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

CANADA

DEPARTMENT OF TRADE AND COMMERCE

DOMINION BUREAU OF STATISTICS

CENSUS OF INDUSTRY

MINING, METALLURGICAL & CHEMICAL BRANCH

THE MICA INDUSTRY IN CANADA 1941

OTTAWA
1942

Price 25 cents

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THE MICA INDUSTRY, 1941

Canadian production (mine shipments) of mica in 1941 totalled 3,487,891 pounds valued at $335,286 compared with 1,950,219 pounds worth $237,145 in 1940. Shipments during 1941 were made only from properties located in the provinces of Quebec, Ontario and British Columbia. Of the total output in 1941, mines in the province of Quebec contributed 1,803,575 pounds valued at $284,563; Ontario mines, 1,587,316 pounds worth $47,047; and British Columbia, 297,000 pounds at $3,678. In these statistics of mica production are shipments of all grades of the mineral produced, including hand cobbed, thumb-trimmed, splittings, knife trimmed, scrap, ground and mica schist.

The number of Canadian mica operators reporting commercial shipments in 1941 totalled 75; capital employed by the industry amounted to $1,180,097, and $181,800 were distributed in salaries and wages to 246 employees. The total net value of shipments was estimated at $295,759.

Table 1 - PRINCIPAL STATISTICS OF THE MICA MINING INDUSTRY IN CANADA, 1940 and 1941

	1940	1941		
	CANADA(x)	Quebec	Ontario	CANADA(x)
Number of firms or operators	65	63	18	81
Capital employed ..... $	259,168	1,081,313	98,784	1,180,197
Number of employees - On salary..	8	11	5	16
On wages ..	210	190	40	230
Total ...	218	201	45	246
Salaries and wages - Salaries ... $	8,567	15,562	7,631	23,193
Wages ..... $	126,138	139,393	19,214	158,607
Total ... $	134,705	154,955	26,845	181,800
Selling value of products (gross) $	237,145	284,563	47,047	335,288
Cost of fuel and electricity .... $	9,571	15,117	2,588	17,705
Cost of process supplies used ... $	18,258	16,700	5,124	21,824
Selling value of products (net).. $	209,316	252,746	39,335	295,759

(x) Does not include general statistics for one operating plant in British Columbia in 1940 for which data are not available, also 2 in British Columbia in 1941.

Table 2 - NUMBER OF WAGE-EARNERS ON PAYROLL OR TIME RECORD ON THE LAST DAY OF EACH MONTH OR NEAREST WORK DAY, 1940 and 1941

Month	1940			1941		
		Shop(a)			Shop(a)	
	Mine	Male	Female	Mine	Male	Female
January	68	62	19	91	61	7
February	59	57	22	81	67	6
March	49	73	21	73	62	24
April	58	30	35	80	64	22
May	86	72	5	100	74	38
June	131	70	5	132	75	50
July	158	69	7	135	74	50
August	149	58	45	123	68	45
September	128	65	41	124	71	38
October	112	67	38	110	70	33
November	105	67	30	129	69	29
December	115	69	27	116	79	35

(a) Includes outside workers.

Table 3 - WAGE-EARNERS WORKING NUMBER OF HOURS SPECIFIED DURING ONE WEEK IN MONTH OF NORMAL EMPLOYMENT, 1941

Number of hours worked	Number of employees	Number of hours worked	Number of employees
30 hours or less	4	49 - 50 hours	119
31 - 43 hours	12	51 - 54 hours	24
44 hours	...	55 hours	7
45 - 47 hours	3	56 - 64 hours	11
48 hours	80	65 hours and over	8
Grand Total number of employees in week specified			268
Total wages paid in week specified			$ 3,830

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

Kind	Unit of measure	1940 Quantity	1940 Cost at plant	1941 Quantity	1941 Cost at plant
			$		$
Bituminous coal--From Canadian mines	short tons	251	2,387	261	2,677
Imported	short tons	...	...	...	...
Gasoline	Imp.gal.	28,234	6,173	36,740	9,121
Kerosene or coal oil	Imp.gal.	82	21	160	52
Fuel oil and diesel oil	Imp.gal.	...	...	90	40
Wood (cords of 128 cubic feet of piled wood)	cords	265	990	375	1,515
Other fuel	...	...	...	...	10
Electricity purchased for power and lighting, including service charges	K.W.H.	...	...	305,500	4,290
TOTAL	...	...	9,571	...	17,705
Electricity generated for own use	K.W.H.	202,493	...	1,300	...

