoisted	5,872 "
Cross-cutting	789 "	Ore hoisted	73,224 "
Raising	2,176 "	Rock sorted, total	11,817 "
		Ore milled	61,315 "

Mining and milling operations were carried on continuously throughout the year, all the ore being hauled to, and treated in, the Thompson Cadillac mill. During the year, an attempt was made to eliminate the operating losses by increasing the rate of hoisting and sorting. Anticipated improvements failed to materialize because of the increased cost of labour and supplies. Sufficient development work could not be performed to provide adequate tonnage for milling operations and the mine was closed in April, 1943.

Wood Cadillac Mines, Limited

Wood Cadillac operated for six months only, from January 1st to June 30th, when the property was closed. Operating data for the period are as follows:

Ore hoisted	28,893 tons	Cross-cutting	251 feet
Rock sorted	1,868 "	Drifting	1,000 "
Ore milled	27,025 "	Diamond drilling	1,454 "

In the fall of 1941, the Company sank a winze 500 feet below the 500-foot level, and established four new levels with the object of opening up some 'quick' ore for mill-feed. Unfortunately, the new levels did not encounter ore as soon as had been hoped, and this, together with the increased operating difficulties, faced by all mines, necessitated the suspension of operations.

Pandora, Limited

Following is a summary of operations during 1942:

Ore hoisted	32,297 tons	Cross-cutting	196 feet
Ore concentrated	32,297 "	Drifting	715 "
Diamond drilling	1,709.5 feet	Raising	341 "

Owing to the impossibility of obtaining sufficient labour, the property was closed on August 31st, 1942, for the duration of the war. The mine buildings and equipment are in charge of a caretaker.

Lapa Cadillac Gold Mines, Limited

Summary of operations for the year ending December 31st, 1942:

Ore hoisted	72,480 tons	Drifting and cross-cutting	1,096 feet
Ore concentrated	72,553 "	Diamond drilling	7,919 "

At the end of the year, the mill was treating an average of only 138 tons per day, which was 40 per cent below the regular daily tonnage at the beginning of the year.

All development work was directed to the opening of Nos. 23 and 24 orebodies. No. 25 zone, intersected by diamond drilling on the second level, was explored by drifting but proved to be too low grade for profitable mining. All development work was suspended in the early fall. Underground operations are now confined to the mining of the ore already developed. The ore reserves at June 30th, 1942, were estimated at 85,914 tons, carrying an average of 0.22 oz. gold per ton.

The Lapa Cadillac ore is unusually complex and, as a consequence, the mill recovery is relatively low, only about 70 per cent.

West Malartic Mines, Limited

West Malartic joined the ranks of Western Quebec gold producers in 1942. Milling commenced on May 11th. Following is a summary of operations to December 31st:

Ore hoisted	55,955 tons	Cross-cutting	37 feet
Ore concentrated	55,055 "	Drifting	923 "
Gold produced	6,935.459 oz.	Diamond drilling	4,648 "
Silver produced	499.25 "		

Starting with little better than 100 tons a day, the mill schedule was increased during the summer to more than 200 tons and, by October, to the rated mill capacity of 300 tons per day. At the same time, recovery showed continuous improvement until, at the end of the year, the figure stood at 90 per cent.

At the end of the year, ore reserves were estimated at 113,665 tons, averaging $5.25 in gold per ton. This estimate includes 8,665 tons of broken ore, 94,780 tons of probable ore, and 10,230 tons of possible ore.

Underground development during the latter part of the year was directed chiefly toward exploration of areas adjacent to the present workings. This work revealed interesting ore possibilities, but these are not included in the above estimate of ore reserves.

Labour shortage and absenteeism were very severe, especially at the end of the year.

MALARTIC TOWNSHIP

Viney-Donaldson Claims

This property consists of twenty-five claims in ranges II and III of Malartic township. Early in the year, Wright-Hargreaves Gold Mines, Limited, of Kirkland Lake, Ontario, who held an option on the property, put down three diamond-drill holes aggregating 2,578 feet.

FOURNIÈRE TOWNSHIP

Canadian Malartic Gold Mines, Limited

The annual report of the Company for the year ending December 31st, 1942, contains the following review of operations:

"Summary of Milling Operations:

Dry ore milled	358,732 tons	Fine gold produced	37,166.691 oz.
Average milled per day	982.83 "	Fine silver produced	26,568.090 "
		Recovery	87.89%

"Summary of Mining Operations:

Exploration diamond drilling	6,704 feet	No. 3 ore pocket	10,180 cu. ft.
Blast-hole diamond drilling	140,039 "	Sumps	9,850 "
Drifting and cross-cutting	3,976 "	Ore broken, stoping	259,395 tons
Raising	2,487 "	Ore broken, development	22,275 "
Slashing	70,261 cu. ft.	Waste broken development	9,747 "

"Diamond-drill blast holes are being extensively used in primary breaking. Last year, 73 per cent of the ore mined was produced with this method.

"The ore obtained from No. 7, No. 30, and No. 9 stopes was below the estimated average grade of these orebodies, due to the nature of the ore occurrence and method of mining, in which the leaner bottoms have to be mined first. An improvement in grade is anticipated in the first two stopes as mining progresses.

"DEVELOPMENT:

"Mine development was confined to the main North mineralized zone, paralleling the porphyry-greywacke contact. Most of the work was part of a stope preparation programme designed to bring into production the remaining orebodies in this mineralized zone above the 625-foot level.

"The east drift on the 250-foot level was advanced a distance of 422 feet to explore the upward extension of No. 7 and No. 8 orebodies.

"The No. 6 orebody, which is the easterly extension of the one mined in the original No. 4 stope, was developed from the 375-foot to the 125-foot levels.

"The No. 7 orebody, which occurs 900 feet east of No. 1 shaft, was developed for stoping between the 625-foot level and the 375-foot level.

"The No. 8 orebody is located 1,200 feet east of No. 1 shaft, near the north contact of the mineralized zone. The orebody bottoms above the 500-foot level and, from this horizon, stope preparation has been started.

"The No. 9, or Central, orebody, located 1,500 feet east of No. 1 shaft, was fully developed for stoping between the 625-foot and 500-foot levels.

"Additional development in the No. 30, or Boundary, orebody prepared for diamond-drill stoping most of the ore between the 375-foot and 200-foot levels. Stope preparation was also carried on above the 375-foot level in the No. 3 stope section immediately west of No. 1 shaft.

"The main east drift on the 875-foot level was extended 329 feet to explore the mineralized zone along the south flank of the porphyry mass.

"DIAMOND DRILLING:

"The 6,704 feet of exploratory diamond drilling comprised 87 underground holes. The drilling was mainly directed towards outlining previously known orebodies for development and stoping purposes. Some drilling was done from the east exploratory drift on the 875-foot level.

"No. 7 orebody was found to have a length of 418 feet, a width of 11 feet, and an average grade of 0.10 ounces per ton. No. 8 orebody averaged 0.18 ounces per ton for a length of 325 feet and a width of 21 feet. No. 9 orebody showed a grade of 0.11 ounces per ton for a length of 95 feet and a width of 34 feet.

"On the 875-foot level, drilling from the east drift indicated two ore shoots. The first, about 2,300 feet southeast of the No. 1 shaft, was originally cut by the drift. Horizontal diamond-drill holes showed it to have a length of 85 feet, a width of 12 feet, and an average grade of 0.15 ounces per ton. Present incomplete information on the second ore occurrence, which is approximately 100 feet northeast of the first, suggests a flatly-plunging ore shoot with a horizontal length of 225 feet, a width of 28 feet, and drilled to a vertical height of 170 feet. The average of drill intersections shows a grade of 0.11 ounces per ton.

"The dip of the porphyry-greywacke contact in the vicinity of the latest ore occurrences steepens sharply from 45 degrees to greater than 70 degrees.

"This area should be thoroughly tested, preferably from the 1,125-foot level, when it is possible to increase exploration work.

"ORE RESERVES:

"The ore reserves are 113,500 tons lower than those reported last year. New ore additions were entirely extensions of the known blocks, mainly resulting from the development of 156,000 tons in the upward continuation of No. 7 and No. 8 orebodies. The reserves include 91,000 tons of broken ore in the stopes at the end of the year.

"Ore reserves as of December 31st are as follows:

	TONS	AVERAGE GRADE	VALUE (Gold at $35)
Probable ore reserves	1,710,000	0.128 oz./ton	$4.48

"GENERAL:

"The increased shortage of skilled labour adversely affected the operation, particularly with respect to underground development.

"Monthly labour turnover increased from 3 per cent of the total payroll at the first of the year to a high of nearly 19 per cent for the month of August. The average for the last four months was slightly over 4 per cent.

"An average of 246 men were employed during the past year, 54 less than the previous year".

SLADEN MALARTIC MINES, LIMITED

The annual report of the Company for the year ending December 31st, 1942, gives the following information:

"PRODUCTION:

Ore milled	255,388 tons
Average per day	699.7 "
Gross value (gold and silver) recovered, including premium	$1,148,515.02
Value recovered per ton, as above	$4.49

"SUMMARY OF WORK ACCOMPLISHED:

Diamond drilling, exploration	4,775 feet
" " stope blast hole	104,431 "
Shafts and stations	1,342 "
Drifts and cross-cuts	1,026 "
Sub-levels, grizzly drifts, and cross-cuts	1,142 "
Raises	74 "
Box-holes and finger raises	422 "
Slashing and sumps	1,114 cu. yd.
Silling	14,216 sq. ft.
Ore broken, development	6,455 tons
" " stope preparation	14,678 "
" " stopes	216,746 "
" " total	237,879 "
Ore milled	255,388 "
Broken ore reserves	104,251 "

"EXPLORATION, DEVELOPMENT, AND ORE RESERVES:

"No surface exploration was carried on during the year.

"The No. 2 shaft was sunk to the 1,750-foot horizon and five levels established below the 950-foot level. Drifting to explore the downward extension of the telluride zone was started in December on the 1,100-foot and 1,250-foot horizons. This lateral development at the year's end had not reached the stage where any tonnage estimate of the ore encountered could be made. In general terms, however, it may confidently be expected that the lower limits of the telluride orebody extend below the 1,250-foot horizon. Consequently, pending further exploration in this area, no additional ore can be added to the reserve. The total solid and broken reserve as of January 1st, 1943, is estimated to be 475,000 tons having a value of $3.70 per ton, as compared to 730,000 having a value of $4.00 per ton the previous year (gold at $35.00 per oz.)".

EAST MALARTIC MINES, LIMITED

The following paragraphs are reproduced from the annual report of the Company for the year ending December 31st, 1942:

"SUMMARY OF STOPE PREPARATION, DEVELOPMENT, AND EXPLORATION:

Drifting	10,396 feet	Diamond drilling	28,864 feet
Cross-cutting	542 "	Other excavation	30,394 tons
Raising	8,698 "		

"OPERATING DATA:

Ore hoisted	448,691 tons	Gross value*	$2,823,679.81
Waste hoisted	5,051 "	Tailing loss*	$123,470.81
Ore milled	449,016 "	Net value recovered*	$2,700,209.00
Average milled per day	1,230 "	Tailing loss per ton ore milled*	$0.28
Average grade per ton*	$6.29	Recovery per ton ore milled*	$6.01
*Premium included.		Percent recovery	95.6%

"ORE RESERVE:

"The developed ore reserve, solid and broken, above the 10th level is estimated to be 2,682,000 tons, having a value $7.56 per ton (gold at $35.00 per ounce) before dilution. This does not include 762,000 tons, having a value of $5.77 per ton, tied up in pillars which, under existing conditions, cannot be recovered profitably.

"No estimate has been made of the ore below the 10th level in the main orebody, in the orebody below the Sladen fold, nor in the East orebody below the 4th level. Moreover, the easterly limit of the main orebody between the 5th and 10th levels has yet to be determined by lateral development.

"GENERAL REMARKS:

"During the last half of the year, work underground has been seriously handicapped because of a shortage of men, coupled with a drop in efficiency through the dilution of the labour force by less qualified workmen. In order to carry on the proposed development programme and maintain a daily production of 1,500 tons, the over-all average daily man-shift should be approximately 525. The average for the third quarter of the year was 412 and the fourth quarter dropped to 380. As a result of this shortage, while the lateral development rate was fairly well maintained, the shaft sinking programme was indefinitely postponed.

"The orebodies plunge easterly at approximately 45 degrees. This condition, coupled with the inherent weakness of the ore and footwall, and also to guard against possible ground movements affecting the plant, necessitated a change in mining methods in that portion of the main orebody directly opposite the surface buildings. The original system, while incorporating the principles of block-caving in so far as they related to wall support, was based upon straight shrinkage stoping. In the critical area, where this method could not apply, cut-and-fill mining was first considered but found to be impractical. The system finally decided upon is based upon short shrinkage stopes and 'delayed fill', with the recovery of the vertical and floor pillars by square-setting. Unfortunately, in order to maintain a daily tonnage in excess of 1,000 tons with the reduced labour force, it was necessary to mine a tonnage of ore by shrinkage stoping out of all proportion to that which should have been mined by square-setting. This condition cannot be rectified until more men are available.

"We estimate a total available ore reserve above present development of 2,682,000 tons. However, 500,000 tons of this ore, lying opposite No. 3 shaft, will not be available until such time as a new deep-level shaft is in operation. This, together with an approximate 600,000 tons that cannot be mined on schedule by square-setting, makes it necessary to develop the orebodies to the east as quickly as possible.

"The present operating shaft passes through several heavily sheared zones. The upper portion of the shaft was timbered with 8 in. by 8 in. local spruce, which, as time went on, was found to be inadequate. This timber is being replaced by suitable material as the opportunities arise. The lower portion of the shaft, between 820 feet and 1,735 feet levels, was timbered with 10 in. by 10 in. fir sets and is in first-class condition".

National Malartic Gold Mines, Limited

Following the completion of 2,997 feet of drifting and 5,186 feet of diamond drilling, National Malartic suspended all operations on June 30th, 1942, for the duration of the war. F. C. Buckland, consulting geologist for the Company, reports as follows:

"The Company has partially developed a mining property on which a considerable tonnage of gold ore has been indicated. Insufficient work has been done to block out any ore, but large areas of ore were exposed in both the North and South zones. The vertical continuity of individual orebodies is unknown. The present levels are too far apart for proper correlation of structures and very little diamond drilling between levels has been done.

"Work on the 350-foot level in the South zone indicated three major bodies of ore and several smaller bodies or irregular mineralized masses. From the drift on the 700-foot level, values obtained by drilling into the main porphyry zone were very low. However, some values in diorite and porphyry bodies were obtained to the north of the drift. The development of this zone was carried out from the Sladen Malartic workings".

On the North zone, the shaft was sunk to a depth of 719 feet and stations were cut at the 350-, 500-, and 700-foot horizons. A total of 1,457 feet of drifting, cross-cutting, and slashing was completed on the 500-foot level, and 1,439 feet on the 700-foot level. In general, no ore was blocked out, but much was indicated.

Malartic Gold Fields, Limited

The annual report of the Company for the year ending December 31st, 1942, contains the following reference to operations:

"Bullion production amounted to $1,940,638.82 from the treatment of 258,171 tons of ore, an average recovery of $7.52 per ton.

"Fully developed ore reserves in No. 1 mine amount to 708,885 tons with an average grade of 0.20 ounces per ton, an increase of 141,906 tons over last year.

"Development work on the lower levels of No. 1 mine shows that the orebodies persist on these levels with no appreciable change in size or gold content.

"The No. 2 shaft was completed to a depth of 500 feet and three levels established at 150, 300, and 450 feet; 3,303 feet of cross-cuts and drifts were completed, of which 2,102 feet were in ore assaying 0.25 ounce per ton. This work has proved the existence of four large orebodies and several smaller ones. This work is proceeding slowly and we have not yet obtained sufficient information to calculate the available tonnage. However, development to date indicates that the results secured from surface diamond drilling will be confirmed.

"Mining:

"The following work was done during the year:

Shaft sinking	470 feet	Diamond drilling	9,543 feet
Drifting and cross-cutting	11,367 "	Mining	224,996 tons
Raising	3,661 "		

"Ore Reserves:

"Fully developed ore reserves in No. 1 mine above the 900 level are as follows:

Level	Tons	Grade
175	63,820 tons	0.222 oz./ton
300	52,560 "	0.215 "
425	37,340 "	0.197 "
575	74,250 "	0.192 "
750	239,940 "	0.200 "
900	240,975 "	0.192 "
Total	708,885 tons	0.200 oz./ton

"No account has been taken of any ore below the 900 level because the development work in this section has not been completed. For the same reason, no calculation can be made for No. 2 mine.

"Milling:

	Total	Daily Average
Ore hoisted	258,171 tons	707 tons
Waste sorted	9,364 "	25 "
Ore milled	248,807 "	682 "
Gold recovered		50,390.84 oz.
Value of production (Canadian funds)		$1,940,638.82
Average gold content of mill heads		8.20 per ton
Average gold content of tailing		0.42 " "
Percent recovery		94.9%

"GENERAL:

"The Company employs 375 men. The average absenteeism amounts to 10 per cent. The average labour turnover is 5 per cent per month. This is a considerable improvement over conditions in the early part of 1942, when the labour turnover was sometimes 25 per cent per month. The wartime cost-of-living bonus is now 71 cents per man shift. This amounts to 26 cents per ton milled. A progressive 'safety first' and accident prevention campaign has resulted in a reduction of lost-time accidents".

LACORNE TOWNSHIP

DUMONT CLAIMS

This property, comprising lots 55 to 62, range IX, Lacorne township, was optioned to Sullivan Consolidated Mines, Limited, who later acquired additional claims, making a total of seventy-three in one group, or about 3,500 acres. During 1942, Sullivan Consolidated explored the molybdenite-bearing veins on these claims by 1,205 feet of trenching and 1,634 feet of diamond drilling. The drilling failed to intersect mineralization as promising as that seen in the surface exposures. A wide pegmatite dyke on the property contains spodumene, an ore of lithium.

WARTIME METALS CORPORATION
LACORNE MOLYBDENUM PROJECT

Since June, 1942, the molybdenite property of the Molybdenite Corporation of Canada has been operated by Siscoe Gold Mines, Limited, acting for the Wartime Metals Corporation, which has secured an option on the property. This option may remain in force until 1948.

Prior to 1930, a considerable amount of development work was done on this property, including the sinking of a sixty-degree incline shaft to a vertical depth of 235 feet and drifting and cross-cutting totalling 2,070 feet on the 150-foot level, and 1,180 feet on the 300-foot level.

Early in 1942, the mill was re-conditioned, and on July 22nd milling operations were started at the rate of fifty tons per day, the feed being material from the surface ore dump. Later, the mine was unwatered, and underground exploration and development was commenced. At the year end, an electric power line was being built to the mine, and plans were being prepared for construction of a 250-ton mill.

Following is a summary of operations during the year:

Ore hoisted.....	4,857 tons	Cross-cuts.....	263 feet
Ore milled	7,084 "	Drifting.....	682 "
		Diamond-drilling..	4,971 "

VASSAN TOWNSHIP

BAMBRICK-BEAUCHEMIN CLAIMS

This block of claims on lots 1 to 10, range IV, and lots 1 to 15, range III, Vassan township, is four miles northwest of Siscoe mine, along the projected strike of the Siscoe *K* ore zone. In March and April, 1942, showings on the

claims were explored by nine diamond-drill holes totalling 3,179 feet. The results were not sufficiently encouraging to warrant further expenditure at this time. The property was under option to Dome Exploration Company (Quebec), Limited, and the option was still in force at the end of the year.

DUBUISSON TOWNSHIP

Marbenor Malartic Mines, Limited

The diamond-drilling programme that was started on December 1st, 1941, was completed in April, 1942. In all, fourteen holes, aggregating 8,489 feet, were put down, all of them on lot 6, range X.

Free gold was noted in several places in the core from all the holes drilled in the shear zone. The consulting engineer for the Company states that "when financial conditions are better, the shear zone should be drilled to the east and west to explore the extension of the diorite dykes and the quartz veins already intersected. The cross-section drilling should be continued to the north boundary of the sediments, which lies in the overburden area to the south".

Dubuisson Goldfields, Limited

The exploratory diamond-drilling programme started in November, 1941, was completed in May, 1942. Eleven holes totalling 8,424 feet were put down on lots 10 to 17, range VIII.

The consulting engineer for the Company reports that "drilling so far indicates that the easterly extension of Malartic Gold Fields ore zone extends across the Dubuisson Goldfields property as far as drilling has progressed. The zone is widening to the east, where better ore conditions may be expected".

Seventh Malartic Mines, Limited

During 1942, 2,270 feet of diamond drilling was carried out on this property, which is in ranges V, VI, and VII. This work had as its object the exploration of two ore lenses in a structure subsidiary to the 'Cadillac break'. Before the close of the year, all work was suspended in compliance with Government regulations concerning the development of gold properties.

Sullivan Consolidated Mines, Limited

The following review of operations for the year ending December 31st, 1942, is reproduced from the annual report of the Company:

"Milling:

"The mill treated 168,209 tons of ore, an average of 462.2 tons per day, that averaged $10.36 per ton gold and $0.029 per ton silver. Production amounted to 43,375.477 fine ounces of gold, valued at $1,670,356.24, and 12,968.29 fine ounces of silver, valued at $4,515.17, for a total production of $1,674,871.41. Gold recovery was 95.78 per cent. There were 32,199 tons of waste sorted from the ore hoisted, averaging 88.3 tons per day.

"DEVELOPMENT:

"The No. 2 shaft, a 45-degree incline, was deepened 410.5 feet (vertical) from the 1,350 level to the 1,650 level, with the 1,750 level as objective; this will give a block of four new levels to develop this year in addition to the 1,250 and 1,350 levels, where practically no development work has been done as yet.

"A few drill holes put down from the 12th and 13th levels have indicated the continuity of the *A* vein-fracture and others down to the 1,650-foot horizon. Very little work has been performed in the *914* drift (West ore zone) mentioned in last year's report as very promising, due to the fact that it was not found necessary to use No. 1 vertical shaft in 1942 to maintain present operations. This has effected a substantial saving in the operating costs; however, systematic diamond drilling has proved the continuity of said ore zone above and under the 9th level, where it was first intersected.

"SUMMARY OF OPERATIONS:

Ore hoisted.....	202,711 tons	Ore reserves.....	622,000 tons
Grade.....	4.30 dwt./ton	Grade.....	5.38 dwt./ton

(A pennyweight (dwt.) is worth $1.92½ at the present price of gold)

"ORE RESERVES:

"Ore reserves as of February 15th, 1943, amount to 622,000 tons valued at $6,441,435.00 (gold at $38.50 per troy ounce), for an average grade of $10.36 per ton to the 1,450 level. There have been 753,424 tons of ore milled to date for a gross production of $8,264,225.81.

"OUTSIDE EXPLORATION SUMMARY:

"Several prospects were examined in the Province during the summer months but none were found worthy of exploration except a molybdenite occurrence located in the northeast corner of Lacorne township.

