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CANADA
DEPARTMENT OF TRADE AND COMMERCE
DOMINION BUREAU OF STATISTICS
CENSUS OF INDUSTRY
MINING, METALLURGICAL & CHEMICAL BRANCH

THE MICA INDUSTRY
IN
CANADA
1940



OTTAWA
1942

Price 25 cents

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THE MICA INDUSTRY, 1940

The number of Canadian mica mine operators reporting shipments in 1940 totalled 57; capital employed by the industry amounted to \$259,168, and \$134,705 were distributed in salaries and wages to 218 employees. The total net value of shipments was estimated at \$209,316.

In 1940 phlogopite mica was shipped from properties chiefly located in the Hull-Buckingham district of Quebec and in Eastern Ontario from deposits occurring in the Kingston-Perth area. The production of sheet mica in Canada is almost wholly of the phlogopite or amber mica variety. It is derived almost entirely from adjacent sections of Ontario and Quebec, within an area extending roughly from Kingston, Ont., northeastward into Hull and Papineau counties, Quebec; a few scattered amber mica occurrences are also known in the Province of Quebec as far east as Quebec City.

Production of muscovite, or white mica, in Canada has been negligible; small amounts have been recovered occasionally as a by-product from feldspar mining in general, the proportion of sound, merchantable sheet mica in Canadian pegmatites has proved too low for profitable mining for this mineral alone. During 1940 muscovite mica was mined in Quebec at the Maisonneuve mine, St. Michel des Saints, Berthier township, and in Bergeronnes township, Saguenay county.

In a review of the Canadian Mica Trade, Mr. Hugh S. Spence of the Bureau of Mines, Ottawa, states - "Sheet mica is marketed in various classes, depending on the amount of preparation the mine-run material receives. Much of the Canadian output was sold formerly in the semi-rough form, termed 'thumb-trimmed', but the trade now calls largely for 'knife-trimmed', a much higher grade of product. Price is governed largely by dimensions of sheet, and rises rapidly for larger sizes. Quality, which is gauged by colour, softness, ability to split readily, as well as freedom from cracks, creases, pin-holes and inclusions of foreign mineral substances, is also highly important. Good dielectric strength is a prime consideration, but most amber mica, except perhaps the very dark, high iron varieties, possess this in the required degree. For heater use, the mica must be able to withstand a temperature up to red heat without puffing or swelling. The use of sheet mica is almost entirely for electrical insulation. It is cut or punched into an enormous variety of shapes and sizes, and in the form of splittings is bonded and pressed into large sheets that can be sawn, bored and machined into any desired article. Mica is used in making heavy-duty spark plugs for aeroplanes. Although the muscovite variety fills by far the largest share of the world mica demand, amber mica is essential for certain purposes, more especially where high-resistance is demanded. Although already drawn on extensively, Canadian reserves of amber mica are held to be still adequate to furnish important supplies, and any material price advance would probably result in a revival of mining and increased production. Canada shares the world market for amber mica with Madagascar. Fine flake or powdered mica has become an important industrial product, particularly in the United States, where a number of plants are engaged in its manufacture both by wet and dry systems of grinding. Most of this production goes to the roofing and rubber trade. New uses for the material include its combination with resin varnishes as a coating for foodstuff cans, and as a base in cleanser compounds. Increased interest is also being shown in its possibilities as a protective inert pigment in paints. Large amounts of wet-ground muscovite mica are consumed in wall paper manufacture.

"Mica prices are difficult to ascertain, owing to the lack of reliable market quotations and to the system of trade discounts obtaining. Quality also has such a bearing on value that the only satisfactory method of getting information is to submit samples to an accredited dealer for a quotation."

"In 1940, as a result of a threatened curtailment of mica exports from Madagascar, a strong export market developed for Canadian phlogopite--both knife-trimmed block and splittings--and dealers reported a heavier volume of sales than for some years past, with supplies at the end of 1940 lagging considerably behind orders. Despite this, little new mining was undertaken and there was little change in the number of operators as compared with other recent years. Most of the exports went to the United States, Great Britain, and Japan. The demand was particularly strong for hard, heat-resistant grades of block, suitable for heavy-duty aviation sparkplugs, the production of which grades is limited to a few mines. Efforts to stimulate output of this type of mica were made under the joint cooperation of the Bureau of Mines and the Metals Controller.