Table 5 - POWER EQUIPMENT REPORTED, 1941

	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	6	180	3	97
Gasoline, gas and oil engines, other than Diesel engines	20	431	1	10
Hydraulic turbines or water wheels	1	145	...	...
Electric motors operated by purchased power	4	100	...	...
TOTAL	31	856	4	107
Electric motors - Operated by power generated by the establishment	8	30	1	1
Stationary boilers	...	...	1	12

Table 6 - PRODUCTION OF MICA IN CANADA, BY GRADES, 1940 and 1941

	1940			1941		
	Quantity	Value, f.o.b. shipping point	Price per pound	Quantity	Value, f.o.b. shipping point	Price per pound
	Pounds	$	$	Pounds	$	$
Rough cobbed.	142,916	22,801	0.16	169,315	25,977	0.15
Knife-trimmed	158,200	80,836	0.51	264,409	144,256	0.55
Thumb-trimmed	144,232	17,383	0.12	139,577	19,738	0.14
Splittings ..	170,375	105,624	0.61	184,830	121,879	0.66
Scrap (x) ...	1,334,496	12,501	0.009	2,729,760	23,338	0.009
TOTAL ...	1,950,219	237,145	...	3,487,891	335,288	...

(x) Includes ground mica.

Table 7 - PRODUCTION (SALES) OF MICA IN CANADA, BY PROVINCES, 1940 and 1941

	1940		1941	
	Pounds	Value	Pounds	Value
		$		$
Quebec	873,802	202,583	1,603,575	284,563
Ontario	916,417	31,962	1,587,316	47,047
British Columbia (x)	160,000	2,600	297,000	3,678
TOTAL	1,950,219	237,145	3,487,891	335,288

(x) Crude and ground mica schist.

Table 8 - PRODUCTION(x) OF MICA IN CANADA, 1932 - 1941

Year	Short tons	$	Year	Short tons	$
1932	309	6,823	1937	945	133,731
1933	944	49,284	1938	519	80,989
1934	998	97,071	1939	1,068	147,321
1935	628	82,038	1940	975	237,145
1936	801	74,556	1941	1,743	335,288

(x) Sales.

The total value of mica produced in Canada from the first official recording of mica statistics in 1886 to the end of 1941 amounted to $8,414,103 and the greatest annual value was that of $376,022 for the year 1920.

The following has been abstracted from a report on mica prepared by the Bureau of Mines, Ottawa:

"Canada has the distinction of being one of the two main world sources of phlogopite or amber mica, the other being the French possession Madagascar.

"Muscovite, or white mica, is of fairly common occurrence in Canada, but in general, deposits of this type of mica have proved of small economic importance owing either to the poor grade of material or to the small amount of mica present, and production of muscovite has been negligible.

"Most of the production of phlogopite has been derived from a comparatively restricted area in adjacent parts of Ontario and Quebec, in the general Ottawa region, and extending roughly from Kingston, on Lake Ontario, northeastward into Gatineau and Papineau counties, Quebec. In Quebec, the mica-bearing series extends for some distance west and east of the main productive district, into Pontiac and Argenteuil counties, respectively, and there are also several scattered occurrences as far east as Quebec City. In Ontario, similar outlying deposits extend westwardly into Hastings and Haliburton counties. In recent years, most of the productive activity has been centered on deposits in Quebec.

"Leading producers of amber mica in 1941 were Messrs. Blackburn Brothers, who operate the old Nellis mine, in Hull township, Quebec; St. Lawrence Mica Corporation, with a mine at Petit Pre, near Quebec City; E. Wallingford, at Perkins, Templeton township, Quebec; and in Ontario, the Kingston Mica Mining Company, which operates the Thirty Island Lake mine in Bedford township, near Godfrey, and the Loughborough Mining Company Limited, Sydenham. These properties accounted for most of the output, the remainder being derived from a number of small and mostly intermittent operations, most of them in Quebec. Late in the year, Messrs. Blackburn Brothers took over the old Phosphate King mine, in Templeton township, Quebec, and proceeded with plans for development of the property. Scrap mica continued to be recovered from old waste dumps, from which some merchantable sheet was also salvaged. The scrap is mostly exported to a grinding plant of United States Mica Manufacturing Company, at East Rutherford, New Jersey, and Chicago, Illinois.

"The larger Canadian producers operate their own mica shops, but there are also 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 splittings, is

farmed out, the labour being performed mostly by girls on piecework.

"Black mica (biotite or lepidomelane) occurs in considerable quantity in Faraday township, near Bancroft, in Hastings county, Ontario, and the deposits were worked some years ago to supply a grinding mill, now inactive, at Bancroft. This mica occurs in very large sheets, but is mostly of poor splitting quality and too high in iron for general electrical use, though some has found employment in low-voltage domestic heater appliances.