"It might also be mentioned that advantage has been taken of a temporary lack of interest in the gold district last year to secure forty claims practically adjacent to the property, located on the north contact and measuring approximately 3,000 acres. The geological conditions of these claims are almost identical to those where orebodies of the present mine are located.

"PLANT AND CONSTRUCTIONS:

"Capital expenditures have been kept to the bare minimum in conformity with the demands of the Federal Government. The most important item has been the installation of a sprinkler system for fire protection, at a cost of $13,555.00.

"GENERAL:

"At the completion of shaft sinking to the 1,750 level there will be a block of six new levels to develop from the No. 2 shaft.

"A small amount of scheelite concentrates, an ore of tungsten, were produced that averaged 66.6 per cent WO_3. This material was sorted from the ore mined.

"Limited amount of work executed in the machine shop on war contracts.

"An average of 271 men currently employed.

"Temporary reduction in development work due to scarcity of experienced miners".

Siscoe Gold Mines, Limited

The annual report of the Company for the year ending December 31st, 1942, contains the following résumé of operations:

"The tonnage of 1,000 tons (hoisted) per day established at the first of the year was maintained throughout. The grade of the ore treated was lower than for the previous year, but the higher tonnage, together with changed methods, resulted in considerably lower costs.

"Summary of Mill Performance:

Ore hoisted	363,516 tons	Bullion produced	$1,792,290.76
Waste sorted (picking belt)	45,319 "	Average grade (hoisted)	$5.1337
Ore milled	318,197 "	Average grade, tailing	$0.2033
		Recovery	96.04%

"Summary of Mining Operations:

Diamond drilling,	Outside surface exploration	11,997 feet
" "	Surface	1,770 "
" "	Underground exploration	40,082 "
" "	Stope wall testing	9,593 "
" "	Blast holes	21,631 "
Diamond drilling, total		85,073 feet
Drifts and cross-cuts		3,894 feet
Drifts and cross-cuts (slash)		5,178 "
Raising, including slash		3,805 "
Waste drawn from stopes for re-mining		21,000 tons
Ore broken, development and stope preparation		25,705 "
Ore broken, stopes		340,253 "
Ore broken by diamond drills		52,683 "
Ore hoisted		363,516 "
Broken-ore reserve		195,527 "

"Development and Diamond-Drilling Results:

"Diamond drilling in the upper-level stopes for parallel stringer concentrations, and in stringer zones occurring at the ends of the mined-out sections, has been responsible almost entirely for the maintenance of ore-reserve tonnage this year. Diamond drilling in search of new orebodies did not locate any commercial ore, but approximately 70,000 tons of $10.67 ore was developed in the albitite dyke by routine diamond-drill stope testing methods.

"Drifting and cross-cutting done during the year was almost entirely for the purpose of facilitating the drawing of ore from stringer-zone stopes. Some low-grade stringer-zone areas were opened by drifting and slashing.

"A cross-cut was driven 595.7 feet on the 19th (2,475-ft.) or bottom level. This cross-cut was directed towards the northeast, where previous interesting

diamond-drill intersections were obtained. However, a systematic check, by diamond drilling, of the altered zone in this location gave only a few unrelated results.

"ORE RESERVES:

"The ore reserve tonnage and grade is somewhat lower. Ore drawn from the *K* zone and other high-grade zones was not replaced with high-grade ore, but almost entirely with low-grade stringer-zone ore of the Main ore-zone type.

Ore in place	598,549 tons	Total ore reserves	794,076 tons
Broken ore	195,527 "	Value per ton (gold at $38.50)	$4.80

"GENERAL:

"At Siscoe, development work and the intensive search by diamond drilling for new orebodies during the past two years have met with little success. The ore reserves, however, have been kept up through the adoption of a new mining policy, based on the treatment of larger tonnages of lower grade material. This has yielded results because of reduced costs. The greater percentage of the new ore has been located in the form of widely spaced quartz stringers in the walls and on the ends of previously mined-out veins. The balance (excepting the comparatively small tonnage found in the albitite dyke during 1942) consists of previously known stringer areas converted into the ore class by reduced costs. During the year, ore was drawn from 102 stopes averaging 12.5 feet in width.

"A considerable tonnage of low-grade stringer material not included in the ore reserve statement is known to exist. Its value as profit-yielding ore is dependent entirely on the possibility of further cost reductions".

CAMP BIRD MINES, LIMITED

This Company, organized in 1941 to take over the property of Dorval Siscoe Mines, continued its programme of diamond drilling from the cross-cut on the 300-foot level and also did some drilling from the ice between islands No. 6 and No. 7. The mine shaft is on island No. 6, a mile and a half northwest of Siscoe island, and the object of the drilling, which totalled 5,511 feet during the year, was to explore the extension of the Siscoe *K* ore zone.

BOURLAMAQUE TOWNSHIP

LAMAQUE GOLD MINES, LIMITED

The annual report of the Company for the year ending December 31st, 1942, contains the following summary of operations:

"During this period, 376,561 tons of ore were treated. The recovery of bullion was the equivalent of 112,622.212 troy ounces of gold, which realized $4,335,958.99, or $11.51 per ton of ore treated.

"With the addition of $27,223.47, the income received from investments, gross income was $4,363,182.46.

"Development footage for the fiscal year was as follows:

	In Ore	In Waste	Totals
Drifting	1,402.0 feet	2,586.0 feet	3,988.0 feet
Cross-cutting	1,610.0 "	3,261.5 "	4,871.5 "
Winzing	0 "	6.0 "	6.0 "
Raising	3,867.5 "	3,263.0 "	7,130.5 "
Shaft sinking	0 "	61.5 "	61.5 "
Totals	6,879.5 feet	9,178.0 feet	16,057.5 feet

"Ore produced from development amounted to 38,708 tons.

"Footage drilled in diamond-drill exploration was as follows:

Surface	0 feet
Underground	33,158.13 "
Total	33,158.13 feet

"Between the 1,800- and 2,400-foot levels, very little raising has yet been done and, in the new block of ground now serviced by No. 7 shaft, between the 2,400- and 3,600-foot levels, no cross-cutting or drifting has been commenced.

"As noted in the last annual report, the sinking of No. 7 shaft reached the 3,600-foot level in December, 1941. Since then, main hoisting stations and pumping stations with sumps have been cut on the 3,000- and 3,600-foot levels; pumps with automatic operating equipment have been installed in these new stations; skip loading equipment to measure and load direct from the ore passes has been installed on the 2,400- and 3,000-foot levels; and the shaft has been deepened an additional 61.5 feet to provide room for a spillage pocket with loading chutes and for a settling sump. In connection with this work, the raising of the ore pass from the 2,400- to the 1,900-foot level was completed, and the raising of the ore pass from the 3,000-foot level was started.

"The technical estimate of 'positive ore' reserves as of January 1st, 1943, was as follows:

	Tons	Average Dwt. Per Ton	Total Gold (dwt.)
Broken ore	486,706 tons	4.88 dwt./ton	2,376,364 dwt.
Blocked ore	644,098 "	5.53 "	3,564,583 "
Totals	1,130,804 tons	5.25 dwt./ton	5,940,947 dwt.

"No new construction work was done during the year. Notwithstanding the labour shortage, the mine, with plant and equipment, has been kept in good condition.

"A severe shortage of efficient labour due to the war caused a drastic curtailment of underground work. Tonnage hoisted and milled was gradually

reduced, beginning in July, from an average of 1,225 to 815 tons daily, and development work was practically stopped.

"The total number of employees working in all departments, exclusive of the shaft sinking job, as of January 1st, 1942, was 667 as against 437 January 1st, 1943".

Sigma Mines (Quebec), Limited

The following paragraphs are reproduced from the annual report of the Company for the year ending December 31st, 1942:

"During the year, 441,996 tons of rock was hoisted, of which 403,467 tons was ore which was treated in the mill and 38,529 tons was waste and dumped on surface.

"The 403,467 tons of ore milled yielded bullion containing 79,197.320 ounces of gold, the average yield being 0.1963 ounces or 3.926 pennyweights per ton. All grades of ore will be expressed in pennyweights (dwt.) throughout this report. One pennyweight equals one-twentieth of an ounce troy weight.

"Mining:

"Broken ore totalling 436,100 tons remains in the stopes and in drifts as a result of stope preparation, an increase of 54,600 tons over the previous year.

"In all, 324,861 tons of a grade of 4.25 dwt. were drawn from the stopes and from stope preparation and were sent to the mill.

"Of the ore drawn from stopes, 25 per cent was extracted from the narrow, more or less horizontal, veins which project considerable distances into the walls from the main stopes.

"The main stoping operations are above the 7th level or 850-foot horizon.

"Development:

"A total of 25,732 feet of development work was done during the year. This work was distributed between the 2nd and 13th levels, inclusive.

"Diamond drilling totalling 79,470.5 feet was done in search for new ore and as a guide to mining.

"Development work was satisfactory but was somewhat curtailed due to the labour situation.

"Surface diamond drilling indicated ore sections of interest a distance of 2,500 to 3,000 feet to the northeast of the shaft. During the year, a cross-cut at the 600-foot horizon reached this area. While the investigation is not completed, the work to date is inconclusive.

"Ore Production:

"The mine produced 403,467 tons of ore during the year which averaged 4.05 dwt. The stopes produced 324,861 tons averaging 4.25 dwt., and the development work produced 78,606 tons averaging 3.36 dwt.

"Ore Reserves:

"The ore reserves are estimated at 1,311,900 tons, an increase of 114,000 tons over last year. The reserves include 436,100 tons of broken ore.

"MILL:

"The following are the results of milling operations:

Ore treated	403,467 tons	Recovery per ton	3.9258 dwt./ton
Average grade	4.0539 dwt./ton	Recovery, %	96.84%

"GENERAL:

"The labour supply is diminishing, as is to be expected at this time. The only saving feature is, the heads of families from the local settlements are permitted to seek employment at gold mines in the off season. This is allowed only if the local base-metal mine requirements are filled. In the springtime, it is to be expected that the shortage of labour will become more acute".

GAMMA MINES (QUEBEC), LIMITED

This property was optioned to Sigma Mines in 1939 and the option is still in force. Development work and diamond drilling completed during the year was as follows: cross-cuts, 325 feet; raises, 66 feet; slash, 5.5 feet; underground diamond drilling, 1,452.5 feet.

No further work will be done on the property for the duration of the war.

GOLDEN MANITOU MINES, LIMITED

This Company, which owns the westerly half of the property formerly known as Quebec Manitou Mines, commenced production of zinc concentrate in 1942. The product is sold under contract to the Metals Reserve Company, Washington, D.C.

Ore hoisted during the year amounted to 63,579 tons, of which 60,125 tons was milled. Development footage for the year was as follows:

Shaft	240 feet	Drifts	2,550 feet
Cross-cuts	618 "	Diamond drilling	2,096 "

Construction of a 600-ton concentrator, cyanide mill, and subsidiary plant, which had started late in 1941, was completed during the first half of the year, and the mill was placed in operation on August 4th, treating 230 tons per day. The rate was gradually raised to 600 tons per day, and at the end of the year preparations were being made to increase the capacity of the plant to 900 tons per day.

While construction of the surface plant was in progress, the shaft was deepened from 375 feet to 620 feet, and a third level, at 500 feet, was opened. At the end of the year, stoping operations were in progress on the 250-, 375-, and 500-foot levels.

PAYORE CONSOLIDATED MINES, LIMITED

This property consists of seventy-three claims totalling 3,250 acres. Late in 1941, an option on the property was granted to Sylvanite Gold Mines, Limited, who carried out 320 feet of drifting and 2,016 feet of diamond drilling. Upon completion of this work, the option was relinquished. It was reported that, while the results were quite favourable, they did not seem to warrant further work under the existing circumstances.

Columbière Mines, Limited

This Company owns seventeen claims adjoining the Golden Manitou property on the south and west, and also holds an option on an additional group of nine claims to the west of its own ground. During 1942, the Company put down seven diamond-drill holes, totalling 2,251 feet, to explore the possible extension of the Golden Manitou zinc orebodies into Columbière ground. A geophysical survey was also made of the eastern portion of the property.

LOUVICOURT TOWNSHIP

Rainville Copper Mines, Limited

This Company was formed in 1942 by Frobisher Exploration Company, Limited, to acquire the property of Fleming Mines, Limited, consisting of fifty-three claims in Louvicourt and Bourlamaque townships. During the year, twenty-one diamond-drill holes totalling 4,888 feet were put down on claims 36180-84-88-89 and 36521-22.

Smith-Richardson Claims

This property, formerly owned by Obaska Mines, Limited, consists of twenty-five claims. In 1942, it was optioned to Frobisher Exploration Company, Limited, who, between July and October, put down eleven diamond-drill holes, totalling 3,014 feet.

Cournor Mining Company, Limited

The Cournor mine and mill were in operation only during the first six months of the year, during which period production amounted to 6,959.459 oz. gold and 652.78 oz. silver. Operations underground included 8,732 feet of diamond drilling.

On March 23rd, a fire destroyed the mine office, warehouse, and engineers' office. This loss, as well as other factors—particularly the necessity for alterations to the shaft, and the prevailing high costs and unsatisfactory labour situation—decided the Company to discontinue its operations for the duration of the war. Preparations to this end were made, and by June 30th the property was closed. The mine, power plant, and all equipment were left in such condition that operations may be at once resumed when conditions become more favourable. Two watchmen remain at the property, one at the power plant, the other to safeguard the mine buildings and equipment.

Vicour Gold Mines, Limited

The development programme on the Vicour property was continued during the first three months of the year, these operations including 276 feet of cross-cutting, 440 feet of drifting, and 8,197 feet of diamond drilling. On March 31st, however, all work was suspended. Equipment and supplies have been sold, and all camp buildings have been barricaded. The management

stated that the mine had arrived at the stage where a mill should be built, but that general conditions, especially the war restrictions, made it impossible to build such a mill.

Hayes Cadillac Gold Mines, Limited

This Company completed the drilling programme started in 1941. Two holes, totalling 998 feet, were put down on claims 2405-1 and 2404-2.

PASCALIS TOWNSHIP

Pascalis Gold Mines, Limited

This property operated until April 30th, when it was closed because of wartime restrictions. Underground development and exploration in the early part of the year included 706 feet of cross-cutting, 524 feet of drifting, and 7,129 feet of diamond drilling. The Directors of the Company report as follows:

"Development work on the four lower levels gave considerable encouragement, and consideration was given to a plan for leasing the Cournor mill and putting the Pascalis property into production.

"This project had to be abandoned through failure to obtain from the Controller of Construction the necessary permit for erection of a plant.

"Any merger between Pascalis and Cournor or Perron would be also considered as bringing in new production of gold, and such action was not regarded favourably for the time being.

"It seems clear, therefore, that the property will have to remain dormant for some little time—at any rate until the cessation of hostilities".

Perron Gold Mines, Limited

The following paragraphs are reproduced from the annual report of the Company for the year ending December 31st, 1942:

"Development and exploration results during the year were up to expectations. The ore reserves were slightly increased. Due to labour and other operating difficulties brought about by the war, production was somewhat lower, with operating costs a little higher. Surface diamond drilling cut some promising ore intersections in the area immediately north of the main shear zone.

"Milling Statistics:

Ore hoisted	208,175 tons
Waste discarded	62,853 "
Ore milled	141,638 "
Average grade of ore milled	0.330 oz./ton
Average grade of ore hoisted	0.225 "
Average milled per day	388.0 tons
Average hoisted per day	570.3 "
Percent of possible running time	99.12%
Yield for year	46,027.009 oz.
Yield per ton of ore milled	0.325 oz./ton
Yield per ton of ore hoisted	0.221 "
Recovery	98.12%

"SUMMARY OF DEVELOPMENT AND EXPLORATION:

	To Dec. 31st, 1941	Year Ending Dec. 31st, 1942	Total
Drifting	37,120.2 ft.	5,662.9 ft.	42,783.1 ft.
Shaft sinking	2,590.3 "	.....	2,590.3 "
Cross-cutting	21,473.1 "	4,739.1 "	26,212.2 "
Raising	15,150.4 "	5,055.5 "	20,205.9 "
Diamond drilling	179,301.0 "	103,500.0 "	282,801.0 "

"ORE RESERVES ESTIMATE:

	Tons	Gold Content	Grade
On hand Dec. 31st, 1941	303,092 tons	62,827.32 oz.	0.207 oz./ton
Developed during 1942	211,348 "	45,079.90 "	0.213 "
	514,440 tons	107,907.22 oz.	0.209 oz./ton
Hoisted during 1942	208,029 "	45,921.22 "	0.221 "
Reserve at Dec. 31st, 1942	306,414 tons	61,902.64 oz.	0.202 oz./ton

"Of this reserve, 21.3 per cent is above the *32* vein, 53 per cent in the *32* vein, and 25.7 per cent below it.

"DEVELOPMENT:

"No shaft sinking was done during the year. The ore pass raise was completed from the 2,125- to the 1,625-foot level. Much development work with good results was done on new veins and extension of old veins in the highly productive area above the 625-foot level, and on all levels below the 1,025, chiefly the 1,500-, 1,725-, and 2,125-foot levels, where many important veins have been developed or are in the course of development. Forty-one per cent of the ore came from new, and extensions of old, veins above the 625-foot level. Much further production is expected from this area.

"MILLING:

"Production figures were lower on account of war conditions. The average daily tonnage milled was reduced from 414.1 tons to 388. Mill heads were down from $12.83 to $12.71. Recovery was down from $1,912,033.32 to $1,767,404.52. Extraction was at the high figure of 98.12 per cent.

"GENERAL:

"The roads were kept open and in good shape during the winter months through the co-operation of the Quebec Bureau of Mines, the Municipality, and the mines themselves.

"Strategic tungsten ore occurs in substantial quantities in the mine. It was removed by sorting from the picking belt. Three shipments were made, one to the Department of Mines at Ottawa and two shipments to the Quebec Mining School at Val d'Or.

"A continued safety-first and accident prevention campaign produced better results. Lost-time accidents were reduced".

MARRIAS TOWNSHIP

Heffren-Metroville Claims

This property, comprising lots 40 to 48, ranges VIII and IX, was optioned during the year to the Dome Exploration Company (Quebec), Limited. Occurrences of nickel-bearing ore were explored at depth by diamond drilling in seventeen holes totalling 2,046 feet. The results of the drilling were not considered sufficiently encouraging to justify further expenditure.

EMPLOYMENT, WAGES, AND ACCIDENTS IN MINES AND QUARRIES DURING THE YEAR 1942*

EMPLOYMENT AND WAGES

During the year under review, a total of 20,939 men were employed in the mining industry of the Province. Compared with the previous year, this is a decrease of 2.4 per cent.

These men were employed for a total of 5,399,516 days, which is equivalent to 17,998 men each employed for 300 days.

Returns for the year covered 283 mines, 169 quarries, 2,939 sand and gravel pits (of which 2,075 were operated by the Provincial Roads Department), 14 diamond-drilling contractors, and also numerous claim holders who completed the required amount of assessment work.

TABLE I

WORKMEN EMPLOYED IN MINES AND QUARRIES IN THE PROVINCE OF QUEBEC 1939 TO 1942

	1942	1941	1940	1939
Number of men employed	20,939	21,462	24,991	24,504
Number of men on a 300-day basis	17,998	17,993	18,896	18,061

The distribution of workmen over the various branches of the mining and quarrying industries is given in Table II.

TABLE II

DISTRIBUTION OF WORKMEN IN THE VARIOUS MINES AND QUARRIES OF QUEBEC, 1942

	NUMBER OF MEN EMPLOYED	NUMBER OF MEN CALCULATED ON 300-DAY BASIS	
	1942	1942	1941
MINES:			
Asbestos	3,607	3,576	3,661
Chrome, iron, titanium, zinc, lead	958	626	119
Copper	2,441	2,633	2,666
Feldspar	93	86	45
Gold	5,738	5,987	6,411
Graphite	.....	.....	1
Industrial lime	394	360	344
Magnesitic-dolomite and brucite	516	474	331
Manganese	.....	.....	1
Mica, phosphate	388	184	246
Mineral water	15	6	8
Molybdenite	205	101	43
Ochre and iron oxide	49	37	34
Peat	340	140	130
Petroleum	16	16	2
Quartz, industrial sand, garnet, kaolin	230	183	226
Talc, soapstone	91	58	74
Fluorite	3	1	.....
Coal	5	1	.....
Barite	6	1	.....
Tantalum	6	1	.....
Tungsten	24	3	.....
Diamond-drilling contractors	368	274	243
Assessment work on claims	91	91	140
Sub-totals	15,584	14,839	14,725
QUARRIES:			
Clay products	607	499	552
Cement	466	495	486
Granite	614	414	336
Limestone	1,200	713	760
Marble, slate, sandstone	155	73	87
Sand and gravel	2,292	948	1,031
Sand-lime brick	21	17	16
Sub-totals	5,355	3,159	3,268
TOTALS	20,939	17,998	17,993

*Compiled by R. H. Taschereau, Chief Inspector of Mines, from reports and returns made by mining operators and Inspectors of Mines.

Wages paid to workmen in the mines and quarries of the Province amounted to $26,425,445, as compared with $24,306,063 in 1941. Details of the wages paid, and of the number of men employed, in the several branches of the industry are given in the table of mineral production on page 6.

Table III gives condensed data on employment and wages of men engaged in work directly concerned with mining, as distinct from quarrying.

TABLE III

WORKMEN EMPLOYED IN PRODUCING AND NON-PRODUCING MINES, AND ENGAGED IN DIAMOND DRILLING AND IN ASSESSMENT WORK ON CLAIMS, IN 1942

	Number of Workmen	Wages	Number of Days' Work	Number of 300-Day Workers
Producing mines	14,422	$21,470,733	4,256,468	14,188
Non-producing mines	703	409,745	85,558	285
Diamond-drilling work	368	497,015	82,344	275
Assessment work on claims	91	111,247	27,347	91
Totals	15,584	$22,488,740	4,451,717	14,839

ACCIDENTS

Accidents to workmen in all mines, quarries, and annexed plants, as reported by operators, caused 36 deaths and 2,097 injuries of over seven days' disability. For the total number of accidents, the rate per thousand workers, on the 300-day basis, was 118.5, as against 108.8 in 1941. Fatalities were 2.0 per thousand full-year workers, as compared with 1.9 in 1941. In both mines and quarries, the rates were higher in 1942 than in 1941.