"The larger Canadian producers operate their own mica shops, but there are dealers who purchase rough-trimmed or mine-run mica from small operators and trim, grade, and split it for sale, either to other dealers and brokers, or to consumers. In smaller rural communities, much of the work, particularly splitting, is farmed out, the labour being performed mostly by girls on piecework.

"An outstanding development was the discovery in Bergeronnes township, east of the Saguenay river, of a deposit of high-grade "ruby" muscovite, comparable in quality to the best Indian or Brazilian mica. This property which is owned by Eugene Simard, of Grandes Bergeronnes, came into production on a small scale in 1940. Some muscovite was also taken from the old Maisonneuve mine, in Berthier county, north of Joliette. Samples of large sheets of a good grade of stained muscovite, said to have come from a remote locality on the Peribonka river, 100 miles north of Lake St. John, were received by the Bureau of Mines at Ottawa, and similar samples were also furnished from a deposit near Wabowden, on the Hudson Bay railway in Manitoba. No developments have been reported, however, in either instance."

Table 1 - PRINCIPAL STATISTICS OF THE MICA MINING INDUSTRY IN CANADA, 1939 and 1940

	1 9 3 9		1 9 4 0	
	CANADA(x)	Quebec	Ontario	CANADA(x)
Number of firms or operators	61	51	13	65
Capital employed \$	230,337	175,758	83,410	259,168
Number of employees - On salary ..	11	6	2	8
On wages ..	213	169	41	210
Total ..	224	175	43	218
Salaries and wages - Salaries .. \$	9,034	6,646	1,921	8,567
Wages .. \$	103,619	115,567	10,571	126,138
Total .. \$	112,653	122,213	12,492	134,705
Selling value of products (gross) \$	147,321	202,533	31,962	237,145
Cost of fuel and electricity \$	7,570	7,353	1,618	9,571
Cost of process supplies used . . . \$	11,444	16,271	1,937	18,258
Selling value of products (net) .. \$	128,307	178,359	28,357	209,316

(x) Does not include general statistics for one operating plant in British Columbia for which data are not available.

Table 2 - NUMBER OF WAGE-EARNERS ON PAYROLL OR TIME RECORD ON THE LAST DAY OF EACH MONTH OR NEAREST WORK DAY, 1939 and 1940

Month	1 9 3 9			1 9 4 0		
	Mine	Shop (a)		Mine	Shop (a)	
		Male	Female		Male	Female
January	45	23	38	68	62	19
February	47	33	38	59	57	22
March	42	32	38	49	73	21
April	56	27	38	58	80	35
May	80	40	38	86	72	5
June	112	41	44	151	70	5
July	133	44	74	158	69	7
August	136	50	76	149	58	45
September	130	65	71	128	65	41
October	129	64	73	112	67	38
November	100	64	83	105	67	30
December	91	69	83	115	69	27

(a) Includes outside workers.

Table 3 - WAGE-EARNERS WORKING NUMBER OF HOURS SPECIFIED DURING ONE WEEK IN MONTH OF NORMAL EMPLOYMENT, 1940

Number of hours worked	Number of employees	Number of hours worked	Number of employees
30 hours or less .....	...	49 - 50 hours	75
31 - 43 hours	23	51 - 54 hours	25
44 hours	8	55 hours	18
45 - 47 hours	9	56 - 64 hours	2
48 hours	71	65 hours and over ....	...
Grand Total number of employees in week specified			231
Total wages paid in week specified			\$ 3,109

Table 4 - FUEL AND ELECTRICITY USED DURING THE YEAR, EXCLUSIVE OF THAT SUPPLIED TO EMPLOYEES

Kind	Unit of measure	1 9 3 9		1 9 4 0	
		Quantity	Cost at plant	Quantity	Cost at plant
Bituminous coal—From Canadian mines	short tons	321	3,274	251	2,387
	Imported .....	...	...	...	...
Gasoline	Imp. gal.	14,130	2,943	28,234	6,173
Kerosene or coal oil	Imp. gal.	30	8	82	21
Fuel oil and diesel oil	Imp. gal.	1,371	115	...	...
Wood (cords of 128 cubic feet of piled wood)	cords	227	725	265	990
Other fuel .....	...	...	5	...	...
Electricity purchased for power and lighting, including service charges	K.W.H.	30,000	500	...	...
Total .....	...	...	7,570	...	9,571
Electricity generated for own use ..	K.W.H.	189,493	...	202,493	...