"Although muscovite, or "white" mica, is widely distributed in the Precambrian rocks of Eastern Canada and in certain areas of western Ontario, Manitoba, and British Columbia, production has been negligible. In general, it has been found that the proportion of sound, merchantable sheet in the pegmatites is too low for the profitable mining of this mineral alone. During the past three years, there has been much prospecting and some mining activity on scattered muscovite occurrences in Quebec, mainly in the Lake St. John-Saguenay region.

"An outstanding recent development has been 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, but was reported inactive in 1941. A few small sales of muscovite were made in 1941 from deposits in the Mattawa, Lakefield, Kaladar, and Parry Sound districts, Ontario.

"In recent years, a small production of fine flake muscovite, or sericite, has been obtained from a deposit at Baker Inlet, near Prince Rupert, British Columbia. This material, which amounted to 100 tons in 1941, is shipped to Vancouver for grinding. In 1941 Messrs. Fairey and Company, 661 Taylor Street, Vancouver, who grind the fine flake muscovite from Baker Inlet, took about 100 tons of grinding scrap from a deposit near Oliver, B.C.

"The mica-grinding plant of Messrs. Blackburn Bros., Blackburn Building, Ottawa, in Templeton township, Quebec, continued to produce various mesh sizes of ground amber mica from mine and shop scrap, the demand being reported active and the volume of sales nearly double the 1940 figure.

"Latest available statistics indicate that in 1938 total recorded world production of mica of all classes and grades was about 31,000 long tons, but of this total, over 22,000 tons was low-priced grinding scrap. The remainder comprised both sheet or block mica in various styles of trimming and splittings. Most of this was muscovite, as only Canada and Madagascar, which together produced a little more than 1,000 tons, are producers of phlogopite. India has for many years been the world's chief source of mica, both block and splittings, and in 1938 exported almost 9,000 tons. Brazil recently has been making rapid headway as a second important source of high-grade muscovite; exports from that country in 1940 totalled 1,117 metric tons, or nearly three times the 1939 figure. Canada's share of the world production, though relatively small, is important, as for certain uses, notably for heater plate, commutator insulation, and heavy-duty aviation sparkplugs, amber mica has definite superiority over muscovite.

"Mica prices are difficult to determine owing to the lack of reliable market quotations and to the prevailing system of trade discounts. Quality 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. The mica market is subject

to pronounced periodic fluctuations in demand owing to prevailing trade conditions, and to the practice by consumers of laying in stocks well ahead of current requirements. According to dealers' reports, general retail price averages for phlogopite in 1941 advanced slightly from those of 1940, quotations being approximately as given below. These prices, however, are not an index of what producers may expect to receive from dealers for small parcels, as they include the dealers' overhead, culling, grading, and marketing costs, profit, etc.

Knife-trimmed Sheet		Splittings	
Size	Per Pound	Size	Per Pound
1 x 1 inches ...	$ 0.30	1 x 1 inches ...	$ 0.65
1 x 2 " ...	0.40	1 x 2 " ...	0.70
1 x 3 " ...	0.65	1 x 3 " ...	0.75
2 x 3 " ...	0.95		
2 x 4 " ...	1.35		
3 x 5 " ...	2.25		
4 x 6 " ...	2.50		
5 x 8 " ...	3.50		

"Ground mica (phlogopite) continued to sell as follows, according to fineness: 20 mesh, $25 per ton; 60 mesh, $30; 120 mesh, $55; 150 mesh, $65; all prices f.o.b. Ottawa, in ton lots, bags extra.

"There is very little trade in sheet muscovite mica in Canada, though some of the smaller electric appliance manufacturers and repair shops purchase odd lots of domestic material. Consequently no indication of prices can be given. Most of the Canadian requirements are met by direct imports of Indian sheet and splittings. With possible curtailment of Indian supplies, however, a more ready market for domestic muscovite may develop, and the Mica Company of Canada, Lois Street, Hull, Quebec, has advised the Bureau of Mines that they would be interested in receiving samples for appraisal and possible quotations.

"Both phlogopite and muscovite mica are regarded as "strategic" war minerals, and have been included among the minerals dealt with in the "Prospectors' Guide", issued by the Mines and Geology Branch, Department of Mines and Resources, Ottawa, in 1942. Copies of this publication may be obtained by applying to the Director of the Branch.