TABLE IV

SUMMARY OF ACCIDENTS IN MINES, QUARRIES, AND ANNEXED PLANTS, IN 1942

	Number 300-Day Workers	Accidents			Per 1,000 300-Day Workers
		Fatal	Non-Fatal	Total	
Mines and annexed plants	14,839	29	1,765	1,794	120.9
Quarries and annexed plants	3,159	7	332	339	107.3
Totals	17,998	36	2,097	2,133	118.5

TABLE V

ACCIDENTS IN MINES, QUARRIES, AND ANNEXED PLANTS IN THE PROVINCE OF QUEBEC DURING 1942

	FATAL		NON-FATAL		TOTAL	
	No.	%	No.	%	No.	%
MINES:						
Underground	25	1.1	1,136	53.3	1,161	54.4
Open pits	0	.....	83	3.8	83	3.8
Surface	1	0.1	343	16.1	344	16.2
	26	1.2	1,562	73.2	1,588	74.4
QUARRIES:						
In pits	6	0.2	112	5.3	118	5.5
Surface	1	0.1	157	7.4	158	7.5
	7	0.3	269	12.7	276	13.0
SURFACE PLANTS:						
Concentrators	2	0.1	135	6.3	137	6.4
Smelters	1	0.1	46	2.1	47	2.2
Shops	0	.....	57	2.6	57	2.6
Warehouse	0	.....	14	0.7	14	0.7
Power plants	0	.....	8	0.4	8	0.4
Construction	0	.....	6	0.3	6	0.3
	3	0.2	266	12.4	269	12.6
GRAND TOTALS	36	1.7	2,097	98.3	2,133	100.0

Tables VI and VII classify accidents according to cause of occupation.

TABLE VI

ANALYSIS OF FATAL ACCIDENTS IN MINES, QUARRIES, AND ANNEXED PLANTS IN THE PROVINCE OF QUEBEC DURING 1942

CAUSE OF ACCIDENT	UNDER-GROUND	OPEN PITS	SURFACE	ANNEXED PLANTS	TOTAL	
					No.	%
MINES:						
Explosives	8	0	0	0	8	27.6
Fall of rock	6	0	0	0	6	20.6
Fall of person	4	0	0	0	4	13.7
Haulage	2	0	1	0	3	10.3
Scaffolding and ladders	2	0	0	0	2	6.9
Slides of rock and ground	0	0	0	2	2	6.9
Scaling	1	0	0	0	1	3.5
Rock rolling down incline	1	0	0	0	1	3.5
Hoisting	1	0	0	0	1	3.5
Electricity	0	0	0	1	1	3.5
TOTALS	25	0	1	3	29	100.0
QUARRIES:						
Slides of rock and ground	0	4	1	0	5	71.4
Explosives	0	1	0	0	1	14.3
Mechanical shovel or crane	0	1	0	0	1	14.3
TOTALS	0	6	1	0	7	100.0

TABLE VII

Analysis of Non-Fatal Accidents in Mines, Quarries, and Annexed Plants in the Province of Quebec during 1942

Cause of Accident	Underground	Open Pits	Surface	Total	
				No.	%
Mines:					
Drilling	176	7	4	187	12.0
Chute loading	115	0	31	146	9.3
Fall of rock	133	5	5	143	9.2
Fall of person	74	9	48	131	8.4
Machinery and tools	49	3	62	114	7.3
Tramming	98	1	11	110	7.0
Miscellaneous	62	0	22	84	5.4
Lifting heavy object	36	9	21	66	4.2
Fall of object	27	2	25	54	3.5
Diamond drilling	32	1	19	52	3.3
Flying rock or object	24	4	20	48	3.1
Handling rock or other material	39	8	0	47	3.0
Rock rolling down incline	36	4	4	44	2.8
Haulage	31	1	5	37	2.4
Mucking	27	2	6	35	2.3
Scaffolding and ladders	26	0	8	34	2.2
Scaling	29	4	0	33	2.2
Explosives	24	3	2	29	1.8
Mechanical shovel or crane	19	3	2	24	1.5
Rock rolling down pile	15	6	1	22	1.4
Sledging	15	4	0	19	1.2
Cobbing	2	1	15	18	1.1
Timbering	14	0	1	15	0.9
Nails	9	0	5	14	0.9
Loading cars and boxes	3	6	2	11	0.7
Gearing, shafting and belting	3	0	8	11	0.7
Burns	3	0	8	11	0.7
Dust	7	0	3	10	0.6
Hoisting	6	0	3	9	0.6
Slides of rock and ground	2	0	1	3	0.2
Electricity	0	0	1	1	0.1
Totals	1,136	83	343	1,562	100.0
Quarries:					
Loading cars and boxes	0	24	40	64	23.8
Handling rock or other material	0	23	17	40	14.8
Sledging	0	18	5	23	8.5
Machinery and tools	0	5	16	21	7.8
Fall of person	0	4	13	17	6.3
Rock rolling down pile	0	10	4	14	5.2
Haulage	0	4	10	14	5.2
Miscellaneous	0	0	14	14	5.2
Drilling	0	4	4	8	3.0
Mechanical shovel or crane	0	4	4	8	3.0
Fall of rock	0	3	3	6	2.2
Tramming	0	1	5	6	2.2
Fall of object	0	1	4	5	1.9
Lifting heavy object	0	2	3	5	1.9
Flying rock or object	0	0	4	4	1.5
Rock rolling down incline	0	3	0	3	1.1
Dust	0	0	3	3	1.1
Mucking	0	1	1	2	0.7
Slides of rock and ground	0	1	1	2	0.7
Derrick	0	1	1	2	0.7
Diamond drilling	0	0	2	2	0.7
Scaling	0	1	0	1	0.4
Scaffolding and ladders	0	1	0	1	0.4
Chute loading	0	0	1	1	0.4
Gearing, shafting and belting	0	0	1	1	0.4
Burns	0	0	1	1	0.4
Explosives	0	1	0	1	0.4
Totals	0	112	157	269	100.0

TABLE VII—*Continued*

Cause of Accident	Concentrators	Smelters	Repair Shops	Warehouses	Power Plants	Construction	Total	
							No.	%
Annexed Plants:								
Machinery and tools	18	7	24	1	2	1	53	19.9
Miscellaneous	28	8	10	0	2	2	50	18.8
Fall of object	10	10	6	0	0	2	28	10.5
Lifting heavy object	9	2	1	7	0	0	19	7.1
Burns	3	10	3	1	0	0	17	6.4
Flying rock or object	9	0	4	3	1	0	17	6.4
Handling rock or other material	10	2	2	1	0	1	16	6.0
Fall of person	10	2	2	1	1	0	16	6.0
Gearing, shafting and belting	7	0	1	0	0	0	8	3.0
Loading cars and boxes	7	0	1	0	0	0	8	3.0
Chute loading	5	0	0	0	0	0	5	1.9
Sledging	4	0	1	0	0	0	5	1.9
Scaffolding and ladders	1	2	1	0	0	0	4	1.5
Tramming	3	1	0	0	0	0	4	1.5
Nails	3	0	0	0	1	0	4	1.5
Dust	1	2	0	0	0	0	3	1.1
Haulage	2	0	0	0	0	0	2	0.7
Drilling	1	0	0	0	0	0	1	0.4
Cobbing	1	0	0	0	0	0	1	0.4
Fall of rock	1	0	0	0	0	0	1	0.4
Rock rolling down pile	1	0	0	0	0	0	1	0.4
Derrick	1	0	0	0	0	0	1	0.4
Diamond drilling	0	0	1	0	0	0	1	0.4
Electricity	0	0	0	0	1	0	1	0.4
Totals	135	46	57	14	8	6	266	100.0

LIST OF THE PRINCIPAL OPERATORS AND OWNERS OF MINES AND QUARRIES IN THE PROVINCE OF QUEBEC

I. — METALLIC ORES AND INDUSTRIAL MINERALS

Note.—The asterisk before the name means that the property was in production or that work was done thereon in 1942.

ANTIMONY

Name of Operator	Address	Location of Mine (Township)
Reed Realties, Limited	c/o H. A. Peverley, 4549 Oxford Avenue, Montreal	South Ham

ARSENIC

Name of Operator	Address	Location of Mine (Township)
*Beattie Gold Mines (Quebec), Limited	25 King Street West, Toronto, Ont.	Duparquet
*O'Brien Gold Mines, Limited	Kewagama	Cadillac

ASBESTOS

Name of Operator	Address	Location of Mine (Township)
*Asbestos Corporation, Limited	Canada Cement Building, Montreal	Thetford, Coleraine, Ireland
Asbestos Crude and Fibre Mines, Limited	1410 Stanley Street, Montreal	Thetford
*Beaulieu, T., & Thibeault, B.	Ste-Florence, Matapédia Co.	Awantjish
*Bell Asbestos Mines, Limited	Thetford Mines	Thetford
*Canadian Johns-Manville Co., Ltd.	Asbestos	Shipton
*Canadian Refractories, Limited	Canada Cement Building, Montreal	Grenville
Compagnie d'Amiante de Thetford, Ltée (La)	Thetford Mines	Adstock
*Johnson's Company	Thetford Mines	Thetford, Coleraine
*McNeely, James	114 Harmer Avenue, Ottawa, Ont.	Cawood
*Nicolet Asbestos Mines, Limited	c/o Greenshields & Greenshields, 820 Transportation Building, Montreal	Tingwick
*Quebec Asbestos Corporation	East Broughton	Broughton
Queen Asbestos, Limited	c/o Robert Martineau, St-Pacôme, Kamouraska Co.	Cleveland

BARITE

Name of Operator	Address	Location of Mine (Township)
*Lambert, Antoine	Lac-aux-Sables, Portneuf Co.	Woodbridge

CHROME

Name of Operator	Address	Location of Mine (Township)
*Alchrome Prospecting Syndicate	11 King Street West, Toronto, Ont.	Awantjish
Asbestos Corporation, Limited	Thetford Mines	Coleraine
Brousseau, Nap.	Disraëli, Wolfe Co.	Garthby
*Chrome Association	c/o Alfred Grégoire, Black Lake, Mégantic Co.	Coleraine
*Chromite, Limited	404 Notre-Dame Street West, Montreal	Cleveland
Colonial Chrome Company, Ltd.	420 Lexington Avenue, New York, N.Y., U.S.A.	Coleraine
Disraëli Chromite, Reg'd.	Disraëli, Wolfe Co.	Garthby, Wolfestown
*Fletcher, H. Bruce	124 Wellington St. North, Sherbrooke.	Brompton
Labbé, Tancrède, & Pharo, L. C.	c/o Tancrède Labbé, M.P.P., Thetford Mines	Coleraine
*Matte, J. Louis	Thetford Mines	Coleraine
*Orford Mining Company, Ltd.	24 Bank Street, Sherbrooke.	Orford
*Paré, Orel.	Black Lake, Mégantic Co.	Coleraine
*Parent, Joseph, & Deveau, Eudore.	Coleraine, Mégantic Co.	Ireland
Reed Realties, Limited	c/o H. A. Peverley, 4549 Oxford Avenue, Montreal	Ham
*Roberge, J. Wilfrid	62 Notre-Dame Street, Thetford Mines	Coleraine
*Thetford Ferri-Chrome, Enrg.	Thetford Mines	Coleraine
*Wartime Metals Corporation (Chromeraine Project)	637 Craig Street West, Montreal	Coleraine

COAL

Name of Operator	Address	Location of Mine
*Roy, J. A.	111 Côte de la Montagne, Quebec	Ile d'Orléans

COPPER

Name of Operator	Address	Location of Mine (Township)
Adnaron Copper Corp'n, Ltd.	Noranda	Beauchastel
Alamac Mines, Limited	905 Transportation Building, Montreal	Desmeloizes
*Aldermac Copper Corporation, Limited	941 Dominion Square Building, Montreal	Beauchastel
Area Mines, Limited	Room 1002, 320 Bay Street, Toronto, Ont.	Dufresnoy
Association Minière de Val d'Or, Enrg.	c/o Napoléon Roy, Box 367, Val d'Or.	Chester
Blake-Chibougamau Mining Corporation	c/o Maurice Samson, 71 St. Peter St., Quebec	McKenzie, Obalski
Carlson Mines, Limited	Rouyn	Dufay
Chapman, J. E.	P.O. Box 439, Hawkesbury, Ont.	Hartwell
Chem-Ore Mines, Limited	General Assurance Building, Bay and Temperance Streets, Toronto 2, Ont.	Desmeloizes
*Consolidated Mining and Smelting Company of Quebec, Limited	215 St. James Street West, Montreal	Blondeau, Pershing, Duverny, Carpentier, etc.
Continental Copper Mines, Limited	Room 502, 11 King Street West, Toronto, Ont.	Dufresnoy
Cook Copper & Fluorite Corporation, Limited	92 King Street West, Dundas, Ont.	Guillet, Montbeillard
Despina Gold Mines, Limited	c/o Louis C. Christie, 79 Wall Street, New York, N.Y., U.S.A.	Dufresnoy, Duprat, Beauchastel, Rouyn
*Donalda Copper Mines, Limited	132 St. James Street West, Montreal	Rouyn
Dunford Rouyn Mines, Limited	Room 714, 320 Bay Street, Toronto, Ont.	Rouyn
Dwyer (C. J.) & Company, Inc.	132 St. James Street West, Montreal	Rouyn
*Frobisher Exploration Company, Limited	25 King Street West, Toronto, Ont.	Louvicourt, Bourlamaque
Gan Copper Mines, Limited	c/o J. O. McDonnell, 95 King Street East, Toronto, Ont.	Beauchastel
*Horne Fault Mines, Limited	Duparquet, Abitibi Co.	Beauchastel, Rouyn
Joliet-Quebec Mines, Limited	Room 2810, 25 King Street West, Toronto, Ont.	Rouyn
*Lake Dufault Mines, Limited	Duparquet, Abitibi Co.	Dufresnoy
MacDonald Mines, Limited	132 St. James Street West, Montreal	Dufresnoy
Mary-Jane Copper-Gold Mines, Limited	c/o E. Dussault, Ste-Dorothée, Laval Co.	Destor
Metalore Mining Corp., Ltd.	Normetal, Abitibi Co.	Desmeloizes, Perron
*Mic-Mac Mines, Limited	105 St. James Street West, Montreal	Bousquet
Noranda Exploration Company, Limited	Noranda	Holland
*Noranda Mines, Limited	1600 Royal Bank Building, 208 King Street East, Toronto 2, Ont.	Rouyn
*Norbec Copper Mines, Limited	1600 Royal Bank Building, Toronto, Ont.	Dufresnoy
*Normetal Mining Corporation, Ltd.	350 Bay Street, Toronto, Ont.	Desmeloizes, Perron
Obalski Mining Corporation	931 Canada Cement Building, Cathcart Street, Montreal	Obalski, McKenzie
Opemiska Copper Mines (Quebec), Limited	25 King Street West, Toronto, Ont.	Levy
Osisko Lake Mines, Limited	Room 2800, 25 King Street West, Toronto, Ont.	Rouyn
Quebec Manitou Mines, Limited	78 Sparks Street, Ottawa, Ont.	Bourlamaque
Quemont Mining Corporation, Ltd.	350 Bay Street, Toronto, Ont.	Rouyn
*Rainville Copper Mines, Ltd.	25 King Street West, Toronto, Ont.	Louvicourt
Reed Realties, Limited	c/o H. A. Peverley, 4549 Oxford Avenue, Montreal	Leeds
Rhyolite Rouyn Mines, Limited	1 Toronto Street, Toronto, Ont.	Duprat
*Touton Mining and Exploration Company	c/o Joseph Hurtubise, 500 Place d'Armes, Montreal	Fabre
*Waite-Amulet Mines, Limited	1600 Royal Bank Building, 2-8 King St. East, Toronto, Ont.	Beauchastel, Rouyn, Dufresnoy, Duprat
Wasamac Mines, Limited	3434 St-Hubert Street, Montreal	Beauchastel

FELDSPAR

Name of Operator	Address	Location of Mine (Township)
Barr, W. J.	Beachburg, Ont.	Aberford
Cameron, William	Buckingham	Buckingham
*Canadian Flint & Spar Co., Ltd.	Buckingham	Derry, Buckingham, Templeton
*Charron Frères	37 du Sacré-Coeur Street, Hull	Templeton
Constantineau, Léon, & McGill, Lawrence	c/o Léon Constantineau, Pointe-au-Chêne, Argenteuil Co.	Grenville (augmentation)
Crang (J. K.) Corporation	24 Adelaide Street East, Toronto, Ont.	Derry
Derry Mining Company	63 Pinehurst Street, Ottawa, Ont.	Derry
Gatineau Mining and Contracting Company, Limited	27 Dalhousie Street, Montreal	Wakefield
*Morin, A. Henri	P.O. Box 3, Buckingham	Buckingham
Perkins Mining Company	P.O. Box 63, Pointe Gatineau	Derry
Quebec Feldspar Quarries, Limited	c/o J. McHugh, 1403 Trenton Trust Building, Trenton, N.J., U.S.A.	Derry
St-Amour, Orphila	Notre-Dame-de-la-Salette	Villeneuve
*United Mining Industries, Ltd.	1451 Notre-Dame Street West, Montreal	Buckingham
*Winning, Bush	Notre-Dame-de-la-Salette	Portland West

FLUORITE

Name of Operator	Address	Location of Mine (Township)
*Portneuf Exploration Syndicate	67 St-Louis Street, Quebec	Montauban

GARNET

Name of Operator	Address	Location of Mine (Township)
*Canada Garnet, Limited	Room 16, 152 Notre-Dame Street East, Montreal	Joly
Garnet Concentrates, Inc.	80 St-Peter Street, Quebec	Beaudin

GAS and OIL

Name of Operator	Address	Location of Holdings
Continental Petroleums, Limited	414 St. James Street West, Montreal	Gaspé County
*de Roumefort, Vicomte Roger	5 St. James Street East, Montreal	Counties of Berthier, Joliette, Verchères, Richelieu, etc.
*Imperial Oil, Limited	56 Church Street, Toronto, Ont.	Douglas, Galt, Baie-de-Gaspé-Sud twps.
*Lacroix, Edouard	St-Georges-de-Beauce	St-Georges-de-Beauce
Minéraux & Pétroles de Gaspé Compagnie, Ltée	St-Joachim-de-Tourelle, Gaspé County	Baie-de-Gaspé-Nord twp.
Sibbitt, Robert A.	715 Blackburn Building, Ottawa, Ont.	Seigniory of Longueuil
*Tremblay-Joubert Coal Oil Company, Limited	26 St. James Street East, Montreal	St-Elie-de-Caxton

GOLD

Name of Operator	Address	Location of Mine (Township)
Abbeville Gold Mines, Limited	c/o The Sun Trust, Limited, 10 St. James Street East, Montreal	Rouyn, Beauchastel
Adanac-Quebec Mines, Limited	c/o Reilly Investments, 10 Adelaide Street West, Toronto, Ont.	Rouyn
Adeline Lake Gold Mines, Ltd.	581 Victoria Avenue, Niagara Falls, Ont.	Beauchastel
*Aldermac Copper Corporation, Limited	941 Dominion Square Building, Montreal	Beauchastel
Algray Mines (Quebec), Limited	Room 1309, 44 Victoria Street, Toronto, Ont.	Beauchastel
Amm Gold Mines, Limited	330 Bay Street, Toronto, Ont.	Cadillac
Amphi Gold Properties, Limited	General Assurance Building, Bay and Temperance Streets, Toronto 2, Ont.	Malartic
Annamaque Mines, Limited	Room 505, 67 Yonge Street, Toronto, Ont.	Bourlamaque
*Appalachian Mining Syndicate	196 Robinson Street, Moncton, N.B.	Stratford
Arncoeur Gold Mines, Limited	159 Bay Street, Toronto, Ont.	Dasserat
*Arntfield Gold Mines, Limited	159 Bay Street, Toronto, Ont.	Beauchastel
Arrowhead Gold Mines, Limited	240 St. James Street West, Montreal	Joannès
Astoria Quebec Mines, Limited	c/o R. C. Gamble, Oak Ridges, Ont.	Louvicourt, Rouyn
Auriac Mines, Limited	465 St. John Street, Montreal.	Bourlamaque
Aurora Mines, Limited	Room 612, 67 Yonge Street, Toronto, Ont.	Vauquelin
Barrentier Gold Mines, Limited	1110 Concourse Building, Toronto, Ont.	Barraute, Carpentier
Bartec Mining Company, Limited	25 King Street West, Toronto, Ont.	Barraute
Beacon Mining Company, Limited	25 King Street West, Toronto, Ont.	Louvicourt
*Beattie Gold Mines (Quebec), Ltd.	25 King Street West, Toronto, Ont.	Duparquet, Destor
Beckflo Gold Mines, Limited	c/o Mrs. Alonzo Cook, 27 Bay Street South, Hamilton, Ont.	Guillet
*Belleterre Quebec Mines, Limited	25 King Street West, Toronto, Ont.	Guillet, Joannès
Benkor Gold Mines (Quebec), Ltd.	Noranda	Beauchastel
Bidlamaque Gold Mines, Limited	Room 714, 320 Bay Street, Toronto, Ont.	Bourlamaque
Blouin Lake Gold Mines, Ltd.	516-517 Canada Cement Building, Montreal	Bourlamaque
Bouchard Cléricy Gold Mines, Ltd.	347 Bay Street, Toronto, Ont.	Cléricy
Bourbeau Lake Gold Mines, Ltd.	New Liskeard, Ont.	McKenzie
Bourlamaque Central Mines, Ltd.	Room 33, 266 Notre-Dame Street West, Montreal	Bourlamaque
Bouscadillac Gold Mines, Limited	1116 Federal Building, Toronto, Ont.	Bousquet
Bowes Gold Mines, Limited	Rouyn	Rouyn
Brenmore Quebec Mines, Limited	Box 700, New Liskeard, Ont.	Guillet
Britt-Mines (Quebec), Limited	c/o W. S. McFall, 3 Perkins Street, Ottawa, Ont.	Fournière
Brown Bousquet Mines, Limited	c/o Coulter & Jones, Room 606, 407 McGill Street, Montreal	Bousquet, Cadillac
Bruell Gold Mines (Quebec), Ltd.	c/o James P. Manley, 80 Richmond Street West, Toronto, Ont.	Vauquelin
Cache d'Or Gold Mines (Quebec), Limited	372 Bay Street, Toronto, Ont.	Bourlamaque
Calder Bousquet Holdings, Limited	5 St. James Street East, Montreal.	Bousquet
*Camp Bird Mines, Limited	465 St. John Street, Montreal.	Vassan
Canadian Flux Corporation	266 St. James Street, Montreal	Privat
*Canadian Malartic Gold Mines, Ltd.	25 King Street West, Toronto, Ont.	Fournière
Celta Development & Mining Company, Limited	465 St. John Street, Montreal.	Malartic
Centerline Mines, Limited	Room 33, 266 Notre-Dame Street West, Montreal	Bourlamaque
*Central Cadillac Mines, Limited	132 St. James Street West, Montreal.	Cadillac
*Central Duparquet Mines, Ltd.	Duparquet	Duparquet
Central Mining Corporation	Room 1007, 465 St. John Street, Montreal	Dubuisson, Bourlamaque, Dufresnoy, Desmeloizes
Centremaque Gold Mines, Ltd.	c/o Coulter & Jones, Suite 606, Shaughnessy Building, 407 McGill St., Montreal	Bourlamaque
*Céré, Léo	P.O. Box 641, Val d'Or.	Villebon
Chibmac Mines, Limited	132 St. James Street West, Montreal.	Beauchastel
Christie Mining Syndicate, Inc.	c/o W. Kerwin, 3516 Northcliffe Avenue, Montreal	Christie
Cie Petosa Roy Tungstène Premier (1.a)	Guigues, Témiscamingue Co.	Gaboury
Claverny Gold Mines, Limited	1456 Drummond Street, Montreal.	Duverny
Clerno Quebec Mines, Limited	60 Sparks Street, Ottawa, Ont.	Rouyn
*Columbière Mines, Limited	Room 506, 67 Yonge Street, Toronto, Ont.	Bourlamaque
Comberdit Discovery, Limited	c/o Binkley, Harries & Houser, 36 Toronto Street, Toronto, Ont.	Ditton, Emberton