Table 5 - POWER EQUIPMENT REPORTED, 1940

	Ordinarily in use		In reserve or idle	
	Number of units	Total horse-power (according to manufacturers' rating)	Number of units	Total horse-power (according to manufacturers' rating)
Steam engines and steam turbines	4	125	3	107
Gasoline, gas and oil engines, other than Diesel engines	16	500	1	50
Hydraulic turbines or water wheels	2	145	..	..
Total	22	770	4	157
Electric motors -				
Operated by power generated by the establishment	6	130	1	2
Stationary boilers	..	..	3	64

Table 6 - PRODUCTION OF MICA IN CANADA, BY GRADES, 1938 and 1939

	1938			1939		
	Quantity	Value, f.o.b. shipping point	Price per pound	Quantity	Value, f.o.b. shipping point	Price per pound
	Pounds	\$	\$	Pounds	\$	\$
Rough cobbed	12,000	360	0.03	6,700	67	0.01
Knife-trimmed	81,127	45,419	0.56	92,333	38,370	0.42
Thumb-trimmed	17,050	4,366	0.26	68,181	6,832	0.10
Splittings	51,434	22,456	0.44	176,051	83,633	0.48
Scrap (x)	875,415	8,338	0.009	1,792,091	18,419	0.01
TOTAL	1,037,026	80,939	..	2,135,356	147,321	..

(x) Includes ground mica.

NOTE: Corresponding data for 1940 not published.

Table 7 - PRODUCTION OF MICA IN CANADA, BY PROVINCES, IMPORTS AND EXPORTS, 1939

	Pounds	Value \$
PRODUCTION (SALES)		
Quebec	867,396	122,243
Ontario	1,127,960	22,978
British Columbia	..	2,100(1)
TOTAL	..	147,321
IMPORTS -		
Mica and manufactures of, n.o.p.	..	61,835
Chalk, China, Cornwall or cliff, stones and mica schist.	..	22,331
EXPORTS -		
Mica, rough cobbed, knife-trimmed and thumb-trimmed	1,169,700	42,924
Mica scrap and waste	1,971,100	12,525
Mica splittings	228,500	108,823
Mica, plate and manufactures of (micanite)	..	980
TOTAL EXPORTS	..	165,252

(1) Mica schist (ground).

Table 8 - PRODUCTION(x) OF MICA IN CANADA, 1930 - 1939

Year	Short tons	\$	Year	Short tons	\$
1930	1,170	96,004	1935	628	82,038
1931	1,339	54,066	1936	801	74,556
1932	303	6,823	1937	945	133,731
1933	944	49,284	1938	519	80,933
1934	998	97,071	1939	1,068	147,321

(x) Sales.

The total value of mica produced in Canada from the first official recording of mica statistics in 1886 to the end of 1939 amounted to \$7,841,670 and the greatest annual value was that of \$376,022 for the year 1920.

In preparation for the market, a considerable proportion of the crude mine tonnage sold is cobbled out and the mica split, trimmed and otherwise manufactured, with the result that the exports, though usually of smaller tonnage than the shipments from the mines, exceed them in value.

The following mica prices for May, 1941, are supplied by "Metal and Mineral Markets" - New York - Per ton, f.o.b. New Mexico, scrap, white, \$16; off color, \$12. Punch, white, for disks, per lb., 12c.; for washers, 10c. Per ton, f.o.b. New Hampshire, roofing mica, \$23; snow, \$35; 40 mesh white, \$40; 60 mesh, \$48; 100 mesh, \$60; 200 mesh, \$75. Clean dry mixed bench and mine scrap, \$16 to \$18. Per lb., f.o.b. North Carolina: Punch, 10 to 15c.; 1½ x 2 in., 45 to 60 c.; 2 x 2, 60 to 85c.; 3 x 3, \$1.25 to \$1.50; 3 x 4 in., \$1.50 to \$1.75; 3 x 5, \$1.75 to \$2.25; 4 x 6, \$2.75 to \$3.50; 6 x 8, \$4.25 to \$4.95; 8 x 10, \$8.60. The above prices apply to No. 1 and No. 2 quality stock. Stained qualities take from 25 to 35 per cent discount. White North Carolina mica, 70 mesh, \$60 to \$80 a ton. Biotite, or black mica, \$15 a ton, unground. White, Georgia, 300 mesh \$20.00; ground roofing, 20 mesh \$18.00; sericite, 300 mesh, \$15; mica schist, 20 mesh \$16.