"In 1940-1941, as a result of 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 lagging considerably behind orders. Although this situation has brought about a marked revival of interest in mica mining, most of such interest has been shown by small operators lacking the necessary capital for sustained and serious development, and although the number of producers has shown a marked increase, little important new mining has been undertaken, the bulk of the output continuing to come from a few older established mines.

"Although already drawn on extensively, Canadian reserves of amber mica are still adequate to furnish important supplies, and any appreciable advance in price would probably result in a general revival of mining and increased production."

It is interesting to note that in 1941 an important discovery of high quality "large sheet" muscovite was made by Mr. J. Purdy on lot 6, 2nd concession of

Mattawan township, district of Nipissing, Ontario; a small initial shipment of the mineral was made in 1941 to a dressing plant at Ottawa.

Table 9 - CONSUMPTION OF MICA IN THE CANADIAN ELECTRICAL APPARATUS AND SUPPLIES INDUSTRY, 1931 - 1940

Year	Pounds	$	Year	Pounds	$
1931	150,561	101,531	1936	109,003	77,336
1932	102,410	68,747	1937	(a)	87,829
1933	35,098	27,129	1938	(a)	66,877
1934	93,297	60,520	1939	(a)	83,355
1935	73,621	58,016	1940	(a)	131,774

(a) Quantity not published.

Table 10 - CONSUMPTION OF GROUND MICA IN THE CANADIAN RUBBER INDUSTRY, 1932 - 1940

Year	Pounds	$	Year	Pounds	$
1932	73,600	4,111	1937	142,000	6,190
1933	89,165	4,769	1938	128,000	6,033
1934	135,424	6,792	1939	138,000	9,423
1935	124,350	6,297	1940	200,199	10,284
1936	123,587	5,358			

Table 11 - CONSUMPTION OF MICA IN THE CANADIAN MICA PRODUCTS INDUSTRY, 1932 - 1940

Year	Pounds	$	Year	Pounds	$
1932	10,100	4,290	1937	42,068	16,675
1933	16,025	6,553	1938	36,000	13,416
1934	16,553	7,040	1939	52,000	17,079
1935	17,320	7,018	1940	53,116	23,235
1936	16,227	7,790			

Table 12 - CONSUMPTION OF GROUND MICA IN THE MANUFACTURE OF CANADIAN COMPOSITION ROOFINGS, 1932 - 1941

Year	Short tons	$	Year	Short tons	$
1932	21	683	1938	(x) 315	13,040
1933	48	1,843	1939	(x) 316	19,271
1934	71	2,086	1940	(x) 336	20,816
1935	60	1,844	1941	(x) 448	25,975
1936	90	2,522			
1937	152	4,425			

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

VERMICULITE: Vermiculite, an altered variety of phlogopite or biotite mica, which swells enormously when heated, yielding an exceedingly light-weight and bulky, cork-like material, is now widely utilized in the heat-treated, expanded form as a valuable heat and acoustical insulation product. Most of the world production

comes from the United States, and large quantities of the crude mineral are imported into Canada for processing. No authenticated occurrences are known in Canada, though there have been unconfirmed reports of deposits in the Albreda district, British Columbia. The crude material sold in 1941 at $9.50 to $12 per ton f.o.b. mines in North Carolina and Montana, respectively, while the expanded product retailed at around $1 per 24-pound bag of 4 cubic feet at Eastern Canadian points.

DIRECTORY OF OPERATORS IN THE CANADIAN MICA MINING INDUSTRY, 1941

(x) Active, but no shipments made.
(a) Market dressed mica.
(b) Operates a grinding mill.
(c) Not recorded.
(f) Mines muscovite mica.