GOLD—Continued

Name of Operator	Address	Location of Mine (Township)
Consolidated Chibougamau Goldfields, Limited	Room 401, Canadian Pacific Express Bldg., 215 St. James Street, Montreal	McKenzie, Obalski
Contactalamque Gold Mines, Ltd.	c/o S. Ciglen, 100 Adelaide Street West, Toronto, Ont.	Bourlamaque
Cook Gold Mines Corporation	c/o A. Cook, Belleterre	Guillet
Courageous Holdings, Limited	Room 204, 80 Richmond Street, Toronto, Ont.	Malartic, Dubuisson
*Cournor Mining Company, Ltd.	360 St. James Street West, Montreal	Louvicourt, Vauquelin, Pascalis
Croscourt Gold Mines, Limited	Room 1504, 80 Richmond Street West, Toronto, Ont.	Louvicourt
Da-Kerr-Ad Consolidated Mines, Limited	33 Melinda Street, Toronto, Ont.	Dasserat
Dasserat Rouyn Goldfields, Ltd.	129 Cooper Street, Ottawa, Ont.	Rouyn
Delandore Quebec Mines, Limited	122 Yonge Street, Toronto, Ont.	Delestre
Dempsey - Cadillac Gold Mines, Limited	c/o J. J. Coghlan, 80 Hogarth Avenue, Toronto, Ont.	Cadillac, Malartic
*Dome Exploration Company (Quebec), Limited	36 Toronto Street, Toronto, Ont.	Vassan, Malartic, Bourlamaque, Marrias
Drouin McLeod Mining Exploration Syndicate	Val d'Or	Bourlamaque
*Dubuisson Goldfields, Limited	355 St. James Street West, Montreal	Dubuisson
Dubuisson Gold Mining Co., Ltd.	c/o J. A. McInnis, Timmins, Ont.	Dubuisson
Dubuisson Mines, Limited	516 Canada Cement Building, Montreal	Bourlamaque
Dugold Mining Company, Ltd.	P.O. Box 640, Amos, Abitibi Co.	Dubuisson
*Duquesne Mining Company, Ltd.	P.O. Box 310, Noranda	Duparquet, Destor
Durbar Mines, Limited	1417 Turk's Head Building, Providence, R.I., U.S.A.	Beauchastel
East Amphi Gold Mines, Limited	Room 704, 357 Bay Street, Toronto, Ont.	Malartic
East Bay Gold (Quebec), Limited	P.O. Box 456, Noranda	Rouyn, Joannès
*East Malartic Mines, Limited	Norrie	Fournière
East Rouyn (Quebec), Limited	603-4 Royal Bank Building, Toronto, Ont.	Rouyn
Edena Mines, Limited	c/o R. C. Gamble, Oak Ridges, Ont.	Rouyn
Farrar Quebec Mines, Limited	c/o W. M. Gordon, 10 Adelaide Street East, Toronto, Ont.	Bourlamaque
Farrell Rouyn Mines (Quebec), Ltd.	25 King Street West, Toronto, Ont.	Rouyn
Fleming Mines, Limited	Room 515, 215 St. James Street West, Montreal	Louvicourt
*Flordin Mines, Limited	c/o C. S. Kennedy, 320 Bay Street, Toronto, Ont.	Desjardins
Fontana Gold Mines, Limited	119 Blackburn Building, Ottawa, Ont.	Duverny
*Francoeur Gold Mines, Limited	941 Dominion Square Building, Montreal	Beauchastel
Freegold Mines, Limited	c/o Oskar Okilman, Carleton Place, Ont.	Launay
*Gamma Mines (Quebec), Limited	Bourlamaque, Abitibi Co.	Bourlamaque
Giroux-Cordner Mineral Exploration Partnership	438 Canada Cement Building, Montreal	Obalski
*Golconda Mines, Limited	276 St. James Street West, Montreal	Destor, Duparquet, Duprat, Beauchastel
*Golden Manitou Mines, Limited	330 Bay Street, Toronto, Ont.	Bourlamaque
Goldore Development, Limited	711 Transportation Building, Montreal	Bourlamaque
Guillet Gold Mines, Limited	81 Main Street, Rouyn	Blondeau
Halliwell Gold Mines, Limited	360 St. James Street West, Montreal	Beauchastel
Harpers Malartic (Quebec) Gold Mines, Limited	Room 1405, 100 Adelaide St. West, Toronto, Ont.	Dubuisson
Harricana Gold Mines, Inc. (1939)	56 St-Peter Street, Quebec	Dubuisson, Bourlamaque
*Hayes Cadillac Mines, Limited	402 Victory Building, 80 Richmond Street West, Toronto, Ont.	Tiblemont, Louvicourt
Higginson Gold Mines, Limited	6998 Jeanne Mance St., Montreal	Vassan
Hollinger (Quebec) Exploration Company, Limited	603 Royal Bank Building, Toronto, Ont.	Barraute, Carpentier
Hugh Malartic Mines, Limited	Room 204, 80 Richmond Street West, Toronto, Ont.	Malartic
Industrial Metals, Limited	6998 Jeanne Mance Street, Montreal	Dubuisson
Insco Mines, Ltd.	Amos, Abitibi Co.	Dufresnoy
Inspiration Mining and Development Co., Limited	Amos, Abitibi Co.	McKenzie, Bourlamaque, Perron, Desmeloizes, Carpentier, Guillet
International Mining Corporation (Canada), Limited	85 Richmond Street West, Toronto, Ont.	Duprat
Jacques-Cartier Mining Corp.	Room 715, 215 St. James Street West, Montreal	Bourlamaque
James Norrie, Limited	Amos, Abitibi Co.	Pershing
Joannès-Davidson Mines, Limited	276 St. James Street West, Montreal	Joannès

GOLD—Continued

Name of Operator	Address	Location of Mine (Township)
Joannès Gold Mines, Limited	New Liskeard, Ont.	Bousquet, Joannès
Kayrand Mining and Development Company, Limited	c/o C. N. Knowles, 231 St. James St. West, Montreal	Dalquier
Kewagama Gold Mines (Quebec), Limited	25 King Street West, Toronto, Ont.	Cadillac
Kiena Gold Mines, Limited	Room 2810, 25 King Street West, Toronto, Ont.	Dubuisson
*Laflamme Barraute Mines, Ltd.	Room 1504, 80 Richmond St. West, Toronto, Ont.	Barraute
Lake Expanse Gold Mines, Ltd.	Room 1207, Montreal Trust Building, Toronto, Ont.	Guillet
Lake Fortune Gold Mines, Ltd.	941 Dominion Square Building, Montreal	Beauchastel
*Lamaque Mining Company, Ltd.	Bourlamaque, Abitibi Co.	Bourlamaque, Dubuisson
*Lapa Cadillac Gold Mines (1937), Limited	Room 1010, 100 Adelaide Street West, Toronto, Ont.	Cadillac
*La Pause Gold Mining Corp. Ltd.	708 Notre-Dame Street West, Montreal	La Pause
La Rose-Boutour Mines, Limited	Room 507, 112 Yonge Street, Toronto, Ont.	Rouyn, Montbray
Lartic Mines, Limited	c/o Holden & Murdoch, Suite 603-4, 2-8 King Street, Toronto 2, Ont.	Malartic
Lavalie Mines (Quebec), Limited	Room 1107, 67 Yonge Street, Toronto, Ont.	Bourlamaque
Lavoie Gold Mines, Limited	c/o J. P. des Châtelets, 1016 Sherbrooke St. East, Montreal	Launay
Leclerc, J. J.	Campbellton, N.B.	New Richmond
Legault Gold Mines, Limited	Room 1604, Aldred Building, 507 Place d'Armes, Montreal	Dubuisson
Locarno Gold Mines, Limited	18 Rideau Street, Ottawa, Ont.	Cléricy
Louvre Gold Mines, Limited	c/o S. B. Jowsey, Box 214, Ottawa, Ont.	Louvicourt
McDonough Mining Syndicate (1940), Limited	67 Yonge Street, Toronto, Ont.	Vauquelin
*McWatters Gold Mines, Limited	McWatters	Rouyn
Madison Gold Mines, Limited	6401 Louis Hébert Street, Montreal	Louvicourt
*Malartic Gold Fields, Limited	355 St. James Street West, Montreal	Malartic, Fournière, Dubuisson
Malartic Lakeshore Mines, Ltd.	Room 819, 132 St. James Street West, Montreal	Malartic
Manobec Prospectors, Limited	P.O. Box 249, Haileybury, Ont.	Pershing
*Marbenor Malartic Mines, Ltd.	68 Yonge Street, Toronto, Ont.	Dubuisson, Fournière
Mascot Malartic Mines, Limited	330 Bay Street, Toronto, Ont.	Fournière
*Mic-Mac Mines, Limited	105 St. James Street West, Montreal	Bousquet
Mine d'Or Champlain, Ltée (La)	Suite 603-4, 2-8 King Street East, Toronto, Ont.	Beauchastel
Mine d'Or Vénus Consolidée (La)	108 des Commissaires Street, Quebec	Barraute
Minefinders, Limited	Room 706, 100 Adelaide Street West, Toronto, Ont.	Rouyn
Mines d'Or Bellehumeur, Ltée	Béarn, Témiscamingue Co.	Laverlochère
Mohawk Mines, Limited	Room 2, 187 Main Street, Hull	Rouyn
Montmagny Gold Mines, Limited	2-8 King Street East, Toronto, Ont.	Beauchastel, Rouyn
Mooshla Gold Mines Company (1937), Limited	Suite 1010, 100 Adelaide St. West, Toronto, Ont.	Bousquet, Malartic
Mount Chemainis Mines, Limited	14 Government Road West, Kirkland Lake, Ont.	Dasserat, Dufay
Natagan Gold Mines Syndicate, Limited	c/o A. P. Robitaille, Charlesbourg	Barraute
*National Malartic Gold Mines, Ltd.	360 St. James Street West, Montreal	Fournière, Malartic
New Barber-Larder Mines, Ltd.	372 Bay Street, Toronto, Ont.	Jurie, Tavernier
New Malartic Gold Mines, Ltd.	Room 516, Canada Cement Building, Montreal	Fournière
New Ribago Mines, Limited	Room 728, 67 Yonge Street, Toronto, Ont.	Beauchastel, Rouyn
*Noranda Mines, Limited	804 Royal Bank Building, Toronto 2, Ont.	Rouyn
Norbeau Mines (Quebec), Limited	1600 Royal Bank Building, Toronto, Ont.	McKenzie
Norcana Gold Mines, Limited	9 Toronto Street, Toronto, Ont.	Haig
Norgold Mines (1937), Limited	100 Adelaide Street West, Toronto, Ont.	Bousquet
Norman Malartic Mines, Limited	80 Richmond Street West, Toronto, Ont.	Dubuisson
Normar Mines, Limited	McWatters, Témiscamingue Co.	Bousquet
*Normetal Mining Corp. Ltd.	350 Bay Street, Toronto, Ont.	Desmeloizes, Perron
Northern Quebec Gold Fields & Exploration Company	Trois-Rivières	Joannès, Duparquet
North Siscoe Mines, Limited	907 Dominion Square Building, Montreal	Dubuisson, Vassan
Numaque Mining Company	465 St. John Street, Montreal.	Bourlamaque

GOLD—Continued

Name of Operator	Address	Location of Mine (Township)
Obaska Lake Mines, Limited	25 King Street West, Toronto, Ont.	Louvicourt, Bourlamaque
*O'Brien Gold Mines, Limited	Kewagama	Cléricy, Cadillac
O'Leary-Malartic Mines, Limited	P.O. Box 535, Rouyn	Duprat, Beauchastel, Guillet, Rouyn
O'Neill Thompson Gold Mines, Limited	318 Clemow Avenue, Ottawa, Ont.	Joannès
Orcour Gold Mines (1937), Ltd.	357 Bay Street, Toronto, Ont.	Louvicourt
Oremonte Mines, Inc.	4063 Decarie Blvd., Montreal	Dalquier
Orenada Gold Mines, Limited	Bourlamaque, Abitibi Co.	Bourlamaque
Osisko Rouyn Exploration Company, Limited	Room 710, Transportation Bldg., Montreal	Rouyn
Ottmann Gold Mines, Limited	c/o Francis J. McNally, 360 Perrault St., Rouyn	Duparquet
Pan-Canadian Gold Mines, Ltd.	6998 Jeanne Mance St., Montreal	Cadillac
*Pandora, Limited	New Liskeard, Ont.	Cadillac
*Paquin Gold Mines, Limited	Belleterre	Guillet
Parbec Gold Mine, Limited	Room 314, 57 Queen Street West, Toronto, Ont.	Malartic
*Pascalis Gold Mines, Limited	Canadian Bank of Commerce Building, 25 King Street West, Toronto, Ont.	Louvicourt, Pascalis
Pasgil Mines, Limited	Room 3100, 25 King Street West, Toronto, Ont.	Pascalis
Payco Gold Mines, Limited	513 Canada Permanent Building, Toronto, Ont.	Duprat
Payore Consolidated Mines, Ltd.	276 St. James Street West, Montreal	Bourlamaque
Pelletier Lake Gold Mines (Quebec), Limited	25 King Street West, Toronto, Ont.	Rouyn
Pennaque Mining Corp., Ltd.	159 Bay Street, Toronto, Ont.	Beauchastel
*Perron Gold Mines, Limited	Perron, Abitibi Co.	Pascalis, Senneville
*Pershing Manitou Gold Mines, Ltd.	132 St. James Street West, Montreal	Courville
Pontiac Rouyn Mines (1939), Ltd.	Room 706, 100 Adelaide Street, Toronto, Ont.	Rouyn
Poulin Mining Company, Ltd.	48 du Fort St., St. Lambert, Montreal	Ascot
*Powell Rouyn Gold Mines, Ltd.	P.O. Box 300, Noranda	Rouyn
Prospectors Airways Co., Ltd.	12th Floor, 80 King Street West, Toronto, Ont.	Obalski
Quebec Mining Explorers, Ltd.	Room 425, 132 St. James Street West, Montreal	Bourlamaque
Questor Gold Mines, Limited	4643 Verdun Avenue, Verdun	Rouyn
Radisson Gold Mines, Limited	c/o John Knox, Jr., Arntfield, Témiscamingue Co.	Dasserat
Rand Malartic Mines, Limited	319 Ottawa Electric Building, Ottawa, Ont.	Fournière
Raylartic Cons. Mines, Ltd.	33 Melinda Street, Toronto, Ont.	Malartic, Beauchastel, Dasserat
Raymond-Tiblemont Gold Mines (Quebec), Limited	200 Bay Street, Toronto, Ont.	Vauquelin
*Renault, Auguste	Kanasuta, Pontiac Co.	Dasserat
Rhodes Exploration & Finance of Canada, Limited	100 Adelaide St. West, Toronto, Ont.	Montbray
Ricanaw Mines, Limited	Apt. 32, 456 Pine Avenue West, Montreal	Dubuisson
Richmaque Mining Syndicate, Ltd.	Sun Life Building, Montreal	Bourlamaque
Rocdor Mines, Limited	c/o L. C. Barlow, 11 Jordan Street, Toronto, Ont.	Bourlamaque, Dubuisson
Rochette Gold Mines Company, Limited	132 St. James Street West, Montreal	Launay
Rockway Prospecting and Developments, Limited	Room 704, 357 Bay Street, Toronto, Ont.	Gaboury, Blondeau, Guillet
Roybell Mines, Limited	4 Notre-Dame Street East, Montreal	Cléricy
Rubec (Quebec) Mines, Limited	c/o Albert Lamarre, 19 St. James St. East, Montreal	Cadillac
Saint-Jude Gold Mines, Limited	5847 Hamilton Street, Montreal	Duprat
St. Lawrence Mining Corp. Ltd.	132 St. James Street West, Montreal	Beauchastel
Saturnyte Gold Mines, Limited	226 Cutler Building, Rochester, N.Y., U.S.A.	Bousquet
Seguin Consolidated Mines, Ltd.	4643 Verdun Avenue, Verdun	Rouyn
*Senator-Rouyn, Limited	187 Main Street, Hull	Rouyn
Sennevar Mines, Limited	603 Royal Bank Building, Toronto, Ont.	Vassan
Senore Gold Mines, Limited	c/o John B. Cane, 357 Bay Street, Toronto, Ont.	Pascalis, Senneville
*Seventh Malartic Mines, Limited	Amos, Abitibi Co.	Dubuisson
Shawkey Gold Mining Co., Ltd.	51 King Street West, Toronto, Ont.	Dubuisson
Shawmaque Gold Mines, Limited	Room 726, 276 St. James Street West, Montreal	Dubuisson
*Sigma Mines (Quebec), Limited	Bourlamaque, Abitibi Co.	Bourlamaque

GOLD—Continued

Name of Operator	Address	Location of Mine (Township)
Sim-Clerc Gold Mines, Limited....	Room 25, 84 Notre-Dame Street West, Montreal	Louvicourt
*Siscoe Gold Mines, Limited.....	Room 907, Dominion Square Building, St. Catherine Street, Montreal	Dubuisson, Vassan
*Siscoe Metals, Limited.....	Room 907, Dominion Square Bldg., Montreal	Montauban
*Sladen Malartic Mines, Limited...	56 Sparks Street, Ottawa Ont.....	Fournière
Smith-Tiblemont Mines, Limited...	140 Cedar Street, New York, N.Y., U.S.A.	Tiblemont
Snowshoe Gold Mines, Limited....	603 Royal Bank Building, Toronto, Ont.	Dubuisson, Vassan
Soma-Duverny Gold Mines, Ltd...	Aldred Building, Montreal.....	Duverny
South Malartic Gold Mines, Ltd...	Suite 100, 45 St. James Street West, Montreal	Fournière
*Stadacona Rouyn Mines, Limited..	719 Tramways Building, 159 Craig St. West, Montreal	Rouyn, Duprat
Standard Gold Mines, Limited....	1604 Aldred Building, 507 Place d'Armes, Montreal	Bourlamaque
Sudbury Contact Mines (1937), Limited	100 Adelaide Street West, Toronto, Ont.	Bousquet
Sulcoe Gold Mines, Limited.....	36 Toronto Street, Toronto, Ont.....	Dubuisson
Sullivan Bourlamaque Gold Mines, Limited	Room 1004, 132 St. James Street West, Montreal	Bourlamaque
*Sullivan Consolidated Mines, Ltd..	1604 Aldred Building, Montreal.....	Bourlamaque, Dubuisson
*Sylvanite Gold Mines, Limited....	Kirkland Lake, Ont.....	Bourlamaque
Syndicat Simkar.....	Room 715, 215 St. James Street West, Montreal	Louvicourt
Teck Exploration Company, Ltd...	25 King Street West, Toronto, Ont....	Joannès
Thompson Bousquet Gold Mines, Limited	c/o Walter Keller, 407 St. Peter Street, Montreal	Bousquet
Thompson Cadillac Mining Corporation	c/o Donald Currie & Co., Aldred Building, Montreal	Cadillac
Tiblemont Consolidated Mines, Limited	465 St. John Street, Montreal.....	Tiblemont
Trivicour Gold Mines, Limited....	Room 1511, 12 Star Building, Toronto, Ont.	Louvicourt
Tundra Mines, Limited.....	605 Central Building, Toronto, Ont....	Dasserat
Valco Cadillac Mines, Limited.....	65 St. Peter Street, Quebec.....	Cadillac, Malartic
Valco Mines Company.....	65 St. Peter Street, Quebec.....	Cadillac, Malartic
Val d'Or Mineral Holdings, Ltd...	Canadian Bank of Commerce Building, 25 King Street West, Toronto, Ont.	Bourlamaque
Val d'Oro Extension, Enrg.....	Val d'Or, Abitibi Co.	Bourlamaque
Val d'Oro Mines, Limited.....	Val d'Or, Abitibi Co.	Louvicourt
Val Malartic (Quebec), Limited....	Suite 100, 45 St. James Street West, Montreal	Fournière
Varson Gold Mines (Quebec), Ltd.	Room 1701, 372 Bay Street, Toronto, Ont.	Vassan
Ventures (Quebec) Claims, Ltd. ...	25 King Street West, Toronto, Ont....	Dufresnoy, Duprat, Duparquet, Rouyn
*Vicour Gold Mines, Limited.....	12th Floor, 80 King Street West, Toronto, Ont.	Louvicourt
*Waite-Amulet Mines, Limited.....	Room 1600, Royal Bank Building, 2-8 King Street East, Toronto, Ont.	Duprat, Dufresnoy
Warrenmac Mines, Limited.....	Box 535, Rouyn.....	Bousquet
*West Malartic Mines, Limited.....	6998 Jeanne Mance Street, Montreal..	Cadillac
West Shore Malartic Gold Mines, Limited	5263 Fourth Avenue, Rosemount, Montreal	Malartic
West Siscoe Gold Mines, Limited..	Room 907, 1010 St. Catherine Street West, Montreal	Dubuisson
Westwood Cadillac Mines, Limited	Box 535, Rouyn.....	Bousquet
Wildor Gold Mines, Limited.....	Room 714, 320 Bay St., Toronto, Ont.	Bourlamaque
Willemite Prospecting Syndicate...	Room 505, 67 Yonge Street, Toronto, Ont.	Rouyn
Wiltsey-Coghlan Mines (Quebec), Limited	Suite 1010, 100 Adelaide Street West, Toronto, Ont.	Rouyn, Dufresnoy
Wisewill Gold Mines, Limited.....	67 Yonge Street, Toronto, Ont.....	Vauquelin
Wisik Gold Mines, Limited.....	Room 2800, 25 King Street West, Toronto, Ont.	Dubuisson
*Wood Cadillac Mines, Limited....	231 St. James Street West, Montreal..	Cadillac
Wright Rouyn Gold, Limited.....	Room 704, 357 Bay Street, Toronto, Ont.	Rouyn

GRAPHITE

Name of Operator	Address	Location of Mine (Township)
*Boylen 1942 Syndicate.....	Room 209, 330 Bay Street, Toronto, Ont.	Hincks twp

IRON

Name of Operator	Address	Location of Mine
*Amiot (Mrs.) Alexina Blais	1023 Berri Street, Montreal	St-Jérôme Parish
Gauthier, J. F.	16 Jeanne d'Arc St., Jonquière	Bourget twp
*Hollinger North Shore Exploration Company, Limited	Room 721, 360 St. James Street West, Montreal	New Quebec
Laurentian Exploration Co., Inc.	445 St. François-Xavier Street, Montreal	St-Jérôme Parish
Shawinigan Iron Mines Co., Ltd.	Shawinigan Falls	Shawinigan twp
Ungava Miners & Traders, Ltd.	4551 Wilson Avenue, Notre-Dame de Grâce, Montreal	New Quebec