Table 9 - CONSUMPTION OF MICA IN THE CANADIAN ELECTRICAL APPARATUS AND SUPPLIES INDUSTRY, 1931 - 1939

Year	Pounds	\$	Year	Pounds	\$
1931	150,561	101,531	1936	109,003	77,536
1932	102,410	68,747	1937	(a)	87,829
1933	35,093	27,129	1938	(a)	66,977
1934	93,297	60,520	1939	(a)	33,355
1935	73,621	58,016	1940 .....	...	131,774

(a) Quantity not published.

Table 10 - CONSUMPTION OF GROUND MICA IN THE CANADIAN RUBBER INDUSTRY, 1931 - 1939

Year	Pounds	\$	Year	Pounds	\$
1931	103,177	6,265	1936	123,597	5,353
1932	73,600	4,111	1937	142,000	6,190
1933	89,165	4,769	1938	128,000	6,039
1934	135,424	6,792	1939	188,000	9,423
1935	124,350	6,297			

Note: Data not yet complete for 1940.

Mica

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Table 11 - CONSUMPTION OF MICA IN THE CANADIAN MICA PRODUCTS INDUSTRY, 1931 - 1939

Year	Pounds	\$	Year	Pounds	\$
1931	(x)	10,099	1936	16,227	7,790
1932	10,100	4,290	1937	42,068	16,675
1933	16,025	6,553	1938	56,000	13,416
1934	16,553	7,040	1939	372,000	17,079
1935	17,320	7,018			

(x) Not available.

Table 12 - CONSUMPTION OF GROUND MICA IN THE MANUFACTURE OF CANADIAN COMPOSITION ROOFINGS, 1931 - 1939

Year	Short tons	\$	Year	Short tons	\$
1931	(not available)		1936	90	2,522
1932	21	683	1937	152	4,425
1933	48	1,849	1938	(x) 215	13,040
1934	71	2,086	1939	(x) 316	19,271
1935	60	1,844			

(x) Includes mica used in manufacture of wall paper.

Table 13 - WORLD PRODUCTION OF MICA, 1936 - 1939 (Imperial Institute, London)

Producing Country	1936	1937	1938	1939
	(Long tons)			
<u>British Empire</u>				
Northern Rhodesia	3	4	4	2
Southern Rhodesia	9	16	13	6
Tanganyika Territory -				
Sheet	10	33	22)	36
Waste	23	40	14)	
Union of South Africa (scrap)	488	1,712	1,098	956
Canada -				
Knife-trimmed	50	91	36	41
Thumb-trimmed	16	78	8	30
Splittings	11	32	23	79
Rough cobbed	5	48	5	5
Scrap	633	595	391	800
Ceylon (exports) .....	...	1	...	...
India (exports) -				
Blocks	1,362	1,500	942)	9,460
Splittings	4,752	7,467	4,713)	
Scrap	2,769	5,900	3,101)	
Australia	21	84	65	..1
New Zealand .....	...	...	...	1

Table 13 - WORLD PRODUCTION OF MICA, 1936 - 1939 (Imperial Institute, London) (Con.)

Producing Country	1936	1937	1938	1939
	(Long tons)			
<u>Foreign Countries</u>				
Italy	12	24	120	...
Norway (exports)	43	41	102	...
Roumania	(b) 66	27	22	18
Sweden	123	67	129	...
Eritrea	4	(a)	(a)	...
Madagascar	404	574	667	...
United States (sales) -				
Sheets (uncut)	589	756	419	365
Scrap	18,710	22,496	18,087	22,029
Argentina	206	221	246	293
Bolivia (exports) .....	...	9	4	...
Brazil (exports)	233	325	513	428
Peru (exports) .....	...	5	24	11
Korea	69	(a)	(a)	...

Note - Mica is also produced in the U.S.S.R. Data for 1940 not available.

(a) Information not available.

(b) Converted from cubic metres at the rate of 1 cubic metre = 2 long tons.