KAOLIN

Name of Operator	Address	Location of Mine (Township)
*Canada China Clay and Silica, Ltd.	Kasil, Papineau Co.	Amherst
Laurentian Art Pottery, Inc.	St-Jérôme, Terrebonne Co.	Arundel
*Société Minière Gatineau, Enrg.	c/o J. W. Ste-Marie, 63 Main Street, Hull	Blake

LEAD

See Zinc and Lead (p. 104)

MAGNESITIC-DOLOMITE and BRUCITE

Name of Operator	Address	Location of Mine (Township)
*Aluminum Company of Canada, Ltd.	1700 Sun Life Building, Montreal	Hull
*Canadian Refractories, Limited	Canada Cement Building, Montreal	Grenville, Harrington
*Wakefield Syndicate (Registered)	Calumet	Wakefield

MANGANESE

Name of Operator	Address	Location of Mine (Township)
Magdalen Manganese Mines, Ltd.	c/o F. A. Gaby, 1400 Royal Bank Building, Toronto, Ont.	Magdalen Islands

MICA

Name of Operator	Address	Location of Mine
*Ahearn, Wm.	538 McLaren Street, Ottawa, Ont.	Hull twp
Ayrmic Prospecting Syndicate	67 Yonge Street, Toronto, Ont.	Portland West, Derry twps
Banca Mining & Exploration, Ltd.	11 King Street West, Toronto, Ont.	Portland East twp
*Bastien, Ephrem, & Bigras, Emmanuel	c/o Ephrem Bastien, Notre-Dame-du-Laus, Papineau Co.	Wells twp
*Beauchemin (Joseph), Enregistré	29 Kelvin Avenue, Outremont	Bergeronnes twp
*Blackburn Bros., Ltd.	Blackburn Building, Ottawa, Ont.	Templeton, Hull twps
*Blood, A. P.	161 Sixth Avenue, New York, N.Y., U.S.A.	Denholm twp
Charlevoix General Mining Company, Limited (The)	Suite 316, 251 St-Joseph Street, Quebec	Lacoste, De Sales twps
*Chenier, Z. E.	148 Laurier Street, Rockland, Ont.	Grenville twp
Cie de Mica Mistassibi, Ltée.	c/o Louis Pelchat, Ste-Lucie-d'Albanel	Hudon twp
*Commercial Mineral Products Company Reg'd	533 Bonsecours Street, Montreal	Portland West twp
*Constantineau, Léon.	Pointe Au-Chêne, d'Argenteuil Co.	Grenville twp (augmentation)
Courte, Constant.	Rouge Vallée, d'Argenteuil Co.	Harrington twp
Cross, S. H.	Farm Point	Hull twp
*Cross, W. C.	209 Bridge Street, Hull	Hull twp
*Davis, N. B.	Victoria Building, Ottawa, Ont.	Portland East twp
Delisle, Jos.	Mistassini	Hudon twp
Derby, E. J., & Salley, W. J.	c/o W. J. Salley, 642 Somerset St., Ottawa, Ont.	Onslow twp
*Déziel, J. V.	St-Pierre-de-Wakefield	Wakefield twp
Entreprises Equitables, Ltée (Les)	c/o Simon Parent, 70 St-Paul St., Quebec	Bergeronnes twp
*Fortin, Louis Joseph.	Grandes Bergeronnes, Saguenay Co.	Bergeronnes twp
*Gauthier, J. B.	P.O. Box 226, Buckingham	Buckingham twp
Gauthier, J. F.	Jonquière	Jonquière, Bergeronnes twps
Harney, W.	126 St-Peter Street, Quebec	Arundel twp
Industrial Mica Company, Ltd.	6998 Jeanne Mance Street, Montreal	Wakefield twp
Johnston, H. A.	Rupert, Wright Co.	Bouchette twp
Kelly, Ulderic.	Grand Lac Ste-Agnès, Saguenay Co.	Sagard twp
*Lake Ste. Marie Mica Mines.	95 Rideau Street, Ottawa, Ont.	Hincks twp
Lefebvre, J. H.	1133 St. Joseph Boulevard East, Montreal	Charlevoix County
L'Heureux, Georges	637 Notre-Dame, Cap-de-la-Madeleine	Wentworth twp
*McCabe, Edward J.	Notre-Dame-du-Laus, Papineau Co.	Wells twp
*McGarry, Edward.	Wakefield	Wakefield twp
*McKay (Quebec) Exploration, Ltd.	215 St. James Street West, Montreal	Saguenay County
*McGlashan (R. J.) & Company.	190 Montcalm Street, Hull	Wakefield twp
Maltais, Boris	La Malbaie, Charlevoix Co.	Chauveau twp
Martin, A. G.	Cantley	Hull twp
Mathé, E. & F.	c/o Eugène Mathé, R.R. No. 1, Wilson's Corners, Gatineau Co.	Portland West twp
Mica Laurentien, Limitée	5841 Côte des Neiges Road, Montreal	Bergeronnes twp
*Micambia Prospecting Syndicate.	Smithville, Ont.	Bigelow twp
Papineauville Lumber Company, Limited	Papineauville	Templeton twp
Perkin's Mining Company.	Pointe Gatineau	Templeton twp
Perreault, Arsène.	39 Champlain Street, Shawinigan Falls	Shawinigan twp
*Poirier, Adélard.	Wilson's Corners, Gatineau Co.	Hull twp
*Prud'homme, Oscar.	Perkins	Templeton twp
*Roy-Kelley Mineral Exploration Partnership	c/o J. A. Roy, 111 Côte de la Montagne, Quebec	Charlevoix County
*St-Amour, Orphila.	Notre-Dame-de-la-Salette	Villeneuve twp
*St-Lawrence Mica Corp., Ltd.	105 Côte de la Montagne, Quebec	Petit Pré
*St-Lawrence Mining Corp., Ltd.	132 St. James Street West, Montreal	Grenville twp
*Sabourin, Valmore.	Perkins	Templeton twp
*Simard, Eugène.	Grandes Bergeronnes, Saguenay Co.	Bergeronnes twp
Simard, Wellie.	1041 St. Denis Street, Montreal	Bergeronnes twp
*Sylvanite Gold Mines, Limited.	Kirkland Lake, Ont.	Portland West twp
*Toutloff, Frank	Pointe Gatineau	Joliette twp
*Wallingford, Edward.	Perkins	Templeton twp
Wallingford, E. B.	Perkins	Gore of Templeton twp
*Wallingford, Joseph N.	59 Pamilla Street, Ottawa, Ont.	Derry twp
Wallingford, John H.	Perkins Mills	Templeton Gore twp
*Wallingford, Waldick.	Pointe Gatineau	Hull twp
*Wells Mica Prospecting Synd.	Room 503, 357 Bay Street, Toronto, Ont.	Bigelow twp
*White (A. W.) Mica, Limited.	Suite 407, 67 Yonge Street, Toronto, Ont.	Wells twp
*Wilson, Wm. S.	Cascades	Thorne twp

MINERAL WATER

Name of Operator	Address	Location of Spring
*Abenakis Springs Company	Blondin	St-François-du-Lac
*Cie d'Eau Minérale (La)	632 Eleventh Avenue, St-Hyacinthe	St-Hyacinthe-le-Confesseur
*Coulombe, J.	L'Epiphanie, L'Assomption Co.	L'Epiphanie
*Eau Minérale Etoile	Ste-Geneviève-de-Batiscan	Batiscan
Eau Naturelle Purgative de Chambord, Ltée (L')	c/o David Doré, Desbiens, Lac St-Jean Co.	Metabetchouan twp
*Gurd, Chas. & Co., Limited	1016 Bleury Street, Montreal	Varennes
*Lemay, Lucien	St-François-du-Lac	St-François-du-Lac
*Levesque, Ernest	Rivière-du-Loup	St-Germain
*Lussier, Mrs. J. H.	Rang Nord du Rapide Plat, St-Hyacinthe	St-Hyacinthe-le-Confesseur
*MacPeak, T. H.	264 Hospital Street, Montreal	Lacoste twp
*Maski Bottling Works	St-Justin	St-Justin
*Ménard, Edouard	Maskinongé	St-Sévère
*Montclair, Richelieu Spring Water Company, Limited	Chambly Basin	Chambly Basin
*Pellerin, Albert	St-Barnabé Nord, St-Maurice Co.	St-Barnabé Nord
*Radnor Mineral Water Springs	St-Maurice, Champlain Co.	Radnor Forges

MOLYBDENITE

Name of Operator	Address	Location of Mine (Township)
Bussières, Amédée	St-Sébastien, Frontenac Co.	Gayhurst
*Dome Exploration Company (Quebec), Limited	36 Toronto Street, Toronto, Ont.	Preissac
Doyon, Jean Thomas, & Dostie, Patrick	Thetford Mines	Gayhurst
*Farley Mining Company	c/o E. Farley & John Watson, 195½ Main Street, Hull	Egan
Height of Land Company (The)	209 St. Paul Street, Third Floor, Montreal	Preissac
Indian Molybdenum, Limited	Bourlamaque	Preissac
Lamarche, J. Hermas, & Arbic, Phrase	Mont Laurier, Labelle Co.	Kensington, Campbell
La Reine Holdings, Limited	c/o Trusts & Guarantee Co., 302 Bay St., Toronto, Ont.	La Reine
*Manolovici, M. P.	1212 Aldred Building, Montreal	Lacorne, Vassan, Preissac
Messier, Ernest, & Power, W. H.	c/o Ernest Messier, 4357 Christophe Colomb St., Montreal	Deschambault parish
*National Molybdenum Mining Syndicate, Limited	276 St. James Street West, Montreal	Piedmont
*Norwin Molybdenite Mines, Ltd.	26 Queen Street East, Toronto, Ont.	Eardly
Préfontaine, Edmour, & Kert, Sam	49 des Cèdres Street, Shawinigan Falls	Aldfield
*Quyon Molybdenite Company, Ltd.	Quyon	Onslow
Steeloy Mining Corp., Ltd.	100 Adelaide Street West, Toronto Ont.	Preissac, Destor
*Sullivan Consolidated Mines, Limited	1604 Aldred Building, Montreal	Lacorne
*Vic-Ore Molybdenite Mines, Ltd.	80 Richmond Street West, Toronto, Ont.	Aldfield, Masham
*Wartime Metals Corporation	637 Craig Street West, Montreal	Malartic, Vassan, Lacorne, La Motte

OCHRE and IRON OXIDE

Name of Operator	Address	Location of Mine
*Argall, Thos. H.	639 Ste-Angèle Street, Trois-Rivières	Pointe du Lac
Chapman, J. E.	P.O. Box 439, Hawkesbury, Ont.	Chéneville
*Girardin, Charles D.	Box 104, Yamachiche	Almaville, Les Forges, St-Louis-de-France
*Mauricy Oxide Company	94 Ste-Catherine Street, Grand'Mère	St-Adelphe
*Sherwin-Williams Company of Canada, Limited	2875 Centre Street, Montreal	Red Mill

PEAT

Name of Operator	Address	Location of Bog
*Belleau, E.	St-Charles-de-Bellechasse	St-Charles-de-Bellechasse
*Bourque, Clovis	St-Marc-des-Carrières, Portneuf Co.	St-Marc-des-Carrières, St-Alban
*Canada Peat, Limited	Rivière-du-Loup	Whitworth twp
*Excel Peat, Limited	319 Lafontaine Street, Rivière-du-Loup	Ile aux Coudres
*Maple-Leaf Peat Company	Rivière-du-Loup	Whitworth twp
*Premier Peat Moss, Limited	Ile Verte	Ile Verte
*Quebec Peat Moss Company	St-Guillaume-d'Upton, Yamaska Co.	Upton twp
*Tourbière de Pointe-au-Père (1 a)	Mont-Joli, Rimouski Co.	Pointe-au-Père
*Tourbière Rivière Ouelle, Enrg. (La)	c/o F. X. Lambert, 6 Côte d'Abraham, Quebec	Rivière Ouelle
*Waterville Moss & Peat Mines	Waterville, Compton Co.	Compton twp

PHOSPHATE

Name of Operator	Address	Location of Mine (Township)
*Barry Lake Mining Company, Ltd.	11 des Remparts Street, Quebec	Portland West
*Bigelow, Robert	Glen Almond	Bowman
Blackburn Bros.	301 Blackburn Building, Ottawa, Ont.	Templeton
*Commercial Mineral Products Company, Reg'd	533 Bonsecours Street, Montreal	Portland West, Buckingham
*Crang (J. K.) Corporation	24 Adelaide Street East, Toronto, Ont.	Buckingham
Davis, N. B.	Victoria Building, Ottawa, Ont.	Portland East
Stewart, William	Buckingham	Portland
Wallingford, Edward	Perkins	Templeton

PYRITE

Name of Operator	Address	Location of Mine (Township)
*Aldermac Copper Corporation, Ltd.	Room 941, Dominion Square Building, Montreal	Beauchastel
*Noranda Mines, Limited	Room 1600, Royal Bank Building, 2-8 King Street East, Toronto 2, Ont.	Rouyn

SILICA (Rock and Sand)

Name of Operator	Address	Location of Mine (Township)
Brady, John E.	Masson	Buckingham
*Canada China Clay and Silica, Ltd.	Kasil, Papineau Co.	Amherst
*Canadian Carborundum Co., Ltd.	P.O. Box 57, Niagara Falls, Ont.	St-Canut parish
*Canadian Flint and Spar Co., Ltd.	Buckingham	Derry
*Hart, Rodrigue	Notre-Dame-de-la-Salette	Portland West
H. C. F. Sands, Limited	Drawer 360, New Liskeard, Ont.	Guigues
*Industrial Sands and Minerals Corporation	264 Hospital Street, Montreal	Templeton
International Crystal, Limited	Room 92, 84 Notre-Dame Street West, Montreal	Pontiac County
*Lafrance, Ovila	Angers, Papineau Co.	Buckingham
*Montpetit, Euclide	Melocheville	Beauharnois parish
*Morin, A. Henri	Glen Almond	Buckingham
*Newton, Alfred A.	Glen Almond	Buckingham
Perkins Mining Company	P.O. Box 63, Pointe Gatineau	Derry
St-Amour, Orphila	Notre-Dame-de-la-Salette	Villeneuve
Stewart, Wm.	Box 19, Buckingham	Buckingham
*United Mining Industries, Ltd.	1451 Notre-Dame Street West, Montreal	Buckingham
*Warwick, Wm.	Glen Almond	Buckingham
*Winning, Bush	Notre-Dame-de-la-Salette	Portland West

SILVER

Name of Operator	Address	Location of Mine (Township)
*Aldermac Copper Corporation, Ltd	Room 941, Dominion Square Building, Montreal	Beauchastel
*Arntfield Gold Mines, Limited	159 Bay Street, Toronto, Ont.	Beauchastel
*Beattie Gold Mines (Que.), Ltd.	25 King Street West, Toronto, Ont.	Duparquet
*Belleterre Quebec Mines, Limited	25 King Street West, Toronto, Ont.	Guillet
*Canadian Malartic Gold Mines, Limited	25 King Street West, Toronto, Ont.	Fournière
*Central Cadillac Mines, Limited	132 St. James Street West, Montreal	Cadillac
*Cournor Mining Company, Limited	360 St. James Street West, Montreal	Louvicourt, Vauquelin, Pascalis
*East Malartic Mines, Limited	Norrie	Fournière
*Francoeur Gold Mines, Limited	941 Dominion Square Building, Montreal	Beauchastel
*Golden Manitou Mines, Limited	330 Bay Street, Toronto, Ont.	Bourlamaque
*Lamaque Mining Company, Ltd.	Bourlamaque	Bourlamaque, Dubuisson
*Lapa Cadillac Gold Mines (1937), Limited	25 King Street West, Toronto, Ont.	Cadillac
*McWatters Gold Mines, Limited	McWatters	Rouyn
*Malartic Gold Fields, Limited	355 St. James Street West, Montreal	Dubuisson, Malartic, Fournière
*Mic-Mac Mines, Limited	105 St. James Street West, Montreal	Bousquet
*Noranda Mines, Limited	1600 Royal Bank Building, 2-8 King St. East, Toronto 2, Ont.	Rouyn
*Normetal Mines Corporation, Ltd.	350 Bay Street, Toronto, Ont.	Desmeloizes, Perron
*O'Brien Gold Mines, Ltd	Kewagama	Cadillac
*Pandora, Limited	New Liskeard, Ont.	Cadillac
*Perron Gold Mines, Limited	Perron	Pascalis, Senneville
*Powell Rouyn Gold Mines, Ltd.	P.O. Box 300, Noranda	Rouyn
*Senator Rouyn, Limited	187 Main Street, Hull	Rouyn
*Sigma Mines (Quebec), Limited	Bourlamaque	Bourlamaque
*Siscoe Gold Mines, Limited	Siscoe	Dubuisson, Vassan
*Siscoe Metals, Limited	Room 407, Dominion Square Building, St. Catherine Street, Montreal	Montauban
*Sladen Malartic Mines, Limited	Trust Building, Ottawa, Ont.	Fournière
*Stadacona Rouyn Mines, Limited	719 Tramways Building, 159 Craig Street West, Montreal	Rouyn
*Sullivan Consolidated Mines, Ltd.	1604 Aldred Building, Montreal	Bourlamaque, Dubuisson
*Waite-Amulet Mines, Limited	1600 Royal Bank Building, 2-8 King Street East, Toronto, Ont.	Beauchastel, Rouyn, Dufresnoy, Duprat
*West Malartic Mines, Limited	6998 Jeanne Mance Street, Montreal	Cadillac
*Wood Cadillac Mines, Limited	231 St. James Street West, Montreal	Cadillac

SOAPSTONE and TALC

Name of Operator	Address	Location of Mine (Township)
*Baker Mining & Milling Co., Ltd.	Highwater	Potton
*Broughton Soapstone & Quarry Company, Limited	Broughton Station, Beauce Co.	Broughton
*Fortin, Charles	Robertsonville	Thetford
*Marcoux, William	Thetford Mines	Thetford
Megantic Mining Company (The)	c/o Arthur M. Temple, Canadian Bank of Commerce, Spadina and College Streets, Toronto, Ont.	Ireland
*Pharo, L. C.	187 St-Maurice Street, Thetford Mines	Leeds
True, Mrs. Henry J.	North Grafton, Mass., U.S.A.	Bolton

TITANIC IRON

Name of Operator	Address	Location of Mine
American Titanic Iron Co., Ltd.	c/o J. H. Boisvert, Sec'y, Parliament Buildings, Quebec	St-Urbain parish
*Baie St-Paul Titanic Iron Ore	c/o Chs. Ed. Tremblay, N.P., Baie St-Paul	St-Urbain parish
Brassard, Hercule	La Malbaie	Charlevoix County
Canadian Pyrites, Limited	c/o Dupont de Nemours, Wilmington, Delaware, U.S.A.	St-Urbain parish
*Coulombe, J. A.	126 St-Peter Street, Quebec	St-Urbain parish
Loughborough Mining Co., Ltd.	Sydenham, Ont.	St-Urbain parish
Titanium Products Corporation	c/o G. C. Piché, Pres., 3667 St. Hubert Street, Montreal	Bourget twp
Vital Metals Prospecting Synd.	Room 1220, 67 Yonge Street, Toronto, Ont.	North Shore

TUNGSTEN

Name of Operator	Address	Location of Mine (Township)
*Canadian Malartic Gold Mines, Ltd.	25 King Street West, Toronto, Ont.	Fournière
*Central Cadillac Mines, Limited	132 St. James Street West, Montreal	Cadillac
*Donhurd Prospecting Syndicate	18 Taylor Avenue, Kirkland Lake, Ont.	Dasserat
*Lamaque Mining Company, Ltd.	Bourlamaque	Bourlamaque
*McWatters Gold Mines, Limited	McWatters	Rouyn
*Manley Tungsten-Gold Synd.	5 Montcalm Street, Hull	La Reine
*Perron Gold Mines, Limited	Perron, Abitibi Co.	Pascalis, Senneville
*Sigma Mines (Quebec), Limited	Bourlamaque	Bourlamaque
*Sullivan Consolidated Mines, Ltd.	1604 Aldred Building, Montreal	Dubuisson
*Toburn Gold Mines, Limited	Kirkland Lake, Ont.	Dalquier
*Wood Cadillac Mines, Limited	231 St. James Street West, Montreal	Cadillac

ZINC and LEAD

Name of Operator	Address	Location of Mine (Township)
Alpha Mining Company	c/o Hollinger Consolidated Gold Mines, Limited, Timmins, Ont.	Duhamel
*Federal Zinc & Lead Co., Ltd.	Room 708, 1117 St. Catherine Street West, Montreal	Lemieux
Gaspé Mines	c/o Guy Hudon, 65 Ste-Anne Street, Quebec	Lemieux
*Golden Manitou Mines, Ltd.	330 Bay Street, Toronto, Ont.	Bourlamaque
Gulf Development Company, Ltd.	c/o J. Galbraith, 359 St. James St. West, Montreal	Mann
Gulf Lead Mines, Limited	1511 Star Building, Toronto, Ont.	New Quebec
*Lyall & Beidelman	Room 708, Drummond Building, 1117 St. Catherine Street West, Montreal	Lemieux
*New Calumet Mines, Limited	Room 2810, 25 King Street West, Toronto, Ont.	Grand Calumet
*Normetal Mining Corp., Ltd.	350 Bay Street, Toronto, Ont.	Desmeloizes, Perron
Shawinigan Mining & Smelting Company, Limited	648 Wellington Street, Montreal	Montauban
*Siscoe Gold Mines, Ltd.	Room 907, Dominion Square Building, Montreal	Montbeillard
*Siscoe Metals, Limited	Room 907, Dominion Square Building, Montreal	Montauban, St-Ubald
United Metals, Limited	276 St. James Street, Montreal	Montauban
*Waite-Amulet Mines, Limited	Room 804, Royal Bank Building, 2-8 King St. East, Toronto, Ont.	Duprat, Dufresnoy

II. — STONE QUARRIES, CLAY AND SAND PITS

BRICK

Name of Operator	Address	Location of Plant
Ascot Tile & Brick Co., Ltd.	Ascot Corner	Ascot Corner
Brique Champlain, Ltée (La)	323 Charest Blvd., Quebec	Beauport
Brique Citadelle, Ltée (La)	14 St-Joseph Street, Quebec	Boischatel
Brique Lotbinière, Enrg. (La)	Deschaillons, Lotbinière Co.	Deschaillons
Brique de Scott, Enrg. (La)	Scott, Dorchester Co.	Scott Junction
Castonguay, Hubert	Deschaillons, Lotbinière Co.	Deschaillons
Côté, Albert	Victoriaville	Victoriaville
Crête, Freddy	St-Tite, Laviolette Co.	St-Tite
Desmarais (S. E.) & Cie	Richmond	Richmond
Duquette, Isidore	East Angus	East Angus
Gaulin, Evangéliste	Princeville	Stanfold twp
Hodgins, David T.	P.O. Box 148, Shawville	Clarendon twp
Laprairie Company, Inc. (The)	University Tower Building, 660 St. Catherine Street West, Montreal	Laprairie, Delson
Potvin, Alphonse	Deschaillons	Deschaillons
Roy, Philippe & Odilon	St-Georges West, Beauce Co.	St-Georges West
St. Lawrence Brick Co., Ltd.	935 Dominion Square Building, 1010 St. Catherine Street West, Montreal	Laprairie
Tremblay, Jules	Chicoutimi	Chicoutimi

CEMENT

Name of Operator	Address	Location of Plant
Canada Cement Company	Box 200, Station "B", Montreal	Montreal East, Hull

GRANITE

Name of Operator	Address	Location of Quarry
Aluminum Power Company, Ltd.	1000 Dominion Square Bldg., Montreal	Racine twp
Belley, Jos. Didier	330 St-Dominique Street, Jonquière	Kénogami
Bernier, Auguste	Roberval, Lac St-Jean Co.	Roberval twp
Berry & Redicker Granite Quarry	Beebe	Stanstead twp
Bérubé (Lucien) & Fils	Brownsburg	Brownsburg
Boisvert, Léonidas	La Sarre, Abitibi Co.	La Sarre twp
Bolduc, Antonio	St-Sébastien, Frontenac Co.	Gayhurst twp
Bourbonnais, J. A.	Dorion-Vaudreuil	Rigaud
Brasseur, Stanislas	McWatters, Témiscamingue Co.	McWatters
Brissette, J. L.	Ste-Agathe-des-Monts, Terrebonne Co.	Ste-Agathe-des-Monts
Brodie's, Limited	1070 Bleury Street, Montreal	Graniteville, Guenette, Mount Johnson
Bullock, Wright	Graniteville, Stanstead Co.	Graniteville
Bussière, A. L.	St-Sébastien, Frontenac Co.	Ste-Cécile
Carrière Drummond, Limitée	Drummondville	Wendover twp
Carrière La Mauricie, Enrg.	Shawinigan Falls	Ste-Flore
Carrières de Granit Frontenac, Enrg. (Les)	Scott Junction, Dorchester Co.	St-Sébastien
Carrière Shawinigan, Enrg.	c/o Alcide Lambert, Shawinigan Falls	Shawinigan twp
Chicoutimi, City of	Chicoutimi	Chicoutimi
Cie de Construction de la Côte Nord, Ltée	Canada Cement Building, Montreal	Baie Comeau
Cloutier, R. L.	Beebe, Stanstead Co.	Stanstead twp
Delwaide & Goffin	1365 St-Vallier Street, Quebec	Chicoutimi
Deschambault Quarry Corporation	56 St-Peter Street, Quebec	St-Gérard, Wolfe Co.
Dubois, Honoré	Rivière-à-Pierre, Portneuf Co.	Colbert twp
Dumas, Auguste	Rivière-à-Pierre, Portneuf Co.	Rivière-à-Pierre
Dumas & Voyer	Rivière-à-Pierre, Portneuf Co.	Rivière-à-Pierre
Foundation Company of Canada, Limited	1538 Sherbrooke Street West, Montreal	Jonquière, Simard twps
Frenette, P. E.	P.O. Box 191, Rimouski	Escoumains
Gaboriault, Victor, & Nevers, G.	P.O. Box 65, Grenville, Argenteuil Co.	Grenville twp
Gagnon, Arthur	Grand'Mère	Grand'Mère
Gingras & Frères, Ltée	St-Marc-des-Carrières, Portneuf Co.	Stanhope
Gosselin, Oscar	Mégantic	St-Samuel
Granit National, Limitée (Le)	St-Joseph-d'Alma, Lac St-Jean Co.	St-Gédéon
Grenier, Elie	Glenada	Ste-Flore parish
Haselton, Wm.	Beebe	Stanstead
Henrikson, Anton, & Hokenson, John	Graniteville, Stanstead Co.	Stanstead twp
Jonquière, City of	Jonquière	Jonquière twp
Lacasse & Boulais	P.O. Box 23, Beebe, Stanstead Co.	Stanstead twp
Laroche, Omer	Rivière-à-Pierre	Rivière-à-Pierre
Lavers, Clifford	P.O. Box 72, Beebe, Stanstead Co.	Stanstead twp
McIntosh, Robert	R.R. No. 1, Beebe, Stanstead Co.	Stanstead twp
Maltais, Charles	St-Joseph-d'Alma	St-Gédéon
Perron, Arthur	Rivière-à-Pierre	Bois twp
Port Alfred, City of	Port Alfred, Chicoutimi Co.	Port Alfred
Riverin & Riverin, Enrg.	Chicoutimi	Rivière-du-Moulin
St-Bruno Quarry & Paving Company, Limited	636 Querbes Avenue, Outremont	St-Bruno
St-Jérôme, City of	c/o City Engineer, St-Jérôme, Terrebonne Co.	St-Jérôme
St-Joseph-d'Alma, City of	St-Joseph-d'Alma, Lac St-Jean Co.	St-Joseph-d'Alma
Scotstown Granite Company, Ltd.	1406 University Tower Building, Montreal	Lingwick, Campbell, Grenville twps
Silver Granite Company	2331 Provençal Street, Montreal	Signay, Gayhurst twps
Stanstead Granite Quarries Co., Limited (The)	Beebe, Stanstead Co.	Graniteville
Théberge (J. R.), Limitée	Chicoutimi	Chicoutimi twp
Thibaudeau & St-Pierre	Rivière-à-Pierre	Rivière-à-Pierre
Voyer (Fortunat) & Frères	Rivière-à-Pierre	Bois twp
Wilkinson, Frank	Beebe, Stanstead Co.	Stanstead twp

LIME

Name of Operator	Address	Location of Kiln
Aluminum Company of Canada, Limited	1700 Sun Life Building, Montreal	Wakefield twp
Arnaud, Mrs. Edwilda	210 Ste-Angelique St., Joliette	Joliette
Boivin, Arthur	Pont Rouge, Portneuf Co.	Pont Rouge
Canada Lime & Stone, Limited	St-Marc-des-Carrières, Portneuf Co.	St-Marc-des-Carrières
Canadian Refractories, Ltd.	Canada Cement Building, Montreal	
Carrière St-Maurice, Ltée	307 Radisson Street, Trois-Rivières	St-Louis-de-France
Carswell, R. B.	Bryson, Pontiac Co.	Bryson
Côté, Joseph	Métabetchouan, Lac St-Jean	Métabetchouan
Desfonds, Gaspard	St-Cuthbert, Berthier Co.	St-Cuthbert
Dominion Lime, Limited	Lime Ridge, Wolfe Co.	Lime Ridge
Dontigny, Raymond & Armand	Ste-Thècle, Champlain Co.	Ste-Thècle
Drouin, Bélonie	Ste-Justine, Dorchester Co.	Ste-Justine
Filion, Narcisse	St-Joachim, Montmorency Co.	St-Joachim
Giroux, Pierre Gédéon	Beauport East	Beauport East
Héon & Héon	St-Louis-de-Champlain	St-Louis-de-France
Lalumière, Joseph	St-Dominique-de-Bagot	St-Dominique
Laurentian Stone Co., Ltd.	82 Crémazie Street, Hull	Hull
Limoges, Henri	552 Poupart Street, Montreal	Montreal
Machabée, Lucien	Ste-Anne-des-Plaines, Terrebonne Co.	Ste-Anne-des-Plaines
Mercure, Camille	555 16ème Avenue, St-Hyacinthe	St-Dominique-de-Bagot
Shawinigan Chemicals, Limited	Room 611, 107 Craig St. West, Montreal	Shawinigan Falls
Standard Lime Company, Limited.	Joliette	St-Paul-de-Joliette, St-Marc-des-Carrières
Trottier, David	St-Marc-des-Carrières.	St-Marc-des-Carrières

LIMESTONE

Name of Operator	Address	Location of Quarry
Amendements Calcaires de Rivière Bleue, Enrg.	Rivière Bleue, Témiscouata Co.	Cabano twp
Assels, John G.	Port Daniel Centre, Bonaventure Co.	Port Daniel
Andorno, Emmanuel	Cap St-Martin	Cap St-Martin
Beaudry, Jos. Pitre	Box 209, Taché Street, Joliette	Joliette
Bédard (Jean), Ltée	St-Martin, Laval Co.	Caughnawaga, Bélanger twps
Boucher, Louis	Percé, Gaspé Co.	Percé twp
Boucher, Télesphore	Notre-Dame-de-la-Salette, Papineau Co.	Portland East twp
Bourget, John D.	Deforceville, Gaspé Co.	Percé twp
Canada Cement Company, Ltd.	Box 290, Station B, Montreal	Hull, Montreal East
Canadian Quarries Company, Ltd.	Ville St-Michel, Laval Co.	Ville St-Michel
Carrière Cap St-Martin, Enrg.	636 Querbes Avenue, Montreal	Cap St-Martin
Carrière Château, Enrg.	Château-Richer	Château-Richer
Carrières de Saint Dominique, Ltée	555 Sixteenth Avenue, St-Hyacinthe	St-Dominique-de-Bagot
Carrière Gravel, Ltée (La)	Château-Richer	Château-Richer
Carrière Marcil, Ltée (La)	St-Michel Station, Napierville Co.	Ste-Clothilde
Carrière Montréal-Est	c/o Cyrille Durocher, 11021 Notre-Dame Street East, Montreal	Montreal East
Carrière de St-Barthélémi, Ltée	St-Barthélémi, Berthier Co.	St-Barthélémi
Carrière Pointe Claire	Dorion-Vaudreuil	Pointe Claire
Carrière St-Maurice, Ltée	307 Radisson Street, Trois-Rivières	St-Louis-de-France
Carrière Trois-Rivières, Limitée	St-Louis-de-France, Champlain Co.	St-Louis-de-France
Cercle Agricole de Notre-Dame-de-Paspébiac	Paspébiac, Bonaventure Co.	Paspébiac
Charbonneau (L.) & Cie	St-François-de-Sales	St-François-de-Sales
Cie de Construction de Roberval, Limitée	Roberval	Roberval twp
Deschambault Quarry Corporation	56 St-Peter Street, Quebec	St-Marc-des-Carrières
Dominion Lime, Limited	Lime Ridge, Wolfe Co.	Lime Ridge
Dufresne Construction Co., Ltd.	1832 Pie IX Boulevard, Montreal	Rivière-des-Prairies
Faubert, Alphonse	Bellevue Station, Ville de Léry	Bellevue
Faubert, Donat	Ville de Léry, Chateauguay Co.	Ville de Léry
Drouin, Bélonie	Ste-Justine, Dorchester Co.	Ste-Justine
Filion, Aldège	Lachute	Lachute
Filion, Joseph	200 Notre-Dame Street, Lachine	Lachine
Fontaine, Omer	865 Richard Street, Trois-Rivières	St-Maurice
Fortin, Camille	Chambord, Lac St-Jean Co.	Chambord Junction
Fortin, Georges	St-Honoré, Chicoutimi Co.	St-Honoré
Francoeur, J. B.	Kelly, Bonaventure Co.	Hope twp
Fuger & Smith, Limited	Pointe Claire	Pointe Claire
Gagné, Octave	St-Ulric, Matane Co.	St-Ulric
Gagnon & Leclerc	St-Joachim, Montmorency Co.	St-Joachim
Gaspesian Fertilizer Co., Reg'd	Port Daniel East	Port Daniel
Gauthier (Jos. O.), Ltée	St-Marc-des-Carrières, Portneuf Co.	St-Marc-des-Carrières

LIMESTONE—Continued

Name of Operator	Address	Location of Quarry
Gauthier, René	7657 Henri Julien Street, Montreal	Village Bélanger
Gingras & Frère, Ltée	St-Marc-des-Carrières, Portneuf Co.	St-Marc-des-Carrières
Gosselin, Alphonse	St-Laurent, Is. of Orleans	St-Laurent
Gouin, J. A.	2 du Platon Street, Trois-Rivières	St-Marc-des-Carrières
Guilbault & Frère	Ste-Elizabeth, Joliette Co.	Ste-Elizabeth
Highway Paving Co., Ltd.	6301 Park Avenue, Montreal	Tremblay twp
Industrial Sand, Stone & Gravel, Reg'd	c/o L. R. Vachon, 6735 St. Denis Street, Montreal	Pointe aux Trembles
Kennedy Construction Co., Ltd.	310 Shaughnessy Building, 407 McGill Street, Montreal	Acton Vale
Laberge & Marchand	Chateauguay	Chateauguay
Legacé Quarry, Limited	130 Curé Labelle Blvd., l'Abord à Plouffe, Laval Co.	St-Martin
Lakeshore Construction Co., Ltd.	137 Cartier Avenue, Pointe Claire	Pointe Claire
Lamothe, Nap.	Pont Rouge, Portneuf Co.	Pont Rouge
Landry, J. P. Aurèle	St-André, Bonaventure Co.	Restigouche twp
Lapointe, A. & E.	12034 Lachapelle Street, Montreal	Cartierville
Lapointe, Emile	St-Dominique, Bagot Co.	St-Dominique
Larouche, J. B.	Baie St-Paul, Charlevoix Co.	Baie St-Paul
La Salle Products, Limited	159 Jean Talon Street West, Montreal	Côte St-Michel
Laurentian Stone Co., Ltd.	82 Crémazie Street, Hull	Hull
Leclerc, J. J.	Drapeau, Bonaventure Co.	Drapeau
Martineau Fils, Ltée	517 Marie-Anne Street East, Montreal	St-Marc, Montreal
Mercure, Camille	555 Sixteenth Avenue, St-Hyacinthe	St-Dominique-de-Bagot
Miner (R. H.) Company, Limited	Room 1058, Sun Life Building, Montreal	St-Laurent
Montreal Quarry, Limited	325 Bloomfield Avenue, Outremont	Montreal
Montreal Quarry & Cut Stone Company	2545 Côte St-Michel, Montreal	Ville St-Michel
National Quarries, Limited	6301 Park Avenue & Beaubien Street, Montreal	Côte St-Michel
Naud, Eugène	Hamelin, Portneuf Co.	St-Marc-des-Carrières
Noël (Oscar) & Cie	61 Montcalm Street, Hull	Wrightville
O'Connell (H. J.), Limited	509 Canada Cement Building, Montreal	St-Bernard parish
O'Connors, Incorporated	Huntingdon	Godmanchester twp
Ouimet, Eugène	R.R. No. 2, St-Jean	St-Jean
Lévis Paquette & Cie	Cap St-Martin, Laval Co.	Cap St-Martin
Paquin, Laurent	des Forges Boulevard, Trois-Rivières	St-Marc-des-Carrières
Pearson, Honoré	Port Daniel, Bonaventure Co.	Port Daniel
Pelletier, J. E.	Ste-Anne-des-Monts, Gaspé Co.	Ste-Anne-des-Monts
Pénitencier St-Vincent-de-Paul	St-Vincent-de-Paul	St-Vincent-de-Paul
Pères Trappistes de Mistassini (Les)	Mistassini, Lac St-Jean	Mistassini
Pierre à Chaux, Limitée	St-Marc-des-Carrières, Portneuf Co.	St-Marc-des-Carrières
Poirier, Edgar	St-Siméon, Bonaventure Co.	Hamilton twp
Rioux, Louis	Cowansville, Missisquoi Co.	Cowansville
Rousseau, T. E.	105 Côte de la Montagne, Quebec	Val Brillant
St-Francis Rock Products & Equipment, Ltd.	Côte Ste-Marguerite, St-Laurent Parish	St-Laurent
St-Laurent Quarry, Limited	Village Bélanger, Laval Co.	Village Bélanger
St-Laurent Stone Products & Supplies, Limited	Côte Ste-Marguerite, St-Laurent Parish	Côte Ste-Marguerite
St-Onge, O. F.	St-Dominique, Bagot Co.	St-Dominique
Salaberry de Valleyfield, City of	c/o Raphael Bélanger, City Engineer, Valleyfield	Valleyfield
Shawinigan Chemicals, Limited	Room 611, Power Building, 107 Craig Street West, Montreal	St-Damien-de-Stanbridge
Société Coopérative de St-Godefroi	St-Godefroi, Bonaventure Co.	St-Godefroi
Standard Clay Products, Limited	P.O. Box 189, St-Jean	St-Jean
Standard Lime Company, Limited	Joliette	St-Paul-de-Joliette
Stone & Quarry, Limited	8013 St. Denis Street, Montreal	St-François-de-Sales
Syndicat de Broyage de Lévis	R.R. No. 1, St-Joseph-de-Lévis	Sorosto
Syndicat de Pierre à Chaux de Ferme-Neuve	Ferme-Neuve, Labelle Co.	Ferme-Neuve
Tessier, Stanislas	174 Laurier Street, Hull	Hull twp
Théoret, Arthur	Box 228, Nouveau Salaberry-de-Valleyfield	Nouveau Salaberry-de-Valleyfield
Tremblay, Louis-Philippe	Matane	Matane
Tremblay, Nap.	31 Joffre Avenue, Hull	Hull
Turcotte & Asselin, Enrg.	Château-Richer	Château-Richer
Union Quarries and Paving, Ltd.	48 Second Avenue, Limoilou, Quebec	Charlesbourg West
Varin, Joseph	3275 Côte St-Michel, Ville St-Michel, Laval Co.	Côte St-Michel
Verreault (Elzéar), Limitée	194 du Pont Street, Quebec	Giffard
Viau, Paul	11 Tully Street, Valleyfield	Nouveau Salaberry-de-Valleyfield
Villeneuve, François	Pointe au Pic, Charlevoix Co.	Pointe au Pic
Voirie, Département de la	Parliament Buildings, Quebec	St-Timothée, St-Honoré, Baie St-Paul, Cap à l'Aigle, St-Charles-de-Bellechasse

MARBLE

Name of Operator	Address	Location of Quarry
Mab, Limitée (Limited)	98 du Pont Street, Quebec	St-Joseph-de-Beauce
Missisquoi Stone & Marble Company, Limited	Philipsburg, Missisquoi Co.	Philipsburg
White Grit Company	c/o E. S. Church, 120 Strathcona Ave., Ottawa, Ont.	Portage du Fort

POTTERY

Name of Operator	Address	Location of Plant
Bégin (Olivier), Enrg.	R.R. No. 1, St-Sauveur, Quebec Co.	Petite Rivière
Brique Champlain, Ltée (La)	323 Charest Blvd., Quebec	Beauport
Brique Citadelle, Ltée (La)	14 St-Joseph Street, Quebec	Boischatel, L'Islet
Brique Lotbinière, Enrg. (La)	Deschaillons, Lotbinière Co.	Deschaillons
Brique de Scott, Enrg. (La)	Scott, Dorchester Co.	Scott Junction
Canada Fire Brick Co., Ltd.	4741 St-Ambroise Street, Montreal	Montreal
Canadian Potteries, Ltd.	5 Mackenzie King Street, St-Jean	St-Jean
Duquette, Isidore	East Angus	East Angus
Hodgins, David T.	P.O. Box 148, Shawville	Clarendon twp
Laprairie Company, Inc. (The)	University Tower Building, 660 St. Catherine Street West, Montreal	Laprairie, Delson
Montreal Terra Cotta, Limited	Room 911, 1010 St. Catherine Street West, Montreal	Lakeside
Poterie d'Art Laurentienne, Inc. (La)	St-Jérôme, Terrebonne Co.	St-Jérôme
Poterie du Saguenay, Inc. (La)	St-Luc and Morin Streets, Chicoutimi	Chicoutimi
Standard Clay Products, Ltd.	P.O. Box 819, St-Jean	St-Jean
Tremblay, Jules	Chicoutimi	Chicoutimi

SAND and GRAVEL

Name of Operator	Address	Location of Pit
Arseneault, Adrien	St-Alexis-de-Matapédia	Matapédia twp
Asselin, Auguste	R.R. No. 1, Mont-Joli	Ste-Flavie
Asselin, Wilfrid	St-Eugène-de-Grantham, Drummond Co.	St-Eugène-de-Grantham
Audet, Napoléon	Béarn, Témiscamingue Co.	Duhamel twp
Baillargeon, Philippe	264 Champlain Street, St-Jean	Mont St-Grégoire
Ball, Clayton	Abbotsford	St-Paul-d'Abbotsford
Banmon, Adrien	Ste-Philomène	Ste-Philomène
Baptist Transportation, Limited	Ameau Building, Trois-Rivières	St-Etienne, Trois-Rivières
Batley, S. T.	Bury	Bury twp
Baulne, Hervé	Piedmont, Terrebonne Co.	Piedmont
Beauchamp, Maxime	Fort Coulonge, Pontiac Co.	Mansfield twp
Beaudry, Antoine	1706 Plessis Street, Apt. 7, Montreal	St-Henri-de-Mascouche
Bédard, Siméon	St-Antoine, Lotbinière Co.	St-Antoine
Begnoche, Adélard	Girard Station, St-Jean Co.	St-Blaise parish
Bélanger, J. B.	St-Damase, L'Islet Co.	Ashford twp
Bélanger, Joseph	Ascot Corner	Stoke twp
Bélisle, Eugène	Morin Heights, Argenteuil Co.	Morin twp
Belouin, Ulric	St-Jacques-le-Mineur, Laprairie Co.	St-Jacques-le-Mineur
Belley, Jos. (Didier)	Jonquière	Kénogami
Bergeron, Lucien	St-Agapit, Lotbinière Co.	St-Agapit
Bergeron, Philippe	St-Antoine, Lotbinière Co.	St-Antoine
Berthelot, Jos.	Guité, Bonaventure Co.	Maria twp
Berthiaume, Edmond	St-Patrice-de-Beaurivage, Lotbinière	St-Patrice-de-Beaurivage
Bibeau, Amédée	St-François-Xavier-de-Brompton	Brompton twp
Binette, Patrice	Garthby Station, Wolfe Co.	Garthby twp
Bisaillon, Gérard	L'Avenir, Drummond Co.	L'Avenir
Bishop's University	Lennoxville	Lennoxville
Bisson, Nazaire	St-Damien, Bellechasse Co.	St-Damien
Blain, P.	3765 Levesque Blvd., St-Vincent-de-Paul	St-Vincent-de-Paul
Boileau, Eugène	St-Lazare, Vaudreuil Co.	St-Lazare
Boily, Adrien	St-Odilon, Dorchester Co.	St-Odilon
Boivin, Joseph	Labelle, Labelle Co.	Joly twp
Bolduc, Enoch	St-Rémi-de-Tingwick, Arthabaska Co.	St-Rémi-de-Tingwick
Bolduc, Léon	Lorne, Richmond Co.	Shipton twp
Bonner Sand and Ballast, Ltd.	Room 201, 1434 St. Catherine Str et West, Montreal	South Durham
Bornais, Lucien	Valmont, Champlain Co.	Valmont
Bouchard, Arthur, & Girard, Albert	Ste-Anne Range, Jonquière	Jonquière