According to Mineral Trade Notes - U.S. Bureau of Mines, exports of mica from India are being controlled; shipments of munitions mica from India to the United States may be made under special license, to obtain which exporters must give specifications regarding quality, weight, method of shipment, the name and address of consignee, and a declaration of the purpose for which the material is required. Boxes containing munitions mica will be sealed by the Government mica inspector, at Bihar, and dispatched in sealed wagons direct to the ports of Madras and Calcutta. Shipments of mica to the United Kingdom (uncontrolled) may be made from any port in India. No exports are permitted to Continental European countries.

The following is from the United States Bureau of Mines Mineral Market Report No. 309 (April 1, 1941):

"National defense orders piled upon a broad increase in civilian consumption have boosted the production of built-up mica to an all-time record. These products--which are used in the electrical equipment for airplane, truck, and passenger automobile engines, and for miscellaneous industrial apparatus and household appliances--are made from tissue-thin splittings of mica, only about a thousandth of an inch thick, which have to be made by hand and have been imported principally from British India and Madagascar where labor is cheap.

"Stocks of splittings at the end of 1940 were larger than in any previous year, aggregating 5,412,801 pounds compared with 3,480,625 pounds at the close of the preceding year and a previous record of 4,744,627 pounds on December 31, 1938.

"Owing to the British blockade of Madagascar, deliveries of amber splittings recently have failed to keep pace with greatly increased consumption. Relatively small quantities of amber splittings are obtained from Canada. Whereas, muscovite splittings have never been produced successfully except by hand, some Canadian amber mica has been split mechanically. The possibility of expanding such

operations may be investigated should it become impracticable to obtain enough Madagascar splittings, and possibly even as a substitute for Indian splittings.

"Since war tempo rose in May 1940, a good deal of attention has been devoted to producing splittings from domestic and South American mica. Plenty of small block mica is available in the Western Hemisphere but much of the domestic mica does not seem to split quite so readily as Indian mica and American workers not only have to be paid several times as much per hour as coolie labor gets per day but are not temperamentally suited to such work. While splitting mica calls for a considerable degree of manual dexterity, it is monotonous work and persons of Anglo-Saxon descent rarely like it.

"Provided the flow of India mica can continue uninterrupted, no serious dislocations are anticipated. For many purposes Indian muscovite splittings can be substituted for amber splittings without serious harm. Some difficulty has been experienced in getting shipping space but supplies in Calcutta have been ample and prices increased only slightly in 1940, some grades costing no more than they did in 1939. During the last few months, however, owing to the dislocation of shipping, higher freight rates and cargo insurance, and some competitive bidding, an increase of 10 percent or more has occurred in the delivered cost of certain important grades. Domestic production of splittings has increased but still is virtually negligible in quantity. Estimates made to the Bureau of Mines by various investigations as to possible costs of domestically produced splittings range all the way from a minimum of 75 cents a pound, which is roughly double the average price paid by American consumers for Indian splittings, to as much as \$4 a pound. In North Carolina a local labor supply of several hundred girls more or less experienced in mica manufacturing is available for making high-grade splittings for condensers, worth up to \$2 a pound or more, and perhaps also the thinner low-priced splittings used in making mica-board. In New York the best success has been attained with Puerto Rican labor which seems well-adapted to this work."

CONSUMPTION AND STOCKS OF MICA SPLITTINGS IN THE UNITED STATES, 1936-1940
BY SOURCES, AS REPORTED BY THE CONSUMERS
(U.S. Bureau of Mines)

Year	India		Canada		Madagascar		Total	
	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value
		\$		\$		\$		\$
Consumption 1/ -								
1936 ...	3,051,824	649,982	102,766	44,566	363,463	151,345	3,518,058	846,393
1937 ...	3,721,534	965,418	98,618	51,360	527,223	240,237	4,347,435	1,257,645
1938 ...	1,446,349	511,674	41,100	20,401	180,357	80,390	1,667,806	612,465
1939 ...	2,995,626	905,733	107,101	44,035	320,317	139,855	3,423,044	1,089,683
1940 ...	4,252,120	1,358,534	54,044	23,491	612,697	338,497	4,918,861	1,725,522
Stocks in consumers' hands Dec. 31:								
1936 ...	1,280,517	304,036	52,014	19,048	223,357	101,711	1,555,838	424,795
1937 ...	3,920,730	1,094,414	77,130	35,722	444,762	195,976	4,442,622	1,324,112
1938 ...	4,057,681	1,123,075	55,827	24,378	631,119	273,926	4,744,627	1,426,379
1939 ...	2,754,748	857,656	52,523	17,697	673,354	273,465	3,480,625	1,143,818
1940 ...	4,620,934	1,776,974	53,378	35,581	739,489	410,063	5,412,801	2,222,623

1/ Exclusive of a nominal quantity of splittings produced in the United States and South America.

BUILT-UP MICA PRODUCED IN THE UNITED STATES, 1939-1940, BY KIND OF PRODUCT
(U.S. Bureau of Mines)

	1 9 3 9		1 9 4 0 1/	
	Pounds	Value \$	Pounds	Value \$
Molding plate	1,099,066	1,090,000	1,315,000	1,410,000
Segment plate	1,135,555	1,610,000	1,510,000	2,024,000
Heater plate	369,677	815,000	561,000	878,000
Flexible (cold)	259,582	290,000	530,000	383,000
All other (tape, etc.) ...	581,515	925,000	697,000	1,116,000
	3,425,395	4,730,000	4,413,000	5,811,000

1/ Partly estimated.

VERMICULITE

(Bureau of Mines, Ottawa)

Vermiculite is essentially an American product, though occurrences have been reported in the Transvaal and Tanganyika, in Africa; in Western Australia; and in Russia. No important development of any of these deposits is known to have taken place as yet, but methods of processing the Transvaal material have been investigated in the laboratories of Witwatersrand University. Some American crude is exported for expanding to Great Britain and possibly to other countries. Improved demand for finer sizes, coupled with closer attention to preparation of crude, has recently resulted in an increased mine yield from the Montana deposits, so that one ton of shipping products is now obtained from 2 tons of mine-run material.

No important occurrences of the mineral are known in Canada, though there have been unconfirmed reports of discoveries in the Alameda district, British Columbia. The occurrence of vermiculite seems to be restricted to areas of pyroxenite, in which the pyroxenite has been serpentized and the phlogopite altered to vermiculite by acid intrusives. It is possible that vermiculite may be present in some of the similarly intruded mica-bearing pyroxenites of Ontario and Quebec.

The grade of crude vermiculite, based on its exfoliating properties, is distinctly variable in material from different sources, with resulting differences in the specific gravity, coherence, strength, and consequently in the insulating efficiency of the expanded product. The size of crude flakes is also important, the preference for house insulation being for plates about one-half an inch in diameter as they yield a product giving the maximum loose-fill packing quality. About 60 per cent of the total sales is estimated to be used for this purpose.

Crude, cleaned and screened Montana vermiculite sold in 1940 at \$12 per ton, f.o.b. mine. The delivered cost, including freight and duty, laid down at eastern Canadian points is about \$30 per ton. North Carolina crude was quoted at \$9.50 per ton f.o.b. The retail price of expanded house-fill material on the American market has recently ranged from 90 cents to \$1.35 per 24 pound bag of 4 cubic feet. Crude vermiculite weighs 60 pounds per cubic foot, or ten times the weight of the expanded product.

Crude vermiculite imports from the United States are subject to a duty of 10 per cent ad valorem, equivalent to \$1.35 per ton.

DIRECTORY OF OPERATORS IN THE CANADIAN MICA MINING INDUSTRY, 1940

- (x) Active, but no shipments made.
 (a) Market dressed mica.
 (b) Operates a grinding mill.
 (✓) Mines muscovite mica.