SAND and GRAVEL—Continued

Name of Operator	Address	Location of Pit
Bouchard, Emile	La Décharge, Chicoutimi Co.	Bourget twp
Bougie, Henri	R. R. No. 1, Warwick, Arthabaska	Warwick
Bourgouin, Joseph	Rivière-du-Loup, Rivière-du-Loup Co.	Rivière-du-Loup
Bourret, Arthur	La Patrie, Compton Co.	Ditton twp
Bradley, J. P.	Lachute	St-André
Brault, François-Xavier	St-Dominique, Bagot Co.	St-Dominique
Brouillet Sand & Gravel Co., Ltd.	Rawdon	Ste-Julienne
Brown Corporation	La Tuque, Laviolette Co.	Mahiot twp
Bruneau, A.	St-François-Xavier-de-Brompton	Brompton twp
Brunelle, Ludger	Roxton Falls, Shefford Co.	Roxton twp
Canadian National Railways	c /o Engineer, Maintenance of Way, Union Station, Toronto 2, Ont.	
Canadian Pacific Railway	Chief Engineer's Office, Windsor Station, Montreal	
Carpentier, Léo	St-Germain-de-Grantham, Drummond Co.	Grantham twp
Caya, Athanase	Wickham West, Drummond Co.	Wickham West
Chabot, Bernard	St-Jean-Baptiste, Rouville Co.	St-Jean-Baptiste
Chabot, Donat	St-Jean-Baptiste, Rouville Co.	St-Jean-Baptiste
Chamberlin, E. H.	West Brôme, Brôme Co.	Brôme twp
Chamberlin, G. C.	Poltimore, Gatineau Co.	Wakefield
Champagne, Alfred	Beauce Junction	Beauce Junction
Chaput, Ulderic	Mascouche, L'Assomption Co.	Mascouche
Chevrier, Euclide	Rigaud, Vaudreuil Co.	Rigaud
Chevrier, Raoul	St-Lazare, Vaudreuil Co.	St-Lazare
Cloutier, Phidyme	Roche Noire, Montmagny Co.	St-Thomas
Collard, Joseph	St-Joseph-d'Alma	Taché twp
Compagnie de Sable (La)	10 Third Avenue, Limoilou	St-Charles River
Consolidated Oka Sand & Gravel Company, Limited	248 McCord Street, Montreal	Lake of Two Mountains
Côté, Cléophas	R.R. No. 2, l'Avenir, Drummond Co.	L'Avenir
Côté, François	St-Fulgence, Chicoutimi Co.	St-Fulgence
Coulombe, Emile	Montmagny	Montmagny
Couture, Aimé	Lambton, Frontenac Co.	Courcelles twp
Cusson, Josaphat	Roxton Falls, Shefford Co.	Roxton twp
Cyr, John	Ste-Hélène, Bagot Co.	Ste-Hélène
Dale, Mervyn	Shawville, Pontiac Co.	Shawville
Daoust, Roch	St-Lazare, Vaudreuil Co.	St-Lazare
Demers, Nap.	St-Nicolas Station, Lévis Co.	St-Nicolas
Denis, Fortunat	St-Wenceslas, Nicolet Co.	St-Wenceslas
Deschênes, Mrs. Marie-Louise	St-Wenceslas, Nicolet Co.	St-Wenceslas
Deserres, Alphonse	St-Emile, Montcalm Co.	St-Emile
Deslandes, Léonard	St-Dominique, Bagot Co.	St-Dominique
Desrosiers, Louis	Ste-Flavie, Rimouski Co.	Ste-Flavie
Dewey, Lawrence	Stanstead	Stanstead
Dinel, Gérard	Lac Grosleau, Papineau Co.	Ripon twp
Dion, Robert	St-Sébastien, Frontenac Co.	St-Sébastien
Donnelly, Edson	Glenelm, Huntingdon Co.	Elgin twp
Drouin, Estate Edouard	St-Jérôme, Terrebonne Co.	St-Jérôme parish
Dubé, Alphonse	St-Gabriel, Rimouski Co.	St-Gabriel
Dubreuil, Honoré	West Broughton, Beauce Co.	Broughton twp
Ducharme, J. E. Nap.	St-Gabriel-de-Brandon, Berthier Co.	Brandon twp
Duchesne, Lucien	Hébertville	Hébertville
Dufresne Engineering Co., Ltd.	1832 Pie IX Boulevard, Montreal	Passe Dangereuse
Dumas, Philias	31 Bemont Street, Sherbrooke	Sherbrooke, Brompton Road
Elvidge, Walter	St-Bernard-de-Lacolle, St-Jean Co.	St-Bernard
Emond, Camille	Cap St-Ignace, Montmagny Co.	Cap St-Ignace
Emond, Georges	Biencourt, Rimouski Co.	Biencourt twp
Fecteau, Thomas	120 St-Alphonse Street, Thetford Mines	St-Pierre-de-Broughton
Ferland, Joseph	St-Eugène-de-Grantham, Drummond Co.	St-Eugène-de-Grantham
Fleurent, Alphonse	St-Jovite, Terrebonne Co.	Mont Tremblant
Fontaine, Jos.	Pied du Lac, Témiscouata Co.	Cabano twp
Fontaine, Ovila	Weedon, Wolfe Co.	Weedon twp
Forgues, Omer	St-Jacques-le-Mineur, Napierville Co.	St-Jacques-le-Mineur
Fortier, Mrs. Alphonse	Ste-Hénédine, Dorchester Co.	Ste-Hénédine
Fortin, Félix	Napierville	St-Jacques-le-Mineur
Gagné, Antoine	R.R. No. 1, Sayabec, Matapédia Co.	Awantjish twp
Gagné, Laurier	118-F Monkland Boulevard, Ville St-Laurent, Montreal	Pointe Calumet
Gagnon, Alfred	Ste-Angèle, Rimouski Co.	Grand Remou
Gagnon, Edmond	West Broughton, Mégantic Co.	Broughton twp
Gagnon, Jean-Baptiste	Ste-Angèle, Rimouski Co.	Ste-Angèle
Garon, Isidore & Emmanuel	St-Denis, Kamouraska Co.	St-Denis
Gauthier, Albert	Katevale, Stanstead Co.	Hatley twp
Gauthier, Arthur	Fugèreville, Témiscamingue Co.	Laverlochère twp
Gauthier, Joseph	Warwick, Arthabaska Co.	Warwick
Genest, Polycarpe	St-Antoine-de-Tilly, Lotbinière Co.	St-Antoine-de-Tilly

SAND and GRAVEL—Continued

Name of Operator	Address	Location of Pit
Georgieff, Alex	La Tuque, Laviolette Co	Mahiot twp
Gingras, Alphonse	St-Flavien, Lotbinière Co	St-Flavien
Gingras, Eusèbe	St-Nicolas Station, Lévis Co	St-Nicolas
Gingras, J. A	Warwick	Warwick
Girard, Omer	Ste-Monique, Nicolet Co	Ste-Monique
Giroux, Alfred	264 St-Paul Street, Quebec	Beauport East
Goodfellow, W. F	R.R. No. 3, Sherbrooke	Orford twp
Gorman, Herbert	Buckingham	Buckingham
Gosselin, Hamilton	St-Nazaire, Bagot Co	Grantham twp
Gosselin Estate	Chicoutimi	Chicoutimi
Gosselin, Lucien	Box 158, Magog	St-Elie-d'Orford
Goulet, Antoine	St-Sévérin, Champlain Co	St-Sévérin
Goyer, Edouard	St-Bruno, Chambly Co	St-Bruno
Granby, City of	c/o Chief Engineer, Granby City	
Grandmaître, Donat	71 Chemin de Montréal, Eastview, Ont.	Hull twp
Granger, Ildège	Ste-Marie Salomée, Montcalm Co	St-Sulpice
Gravel, Lucien	East Broughton, Beauce Co	Broughton twp
Guay, Hubert	R.R. No. 1, Lauzon, Lévis Co	Lauzon
Guelph Cask, Veneer and Plywood Company, Limited	Scotstown	Hampden twp
Haines, Alexandre	455 Avenue Royale, Beauport	Ste-Thérèse-de-l'Enfant-Jésus
Haines, Mrs. James	Oak Bay Mills, Bonaventure Co	Mann twp
Hamel, Joseph	Ancienne Lorette, Quebec Co	Ancienne Lorette
Harvey, John H	Frelighsburg, Missisquoi Co	Frelighsburg
Henderson Estate Mrs. J	c/o Dorothy Henderson, Maniwaki	Kensington twp
Hopper, Samuel A	Lennoxville	Ascot twp
Houde, Amédée	St-Flavien, Lotbinière Co	St-Flavien
Houle, Adrien	Rivière Beaudette, Soulanges Co	Beaudette River
Houle, Bruno	Ste-Perpétue, Nicolet Co	Ste-Perpétue
Laberge, Evariste	Ste-Foy	Ste-Foy
Labonne, Mrs. Alphonse	R.R. No. 2, St-Léon, Maskinongé Co	St-Léon
Lacourse, Alfred	Aston Junction, Nicolet Co	St-Wenceslas
Lacroix, Mrs. Nap	North Stukely, Shefford Co	North Stukely
Laforme, Ephrem	St-Etienne-des-Grès, St-Maurice Co	St-Etienne-des-Grès
Lagacé, F. Wellie	Frelighsburg, Missisquoi Co	St-Armand East
Laliberté, Arthur	St-Isidore, Dorchester Co	St-Isidore
Lamarche, Azarie	Ste-Christine, Bagot Co	Ste-Christine
Lamontagne Maurice	Kingsey Falls, Drummond Co	Kingsey twp
Langlois, Alfred	473 Labelle Street, St-Jérôme, Terrebonne Co.	St-Jérôme
Lapointe, Arthur	St-Pierre Range, Chicoutimi West	St-Antoine parish
Larose, Armand	Ripon, Papineau Co	Ripon twp
Lataille, J. A	Farnham, Missisquoi Co	Farnham
Latulippe, Philippe	238 de la Ronde Street, Quebec	St-Charles River
Lauzon, Armand	R.R. No. 1, Terrebonne	Ste-Anne-des-Plaines parish
Laverdière, Albert	St-Patrice-de-Beaurivage, Lotbinière Co.	St-Patrice-de-Beaurivage
Lavigne, Nap	Paquet, Compton Co	Hereford twp
Lavoie, J. B	Ste-Flavie, Rimouski Co	Ste-Flavie
Leclerc, Jules H	Roberval, Roberval Co	Roberval twp
Lemay, René	St-Jérôme, Terrebonne Co	St-Jérôme
Léonard, Donat	Piedmont, Terrebonne Co	St-Sauveur parish
Lépine, Rosario	Ste-Hélène, Bagot Co	Ste-Hélène
Lessard, Emile	Broughton Station, Beauce Co	Broughton twp
Lessard, Majorique	Ste-Rose-de-Watford	Watford twp
Lessard, Philibert	Tring Junction, Beauce Co	Tring Junction
L'Heureux, Emile	Warwick, Arthabaska Co	Warwick twp
Loranger, Omer	Almaville-en-Haut, Laviolette Co	Almaville-en-Haut
Lord, Siméon	St-Cyrille, L'Islet Co	Bourdages twp
Lorrain, Maurice	128 Frontenac Street, St-Jean	St-Grégoire-le-Grand parish
McCallum, Stanley	Sandy Beach, Gaspé Co	Haldimand, York Centre, Cap des Rosiers
McFadden, Lucien	Fugèreville, Témiscamingue Co	Laverlochère twp
McHardy, E. A	Athelstan, Huntingdon Co	Athelstan
McKenzie, Angus M	Scotstown, Compton Co	Hampden twp
McMillan, Mary M	Gould, Compton Co	Lingwick twp
McVittie, Robert	North Hatley	Hatley twp
Magog, City of	c/o Secretary-Treasurer, Magog	Hatley twp
Maher, Mrs Thomas	Fir Grove, Dorchester Co	Frampton twp
Mallory, Mrs. Ellen	Lennoxville	Lennoxville
Maltais, Arsène	St-Nazaire, Chicoutimi Co	Taché twp
Marceau, Gérard	Coleraine	Wolfestown twp
Marchand, Euclide	Almaville, Champlain Co	Mont-Carmel
Marois, Wellie	Ville-Marie, Témiscamingue Co	Duhamel twp
Martin, Achille	Notre-Dame-de-Lourdes, Mégantic Co.	Somerset Augm.
Matthews, A. H	Lac Beauport	Lac Beauport
Ménard, Onésime	Chambord, Roberval Co	Métabetchouan twp

SAND and GRAVEL—Continued

Name of Operator	Address	Location of Pit
Mercure, Camille	9 St-Denis Street, St-Hyacinthe	St-Dominique-de Bagot, Rougemont
Mercure, Jean-Marie	L'Ange-Gardien, Rouville Co.	L'Ange-Gardien
Meredith, C. E.	Chelsea	Chelsea
Michaud, Wilfrid	Ste-Ursule, Maskinongé Co.	Ste-Ursule
Michaudville, Wildy	Mont St-Michel, Labelle Co.	Décarie twp
Millette, Eugène	Almaville-en-Haut, Laviolette Co.	Almaville-en-Haut
Moe, Keith	R.R. No. 3, Sherbrooke	Orford twp
Moisan, Louis	Cap Rouge, Quebec Co.	Cap Rouge
Montmarquette, Henri	St-Liboire, Bagot Co.	St-Liboire
Montminy, Georges	East Clifton, Compton Co.	East Clifton
Moody, J. Harry	St-Louis Avenue, Terrebonne	Terrebonne
Moreau, Rodolphe	Pointe Gatineau	
Morin, Télesphore	St-Henri-de-Mascouche, L'Assomption Co.	St-Henri-de-Mascouche
Morrill, Isaac	Asbestos	Shipton twp
Moss, C.	Compton	Compton twp
Moulton, C. W.	Hatley, Stanstead Co.	Hatley twp
Moyle, Peter	McKee, Pontiac Co.	Bristol twp
Murray, Adélard	Rivière Mailloux, Charlevoix Co.	Rivière Mailloux
Nault, Donat	Ste-Séraphine, Arthabaska Co.	Warwick twp
Newton, Roy	Buckingham	Buckingham twp
Normand, Horace	Ste-Angèle-de-Mérici, Matane Co.	Ste-Angèle
Ouellet, Edmond	Bic, Rimouski Co.	Bic
Ouellette, Joseph	Notre-Dame-de-Lourdes, Mégantic Co.	Somerset Augm.
Pageau, Antonio	Charlesbourg, Quebec Co.	Charlesbourg
Papineau, Joseph	La Conception, Labelle Co.	Joly twp
Paradis, Auguste	Martinville, Compton Co.	Martinville
Patch, Walter H.	Brôme	
Pelletier & Bélanger	c/o Albert Bélanger, St-Aimé, Richelieu Co.	St-Edmond
Pelletier, Jos.	St-Michel-de-Squatteck, Témiscouata Co.	Robitaille twp
Pelletier, Israel	Otter Lake, Pontiac Co.	Leslie twp
Pepin, Joseph	R.R. No. 1, Victoriaville	Warwick twp
Pepin, Léon	Valcourt, Shefford Co.	Ely twp
Pères Trinitaires, Les Révérends	St-Basile-le-Grand, Chambly Co.	St-Bruno
Perrier, Adélard	St-Michel, Napierville	St-Michel
Picard, J. Roland	Warwick, Arthabaska Co.	Warwick
Pidgeon, John E.	St-Ferdinand-de-Mégantic	St-Ferdinand
Pilon, Léonide	St-Télesphore, Soulanges Co.	St-Télesphore
Plante, Arthur	Stratford Centre, Wolfe Co.	Stratford parish
Potier & Frères	8645 Casgrain Street, Montreal	Pointe Calumet
Price, Robert	Foster, Brôme Co.	Brôme twp
Proulx, René	Rigaud, Vaudreuil Co.	Rigaud
Proulx, William	R.R. No. 1, Danville, Richmond Co.	Kingsey twp
Provost, Albert	St-Edouard, Napierville Co.	St-Edouard
Rancourt, Henri	Martinville, Compton Co.	Clifton twp
Reed, Edmond	South Durham, Drummond Co.	South Durham
Robert, Alphonse	St-Hilaire, Rouville Co.	St-Hilaire
Robert & Dufour, Enrg.	515 Avenue Royale, Beauport	Beauport
Robitaille, Edouard	Almaville-en-Haut, Laviolette Co.	Almaville-en-Haut
Robitaille, Moise	St-Germain, Drummond Co.	St-Germain
Roy, Edward	St-Antoine Abbé, Huntingdon Co	St-Antoine Abbé
Roy, Nap.	St-Raphael, Bellechasse Co.	St-Raphael
Ste-Agathe des Monts, City of	Ste-Agathe-des-Monts, Terrebonne Co.	Beresford twp
St-Francis River Dredging Co.	St-François-du-Lac, Yamaska Co.	St-Francis River
St-Germain, Mrs. L.	St-Edwidge, Compton Co.	St-Edwidge
St-Hilaire, Nap.	New Liverpool, Lévis Co.	St-Romuald
St-Jean, Jos.	St-Félix-de-Kingsey	Kingsey twp
St-Pierre, Emile	Rimouski	Sacré-Coeur, Pointe au Père
St-Pierre, Félicien	Notre-Dame-du-Bon-Conseil, Drummond Co.	Notre-Dame-du-Bon-Conseil
Saulnier, Frédéric	Weedon, Wolfe Co.	Weedon twp
Savard, David	Bouchette	Bouchette twp
Séguin, Delphis	St-Casimir, Portneuf Co.	St-Casimir
Savard, Herménégilde	St-Ubald, Portneuf Co.	St-Ubald
Sévigny, Emilien	D'Israéli	Stratford twp
Sévigny, Henri	St-Apollinaire, Lotbinière Co.	St-Apollinaire
Sherbrooke, City of	c/o Thos. Tremblay, City Engineer, Sherbrooke	Broughton Road, Sherbrooke
Simard, Herménégilde	Grande-Baie, Chicoutimi Co.	Bagot twp
Smallman, W. C.	Dundee, Huntingdon Co.	Dundee
Smith, Mrs. Annie	Greenlay	Brompton twp
Soucy, Ernest	St-Alexandre, Kamouraska Co.	St-Alexandre
Soulard, Joseph	Neuville, Portneuf Co.	Neuville
Standard Lime Company, Ltd.	Joliette	Ste-Emélie, l'Epiphanie
Standard Sand & Gravel, Ltd.	St-Félix-de-Valois	St-Félix-de-Valois

SAND and GRAVEL—Continued

Name of Operator	Address	Location of Pit
Tetreault, Emile	Rang Chartier, Mont St-Grégoire	Mont St-Grégoire
Théoret, Achille	St-Polycarpe, Soulanges Co.	St-Télesphore parish
Thériault, Louis	St-Octave, Matane Co.	St-Octave
Therreault, L. Georges	7 Steel Street, Cap de la Madeleine	Cap de la Madeleine
Thibault, Joseph	Mont-Laurier, Labelle Co.	Campbell twp
Thibert, Ubald	Ste-Philomène, Chateauguay Co.	Ste-Philomène
Tourigny, Charles	Villeroy, Lotbinière Co.	Deschaillons Seigniory
Trahan, Jean-Paul	178 Mercier Street, St-Jean	Mont St-Grégoire
Tremblay, Joseph	326 George Street, Shawinigan Falls	Almaville
Tremblay, Joseph Elie	R.R. No. 3, St-Joseph-d'Alma	Taché twp
Tremblay, Nil	Rivière du Moulin, Chicoutimi Co.	Rivière du Moulin
Trottier, Stevil	St-Stanislas, Champlain Co.	St-Stanislas
Turcotte, Ls. Ph	St-Fulgence, Chicoutimi Co.	St-Fulgence
Turner, Grayson	R.R. No. 2, Magog	Orford twp
Two Mountains Sand Co., Ltd.	517 Canada Cement Bldg., Montreal	Pointe Calumet
Vachon, Thomas	Mansonville, Brôme Co.	Potton twp
Valcourt, Joseph F.	Ste-Rose-du-Dégelé, Témiscouata Co.	Ste-Rose-du-Dégelé
Venne, Oscar	Lachenaie	Lachenaie parish
Viel, Antoine	Squatteck, Témiscouata Co.	Robitaille twp
Villeneuve, Joseph	St-Nazaire, Chicoutimi Co.	Taché twp
Villeneuve, Philippe	Caron, Lac St-Jean Co.	St-Jérôme parish
Yelle, Victor	St-Rémi, Napierville Co.	St-Rémi

SAND-LIME BRICK

Name of Operator	Address	Location of Plant
Standard Lime Company, Limited	Joliette	Montreal

SANDSTONE

Name of Operator	Address	Location of Quarry
Blais (Jos.), Enrg.	32 Mont Marie Avenue, Lévis	St-Romuald
Carrière de la Ville de Montmagny	Montmagny	Montmagny
Cie de Construction LeRoc, Ltée (La)	Mont-Joli, Matane Co.	Mont-Joli
Cie de Marbre et de Tuile de Québec, Ltée (La)	181 St-Jean Street, Quebec	Ste-Foy
Cloutier, Emile	L'Islet	L'Islet
Corrigan, Jos.	St-Louis Road, Sillery	Ste-Foy
Gagnon, L. P.	St-David, Lévis Co.	St-David
McCallum, Stanley	Sandy Beach, Gaspé Co.	Sandy Beach
Rousseau, T. E.	105 Côte de la Montagne, Quebec	Leggatt's Point, New Carlisle
Sherbrooke, City of	c/o Wm. H. Villeneuve, City Engineer, Sherbrooke	Ascot twp
Simard (Adjutor), Inc.	Pointe au Pic, Charlevoix Co.	Pointe au Pic
Vézina (Joseph), Enrg.	Bergerville	Ste-Foy parish

SLATE and SHALE

Name of Operator	Address	Location of Quarry
Brique Citadelle, Ltée (La)	14 St-Joseph Street, Quebec	Lauzon
Broughton Soapstone & Quarry Co., Limited	Broughton Station	Ste-Hénédine
Davis Slate & Manufacturing Co. of Canada, Ltd.	131 Shaftesbury Avenue, Toronto, Ont.	Seigniory of Temiscouata
Mab, Limitée (Limited)	c/o Ernest Poulin, 12½ de la Fabrique Street, Quebec	St-Joseph-de-Beauce parish
Williamson & Crombie	Kingsbury	Kingsbury

A.—Belleterre Quebec Mines, Limited
No. 2 shaft, April 1942.

B.—Mill of Molybdenum, Limited, Preissac township.
Headframe for 20-degree adit at left, July 1943.

PLATE II

A.—New Lamaque Hospital, April 1942

B.—Vavasour mica mine, Hull township (Blackburn Brothers, Limited), April 1942.

A.—Wakefield plant of Aluminum Company of Canada, May 1942.

B.—Wartime Metals Corporation, Lacorne Molybdenum Project.
General view of headframe and mill, July 1943.

PLATE IV

Simard muscovite mine, Bergeronnes township (Claim M.C. 883 No. 2).
Open pit, No. 2 workings.

ALPHABETICAL INDEX

PAGE

Abana Mines 21
Accidents, in mines and quarries 87
Agricultural lime and limestone 28, 29
Alchrome Prospecting Syndicate 12
Alcidas Charron feldspar mine 27
Aldermac Copper Corp'n.—
  Exploration by, in Eastern Tps.... 14
  Gold production, 1942 16
  Observations in 1942 46
Aluminium, market price 8
Aluminium industry—
  Power development for 10
Aluminum Co. of Canada—
  Brucite mined by 30
  Lime produced by 43
  Saguenay power develop't 10
Aluminum Power Co.—
  Saguenay power develop't 10
Amendments to Mining Act 9
American Titanic Iron Co. 19
Amulet Mine—
  See Waite-Amulet.
Amulet Dufault Mines 55
  Gold production, 1942 16
  Zinc produced by 21
Anderson claims, La Reine tp. 60
Anderson prop., La Reine tp. 60
Antimony—
  List of operators 91
  Market price 8
  Operations in 1942 10
Apatite—
  See Phosphate.
Argall, Thos. H.—
  Ochre produced by 32
Arntfield Gold Mines—
  Gold production, 1942 16
  Operations in 1942 47
Arsenic, white—
  List of operators 91
  Operations in 1942 .....11, 58, 66
Asbestos—
  List of operators 22, 91
  Operations in 1942 22
Asbestos Corporation—
  Operations in 1942 23
Asphalt filler, prod'n 42, 44
Assessment work on claims—
  Number of workmen engaged and wages 6, 87

Back feldspar mine 27
Bacon claims, Landrienne tp. 62
Baie St-Paul Titanic Iron Ore 19
Baker Mining & Milling Co.—
  Talc produced by 38
Bambrick-Beauchemin claims 74

PAGE

Barite 91
Barraute tp.—
  Operations in 63
Base-metals prices 8
Beattie Gold Mines—
  Arsenic produced by 11, 58
  Dividends paid by 7
  Gold production, 1942 16
  Operations in 1942 56
  Ore reserves 58
Beauchastel tp.—
  Operations in 46
Beauchemin, Jos., Enrg.—
  Muscovite mined by 31
Beaver asbestos mine 23
Bélanger chromite property 12
Bell Asbestos Mines—
  Operations in 1942 24
Belleau, Eugène—
  Peat fuel produced by 33
Belleterre Quebec Mines—
  Gold production, 1942 16
  Operations in 1942 59
  Work by, on Andresen prop. 60
Bennett-Martin asbestos mine 23
Betty feldspar mine 27
Bigelow, Robert—
  Phosphate produced by 37
Bigelow feldspar mine 27
Blackburn mica mine 31
Boulianne, Edouard—
  Muscovite shipped by 31
Bourlamaque tp.—
  Operations in 78
Bourque, Clovis—
  Peat produced by 32
Bourret, Paul E.—
  Rep't. Building materials 39
  Rep't. Non-metallic minerals 22
Bousquet tp.—
  Operations in 63
Brazeau phosphate mine 37
Brick—
  List of operators 104
  Market price of 41
  Production 41
British-Canadian asbestos mine 24
British-Canadian Marble Co. 44
Broughton Soapstone & Quarry Co.—
  Operations in 1942 39
Brucite 8, 30
  List of operators 99
Buffam-Beauchastel claims 48
Building Contracts, Que., 1938-42 ... 40

PAGE

Building materials industry—
Accidents to employees in..... 86
Employees and wages.....6, 86
List of operators..... 104
Operations in 1942.....9, 39
Production tables.....6, 7
Building stone, production—
Granite..... 42
Limestone..... 43
Marble..... 44
Sandstone..... 45
Bush Winning feldspar mine..... 27

Cadillac tp.—
Operations in..... 64
Calumet Mines—
Operations in 1942..... 21
Camp Bird Mines..... 78
Canada Cement Co.—
Operations in 1942..... 40
Canada China Clay & Silica.....27, 38
Canada Garnet, Ltd..... 27
Canada Peat, Ltd..... 32
Canadian Carborundum Co..... 38
Canadian Copper Refiners—
Se and Te produced by..... 19
Canadian Flint & Spar Co.—
Feldspar mine operated by..... 27
Canadian Johns-Manville Co.—
Operations in 1942..... 26
Canadian Kaolin Silica Prod..... 38
Canadian Malartic Gold Mines—
Dividends paid by..... 7
Gold production, 1942..... 16
Operations in 1942..... 68
Ore reserves..... 70
Scheelite shipped by..... 20
Canadian Refractories—
Asbestos produced by..... 26
Operations in 1942..... 29
Carbide, lime used for..... 29
Carborundum, sandstone for..... 38
Cassels Duval Mines..... 15
Cement—
List of operators..... 105
Operators in 1942..... 40
Central Cadillac Mines—
Gold production, 1942..... 16
Operations in 1942..... 66
Scheelite shipped by..... 20
China-clay —
See Kaolin.
Chrome Association, Enrg..... 12
Chromeraine project..... 12
Chromite—
List of operators..... 91
Operations in 1942..... 11
Chromite, Limited—
Operations in 1942..... 11
Chromium Mining & Smelting Corp.—
Work by, in Gaspé..... 12

PAGE

Chrysotile—
See Asbestos.
Chute-à-Caron—
Power development at..... 10
Citadel Brick Ltd..... 41
Shale quarried by..... 45
Claims recorded, 1942..... 9
Clay and shale—
List of operators..... 112
Operations in 1942.....41, 45
Used in cement manufacture..... 40
Coal..... 92
Columbière Mines..... 81
Connell Mining & Explor'n Co..... 60
Consolidated M. & S. Co. of Can.—
Work by, in Barraute tp..... 63
Continental Petroleums—
Well drilled by..... 36
Copper—
List of operators..... 92
Market price of..... 8
Operations in 1942..... 14
Coulombe titanif. iron mine 19
Cournor Mining Co.—
Gold production, 1942..... 16
Operations in 1942..... 82
Crang (J. K.) Corporation—
Phosphate produced by..... 37
Crushed stone production—
Granite.....40, 42
Gravel..... 45
Limestone.....40, 43
Marble..... 44
Sandstone..... 40
Curbstone (granite) prod'n..... 42
Cyanide plants, lime used by..... 29

Derry feldspar mine..... 27
Desmeloizes tp.—
Operations in..... 61
Destor tp.—
Operations in..... 59
Diamond drilling, contract—
Number of workmen engaged and wages 6, 87
Dividends paid by m'g Co's..... 7
Dolomite—
Used as ore of magnesium..... 8
Dolomite, magnesitic—
List of operators..... 99
Operations in 1942..... 29
Dome Exploration Co.—
Work by, on Heffren-Metroville cls. 85
Work by, on Preissac molybdenite prop..... 18
Dominion Lime, Ltd..... 43
Dominion Magnesium..... 8
Dubuisson Goldfields..... 75
Dubuisson tp.—
Operations in..... 75
Dufresnoy tp.—
Operations in..... 54
Dumont molybdenite claims..... 74

PAGE

Duparquet tp.—
Operations in 56
Duquesne Mining Co. 59

East Malartic Mines—
Dividends paid by 7
Gold production, 1942 16
Operations in 1942 71
Ore reserves 71
Electric Reduction Co. 37, 38
Employees, in mines and quarries—
Number of 6, 86
Wages earned by 6, 87
Eureka molybdenite mine 18

Farley Mining Co.—
Molybdenite shipped by 18
Fatal accidents, 1942 87
Federal Zinc & Lead Co.—
Operations in 1942 ..... 17, 22
Feldspar—
List of operators 93
Operations in 1942 27
Fertilizer, lime used as 29
Firlotte claims 22, 59
Flagstone, production 44
Fleming Mines 82
Fletcher, H. Bruce—
Chromite shipped by 11
Flotation mills, lime used by 29
Fluorite 93
Fortin, Charles—
Soapstone produced by 39
Fournière tp.—
Operations in 68
Francœur Gold Mines—
Dividends paid by 7
Gold production, 1942 16
Operations in 1942 47
Ore reserves 47
Frobisher Explor'n. Company, Ltd. 22, 82

Gamma Mines 81
Garnet—
List of operators 93
Operations in 1942 27
Gas and oil—
List of operators 93
Operations in 1942 33
Gaspé—
Drilling for oil in 33
Explor'n for chromite in 12
Girardin, Charles D.—
Ochre produced by 32
Glass sand 38
Gold—
List of operators 94
Operations in 1942 15
Production, 1942 ..... 6, 15, 16
Production, 1898-1942 16
Golden Manitou Mines—
Gold production, 1942 16
Operations in 1942 ..... 15, 81
Zinc produced by 21

PAGE

Goyette well, Côte de la Liesse 37
Granite—
List of operators 105
Operations in 1942 42
Graphite 98
Gravel and sand—
List of operators 108
Operations in 1942 45
Greenshield chromite mine 12
Guillet tp.—
Operations in 59

Haldimand well, Gaspé 33
Log of 35
Hayes Cadillac Gold Mines 83
Heffren-Metroville claims 85
High Rock phosphate mine 37
Home Fault Mines 48
Horne mine—
See Noranda mine.
Hydrated lime, prod'n 28, 38, 43

Ile Maligne—
Power development at 10
Ilmenite—
See Titaniferous iron ore.
Imperial Oil, Ltd.—
Drilling operations 33
Indian Molybdenum, Ltd.—
Operations in 1942 ..... 18, 64
Industrial minerals industry—
Accidents to employees in 86
Employees and wages 6, 86
List of operators 91
Operations in 1942 ..... 8, 22
Production tables 6, 7
Industrial Sands & Minerals Corp. 38
Inspiration M'ng and Develop't Co.—
Work by, on Bacon claims 62
International Magnesite Co.—
Absorbed by Can. Refractories 29
Iron—
List of operators 99
Iron and steel furnaces—
Lime used by 29
Iron ore, titaniferous—
See Titaniferous iron ore.
Iron oxides and ochre—
List of producers 101
Operations in 1942 31

Johnson's Company—
Operations in 1942 25
Jones, I. W.—
Notes on drilling for petrol'm 33

Kaolin—
List of operators 99
Operations in 1942 27
King asbestos mine 23

PAGE

La Pause Gold M'ng Corp'n..... 63
La Pause tp.—
Operations in..... 63
La Reine tp.—
Operations in..... 60
Lacorne molybdenum project.....17, 74
Lacorne tp.—
Operations in..... 74
Lacroix, Edouard—
Well drilled by..... 36
Lafontaine, M. O.—
Rep't Mining Oper'ns in W'rn Que.....46, 85
Lake Dufault Mines..... 55
Dividends paid by..... 7
Lamaque Gold Mines—
Dividends paid by..... 7
Gold production, 1942..... 16
Operations in 1942..... 78
Ore reserves..... 79
Scheelite shipped by..... 20
Lambert, F. X.—
Peat produced by..... 32
Landrienne tp.—
Operations in..... 62
Lapa Cadillac Gold Mines—
Gold production, 1942..... 16
Operations in 1942..... 67
Laurentian Art Pottery, Inc.....28, 41
Lavigne, Lucien—
Rep't, Asbestos industry..... 22
Lead—
List of operators..... 99
Market price of..... 8
Operations in 1942..... 17
Leclerc, J. J.—
Work by, on antimony prospect... 11
Legislative, mining..... 9
Lime—
List of operators..... 106
Operations in 1942.....28, 42
Production.....6, 28, 43
Limestone—
List of operators..... 106
Operations in 1942.....28, 42
Production.....6, 28, 42
Used in cement manuf.....40, 42
Limoges, Henri—
Lime produced by..... 43
List of mine and quarry operators... 91
Loughborough Mining Co..... 19
Louvicourt tp.—
Operations in..... 82
Lyall & Beidelman—
Operations in 1942.....17, 22

Mab, Limited, marble prod'n..... 44
Magnesitic-dolomite—
List of operators..... 99
Operations in 1942..... 29
Magnesium ores..... 8
Malartic Gold Fields—
Dividends paid by..... 7
Gold production, 1942.....16, 73
Operations in 1942..... 73
Ore reserves..... 73
Malartic tp.—
Operations in..... 68
Manganese..... 99
Manolovici and Robson—
Work by, on molybdenite prop.... 18
Marbenor Malartic Mines..... 75
Marble—
List of operators..... 108
Operations in 1942..... 44
Marl—
Operations in 1942..... 28
Marrias tp.—
Operations in..... 85
Masham tp.—
Molybdenite deposits in..... 18
Matte, J. Louis—
Work by, on chromite prop..... 12
Mauricy Oxide Co.—
Ochre produced by..... 32
McWatters Gold Mines—
Dividends paid by..... 7
Gold production, 1942..... 16
Operations in 1942..... 48
Ore reserves..... 49
Scheelite shipped by..... 20
Work by, in Guillet tp..... 59
Metal mining industry—
Accidents to employees in..... 86
Employees and wages.....6, 86
List of operators..... 91
Operations in 1942.....7, 10
Production tables.....6, 7, 16
Metals, market prices of..... 8
Mic-Mac Mines—
Gold production, 1942..... 16
Operations in 1942.....15, 63
Mica—
List of operators..... 100
Operations in 1942..... 30
Mine and q'ry operators—
List of.....91, 112
Mine school—
Scheelite concentrated at..... 20
Mineral production tables.....5, 6, 7
Mineral water—
List of operators..... 101
Miners' certificates—
Number issued..... 9
Mines Dept., creation of..... 9
Mines d'Huile et Pétrole—
Tremblay-Joubert Cie..... 36
Mining Act, Quebec—
Amendments to..... 9
Mining oper'ns in W'rn Quebec—
Rep't M. O. Lafontaine.....46, 85
Missisquoi Stone & Marble Co..... 44

PAGE

Molybdenite—
List of operators 101
Operations in 1942 17
Molybdenite Corp. of Canada 17, 74
Molybdenite Reduction Co. 18
Montbeillard tp.—
Operations in 59
Montbray tp.—
Operations in 60
Montpetit, Euclide, sandst. q'ry 38
Montreal asbestos mine 26
Montreal chromite mine 11
Monument stone, prod'n—
Granite 42
Limestone 44
Moulding sand 38
Mount Albert, Gaspé North—
Exploration for chromite at 12
Muscovite, shipments of 31

National Malartic Gold Mines—
Operations in 1942 72
New Calumet Mines—
Operations in 1942 .....17, 21
New Richmond tp.—
Antimony prospect in 11
New Rockland slate q'ry 45
New York feldspar mine 27
Nicolet Asbestos Mines—
Operations in 1942 26
Non-metallic minerals—
See Industrial minerals.
Noranda Mines—
Dividends paid by 7
Gold production, 1942 16
Operations in 1942 52
Norbec Copper Mines 56
Norgold Mines, Ltd. 15
Normetal Mining Corp'n—
Gold production, 1942 16
Operations in 1942 61
Zinc ore shipped by 21, 61
Norwin Molybdenite Mines 18

Obaska Mines 82
O'Brien Gold Mines—
Arsenic produced by 11, 66
Dividends paid by 7
Gold production, 1942 16
Operations in 1942 65
Ore reserves 66
Ochre and iron oxides—
List of producers 101
Operations in 1942 31
Oil and gas—
List of operators 93
Operations in 1942 33
Orford Mining Co.—
Chromite shipped by 11
Ornamental stone (marble), prod'n .. 44
Ottawa Silica & Sandstone Co. 38

PAGE

Pan Canadian Gold Mines 15
Pandora, Limited—
Gold production, 1942 16
Operations in 1942 67
Papineau Mica Mines 31
Paquin Gold Mines 60
Paré Orel—
Chromite shipped by 11
Pascalis Gold Mines 83
Pascalis tp.—
Operations in 83
Paving blocks, prod'n 42
Payore Consolidated Mines 81
Peat—
List of operators 102
Operations in 1942 32
Peat fuel industry—
Measures to encourage 32
Pedneault feldspar mine 27
Perron Gold Mines—
Dividends paid by 7
Gold production, 1942 16
Operations in 1942 83
Ore reserves 84
Scheelite shipped by 20, 84
Petroleum—
List of operators 93
Operations in 1942 33
Pharo, L. C.—
Soapstone produced by 39
Phlogopite —
See Mica.
Phosphate—
List of operators 102
Operations in 1942 37
Phosphate King mica mine 31
Plante, Pantaléon—
Chromite property of 12
Poterie du Saguenay 41
Pottery—
List of operators 108
Operations in 1942 41
Poultry grit—
Limestone used for 29
Powell Rouyn Gold Mines—
Dividends paid by 7
Gold production, 1942 16
Operations in 1942 50
Ore reserves 51
Preissac tp.—
Molybdenite deposit in 18, 64
Operations in 64
Premier Peat Moss 32
Prospecting, in 1942 9
Pulp and paper mills—
Lime and limestone used by 29
Pyrite (sulphur ore)—
List of operators 102

PAGE

Quarries—
Accidents to employees in 86
Employment and wages 6, 86
List of operators 104
Quartz and industrial sand—
List of operators 102
Operations in 1942 38
Quebec Asbestos Corp'n—
Operations in 1942 26
Quebec Manitou Mines 15, 21
Quebec Peat Moss Co. 32
Quicklime, production 28, 43
Quyon Molybdenite Co.—
Operations in 1942 17

Rainville Copper Mines 82
Reed chromite property 12
Reed Realties, Ltd.—
Work by, on antimony prop. 10
Roberge, Wilfrid—
Chromite shipped by 12
Roumefort, Vicomte Roger de—
Senigon well drilled by 35
Rouyn tp.—
Operations in 48
Roy Kelley Min'l Explor'n—
Muscovite mined by 31
Roy, Louis—
Peat produced by 32

Saint-Amour, Orphila—
Muscovite shipped by 31
Saint-Canut sandstone q'ry 38
Saint-Cyr chromite deposit 11
Saint-Elie-de-Caxton well 36
Saint-Georges well 36
Saint-Lawrence Alloys 38
Saint-Lawrence Brick 41
Saint-Lawrence Mica Corp'n 31
Saint-Lawrence Mining Corp'n—
Mica produced by 31
Saguenay Power Co. 10
Sand, industrial—
List of operators 102
Operations in 1942 38
Used in cement manuf. 40
Sand and gravel—
List of operators 108
Operations in 1942 45
Sand lime brick—
List of operators 112
Sandstone—
List of operators 112
Operations in 1942 45
Used in cement manuf. 40
Scheelite—
See Tungsten.
Selenium 19
Senator Rouyn—
Gold production, 1942 16
Operations in 1942 49
Ore reserves 50

PAGE

Senigon well 35
Seventh Malartic Mines 75
Sewer pipe, prod'n, 1940-42 41
Shale—
List of operators 112
Operations in 1942 .....41, 45
Shawinigan Chemicals—
Lime produced by 43
Sherwin-Williams Co.—
Iron oxides produced by 32
Shipshaw, power develop't at 10
Sigma Mines—
Dividends paid by 7
Gold production, 1942 16
Operations in 1942 80
Ore reserves 80
Scheelite shipped by 20
Work by, on Gamma prop. 81
Silica (rock and sand)—
List of operators 102
Operations in 1942 38
Silver—
List of operators 103
Operations in 1942 17
Simard, Eugène—
Muscovite shipped by 31
Siscoe Metals, Ltd.—
See Siscoe Gold Mines.
Siscoe Gold Mines—
Dividends paid by 7
Gold production, 1942 .....16, 77
Operations in 1942 77
Ore reserves 78
Tétreault mine operated by 17, 21
Work by, on Firlotte & Assoc. 22, 59
" " on Lacorne Mo. project.17, 74
" " in Montbeillard tp. 22
Sladen Malartic Mines—
Gold production, 1942 16
Operations in 1942 70
Slate 45
List of operators 112
Smelters, lime used by 29
Smith-Richardson claims 82
Soapstone—
List of operators 103
Operations in 1942 38
Société Minière Gatineau—
Operations in 1942 27
South Ham tp.—
Antimony mine in 10
Squaw Hill phosphate mine 37
Stadacona Rouyn Mines—
Gold production, 1942 16
Operations in 1942 53
Staking of claims 9
Standard Clay Products 41
Standard Lime Co. 43
Sterrett chromite mine 11
Sugar refineries—
Lime used by 29

PAGE

Sullivan Consolidated Mines—
Dividends paid by..... 7
Gold production, 1942.....16, 75
Operations in 1942..... 75
Ore reserves..... 76
Scheelite produced by..... 20
Work by, on molybdenite cl.....19, 74
Sulphur ore (pyrite)—
List of operators..... 102
Sylvanite Gold Mines—
Work by, on Payore prop..... 81

Talc—
List of operators..... 103
Operations in 1942..... 38
Tanneries, lime used by..... 29
Taschereau, R. H.—
Rep't employ't, wages, accid'ts.... 86
Tellurium..... 19
Tétreault mine.....17, 21
Thompson Cadillac Mines..... 64
Tile production, 1940-42..... 41
Titaniferous iron ore—
List of operators..... 103
Operations in 1942..... 19
Tourbière de Pointe-au-Père..... 32
Tremblay-Joubert Coal Oil Co.—
Well drilled by..... 36
Tungsten—
List of operators..... 104
Operations in 1942.....8, 20

United Mining Industries—
Feldspar produced by..... 27
United States S., R. & M. Co..... 15

Vasson tp.—
Operations in..... 74
Vavasour mica mine..... 31
Vic-Ore Molybdenite Mines..... 18
Vicour Gold Mines..... 82
Villeneuve muscovite mine..... 31
Vimy Ridge asbestos mine..... 24
Viney-Donaldson claims..... 68

PAGE

Wages paid in m'ng industry.....6, 87
Waite Amulet Mines—
Dividends paid by..... 7
Gold production, 1942..... 16
Operations in 1942..... 54
Zinc produced by..... 21
Wartime Metals Corp'n—
Chromeraine project..... 12
Lacorne molybdenum project....17, 74
Tétreault mine operated by.....17, 21
Water-power develop't, Saguenay.... 10
Waterville Moss and Peat Mines.... 32
Weir tp., Gaspé—
Exploration for chromite in..... 12
West Malartic Mines—
Gold production, 1942..... 16
Operations in 1942.....15, 68
Western Quebec—
Developments in, 1942.....46, 85
Dividends paid by m'ng Co's..... 7
Gold production, 1898-1942..... 16
White (A. W.) Mica, Ltd..... 31
White arsenic—
List of operators..... 91
Operations in 1942.....11, 58, 66
White Grit Co..... 44
White Mica Mining Synd..... 31
Wood Cadillac Mines—
Gold production, 1942..... 16
Operations in 1942..... 67
Scheelite shipped by..... 20
Workmen, in m'ng industry—
Number of.....6, 86
Wages earned by.....6, 87
Wright-Hargreaves Gold Mines—
Work by, on Viney-Donaldson cls.. 68

Zinc—
List of operators..... 104
Market price of..... 8
Operations in 1942..... 21