<u>Name of Operator</u>	<u>Head Office Address</u>	<u>Location of Mine or plant</u>
<u>QUEBEC -</u>		
Ahearn, W.	538 MacLaren St., Ottawa, Ont.	Hull Tp.
Alie, Rudolph	Maniwaki	Egan Tp.
Bigras, E. (a)	Notre Dame du Laus	Wells Tp.
Biglow, E.	Kilmar	Grenville
Blood, A. P. (a)	c/o A. O. Schoonmaker Insulation Co., 635 Greenwich St., New York, N.Y.	Denholm Tp.
Blackburn Bros Ltd. (a)(b)	Blackburn Bldg., Ottawa, Ont.	Cantley and Perkins
Boisvert, Ubald (a)	10 St. James St. W., Montreal	Wells Tp.
Cyr, Georges	112 St. Laurent St., Hull	Papineau Co.
Cyr, Isidore (a)	Val-des-Bois	Hull (dressing plant)
Cross, W. C. (a)	Bridge St., Hull	Grenville
Chenier, Z. E. (a)	Rockland, Ont.	Hull Tp.
Carman, O.	Farm Point	Glencagle Tp.
Cross, Stephen , H.	Farm Point	St. Michel des Saints
Cross, Carson (a)	Glencagle	Denholm Tp.
Dwyer, C. J. (✓)	330 Christin Place, Montreal	Grandes Bergeronnes Tp.
Eriksen, Erik J. (a)	Alcove	Wells Tp.
Enterprises Equitables Ltee	70 rue St. Paul, Quebec	Jonquiere Tp.
Gauthier, J. (a)	Box 226, Buckingham	Hincks Tp.
Gauthier, J. F.	Jonquiere	Bergeronnes Tp.
Lake St. Marie Synd. (a)	c/o J. W. Glover, 13 Lakeview Terrace, Ottawa, Ont.	Bergeronnes Tp.
Larouche, L. (✓)	Grand Bergeronnes	...
Lalonde, N.	Notre Dame de la Salette	E. Portland Tp.
Laroie, Alfred (a)(✓)	Jonquiere	W. Portland Tp.
Martin, A. G.	Cantley	Carwood Tp.
Mathe', J. F. (a)	St. Pierre de Wakefield	
McNeely, James (x)	114 Harmer Ave., Ottawa, Ont.	
McGlashen, R. J. (a)	190 Montcalm St., Hull	
McLean, F. A. (a)	374 Gilmour St., Ottawa, Ont.	
McLean, D. V. Interests Ltd. (a)	R. 202 .. 1111 Beaver Hall Hill Montreal	
Mallon, O. (a)	Poltimore	
Poirier, Adlard (a)	Wilsons Corners	
Prudhomme, Oscar	Perkins Mills	
St. Lawrence Mica Corp. Ltd. (a)	105 Côté de la Montagne, Quebec	
Seguin, E. R. (a)	Buckingham	
Sargeant, F. A. Pte.(C.A.S.F.) (a)	Wilsons Corners	
Simard, Eug. (✓)(a)	Grande Bergeronnes	

DIRECTORY OF OPERATORS IN THE CANADIAN MICA MINING INDUSTRY, 1940
(Concluded)

<u>Name of Operator</u>	<u>Head Office Address</u>	<u>Location of mine or plant</u>
<u>QUEBEC - (Concluded) -</u>		
Slard, Henry (a)	Grande Bergeronnes	Bergeronnes Tp.
Sparks, W. M. E. (a)	Woodroffe, Ont.	Mincks Tp.
Toutloff, Frank	Pointe Gatineau	...
Tarrad & Trepanier	178 Carling Ave., Ottawa, Ont.	...
Trudeau, Victor	Old Chelsea	...
Wallingford, Arthur (Perkins Mining Co.)(a)	Pointe Gatineau	Hull Dist.
Wallingford, Edward (a)	Perkins	Templeton Tp.
Wallingford, John (a)	Perkins Mills	N. Templeton Tp.
Wilson, Neil (a)	Cantley	E. Hull Tp.
<u>ONTARIO -</u>		
Brown and Fahey, J. P.	Elgin	Elgin
Buchanan, Geo.	Stanleyville	...
Haughian, Frank	Perth	Burgess Tp.
Kingston Mica Mining Co. Ltd. (a)	Godfrey	Bedford Tp.
Kent Bros. (a)	Gore St., Kingston	Kingston
Lee, W. W. (a)	Perth Road	Bok Lake
Loughborough Mining Co. Ltd. (a)	Sydenham	Sydenham
O'Connor, W. J. (a)	Lombardy	N. Burgess Tp.
Orser, C. C. (a)	Verona	Olden Tp.
Orser, S. H. (a)	Verona	Verona
Split Mica Mining Synd. Ltd. (x)	121 Elmer Ave., Toronto	Loughborough Tp.
Watts, R. W.	Perth	Perth
Wallingford, Arthur	Pointe Gatineau, Que.	N. Burgess Tp.

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