Name of Operator	Head Office Address	Location of Mine or Plant
QUEBEC -		
Ahearn, W. (a)	538 MacLaren St. Ottawa, Ont.	Hull Tp.
Barnes, E. G.	Notre Dame de la Salette	Portland W. Tp.
Bastien, E. (a)	Notre Dame du Laus	Wells Tp.
Bigelow, Robt. (a)	Buckingham	Notre Dame de la Salette
Blackburn Bros. Ltd. (a)(b)	Blackburn Bldg., Ottawa, Ont.	Cantley and Perkins
Blood, A. P. (a)	c/o A. O. Schoonmaker Insulation Co. Inc., 635 Greenwich St., New York, N.Y.	Denholm Tp.
Brunet, Paul	Ste. Cecile de Masham	(c)
Clement, Damase (a)	Glen Almond	Derry Tp.
Charette, A. (a)	Perkins	(c)
Charbonneau, E. (a)	Perkins	(c)
Chamberlain, Cecil (a)	Kazabazua	(c)
Chenier, Z. E.	Rockland, Ont.	Greenville Tp.
Cross, L.	Cascades	(c)
Cross, Walter C. (a)	209 Bridge St., Hull	Hull
Dougherty, A. (a)	Wakefield	(c)
Ditchfield, F. J. (a)	Cascades	(c)
Dubois, Ovide	Cantley	(c)
Fortin, F. J. (a)(f)	Grande Bergeronnes	Lac des Sable
Gagnon, Eugene	1611 St. Denis St., Montreal	(c)
Holmes, Thomas	Cantley	(c)
Johnston, H. A. (a)	Rupert	Wright Tp.
Kelley, Ulderic (a)(f)	Grand Lac Ste. Agnes	Charlevoix Co.
Kellogg, H.	Catineau Pointe	(c)
Lake Ste. Marie Mica Synd.(a)	95 Rideau St., Ottawa, Ont.	Hincks Tp.
Lefebvre, J. H. (x)	1133 Blvd. St. Joseph E., Montreal	Lacoste Tp.
Letourneau, E. (a)	Les Escoumains	(c)
Lefond, J. B.	8394 Berri St., Montreal	Arrington Tp.
Martineau, Wilfred (a)	Farm Point	(c)
McCabe, Ted (a)	Notre Dame du Laus	Wells Tp.
McCarry, Edward (a)	Wakefield	Wakefield Tp.

DIRECTORY OF OPERATORS IN THE CANADIAN MICA MINING INDUSTRY, 1941
(Continued)

Name of Operator	Head Office Address	Location of Mine or Plant
QUEBEC -		
Mallon, O. (a)	Poltimore	Portland W. Tp.
McLean, D. V. Interests Ltd. (a)	1111 Beaver Hall Hill, Montreal	Notre Dame de la Salette
McNeely, James (x)	114 Harmer Ave., Ottawa, Ont.	Cawood Tp.
Miner, M. (a)	Buckingham	(c)
Miner, O. (a)	Buckingham	(c)
Mica Company of Canada Ltd. (a)	Hull	Hull
Marier, Louis (a)	Huberdeau	St. Remi d'Amherst
Morlot, Chas. (a)	Low	Low
Papineau Mica Mines Ltd. (a)	Notre Dame du Laus	Wales Tp.
Pilon, O. (a)	Buckingham	Notre Dame de la Salette
Paquin, Emile	St. Pierre de Wakefield	(c)
Poirier, Conrad (a)	Wilson's Corners	Matte mine
Poirier, Adlard (a)	Wilson's Corners	Horse Shoe mine
Prudhomme, Oscar	Perkins	(c)
De Rainville, Paul	Perkins	(c)
Reynolds, Joseph J. (a)	Old Chelsea	Hull W. Tp.
Rousseau, J. A.	St. Remi d'Amherst	(c)
Renaud, J. (a)	Perkins	(c)
Rainville, A. (a)	Perkins	Perkins
Saxe, Joel, B. (a)	980 St. Antoine St., Montreal	(c)
St. Lawrence Mining Corp. Ltd. (a)	138 St. James St. W., Montreal	Kilmar
St. Lawrence Mica Corp. Ltd. (a)	105 Cote-de-la-Montagne, Quebec	L'Ange Gardien
Seguin, E. R. (a)	Buckingham	various
Simard, Eugene (a)(/)	Grandes Bergeronnes	Grande Bergeronnes
Sparks, W. J.	343 Bell St., Ottawa	Hincks Tp.
Toutloff, Frank (a)	Perkins	(c)
Trudel, Armand (a)	Perkins	(c)
Villeneuve, A. (a)	54 St. Flaurent St., Hull	(c)
Villeneuve, John (a)	153 Kent St., Hull	(c)
Wallingford, A. M. (a)	Buckingham	Hull Tp.
Wallingford, Edward (a)	Perkins	Perkins
Wallingford, John (a)	Perkins	(c)
ONTARIO -		
Carrick, H. (a)	Perth	(c)
Connor, W. J. (a)	R. R. 1, Lombardy	(c)
Costello, Wm.	Sharbot Lake	(c)
Buchannon, Geo.	Stanleyville	(c)
Fillion, S. O. (a)	164 Rideau St., Ottawa	Bedford Tp.
Maughian, Frank	Perth	Burgess Tp.
Kingston Mica Mining Co. Ltd. (a)	Godfrey	Bedford Tp.
Lee, W. W. (a)	R. R. 1, Perth Road	Bobs Lake

DIRECTORY OF OPERATORS IN THE CANADIAN MICA MINING INDUSTRY, 1941
(Concluded)

Name of Operator	Head Office Address	Location of Mine or Plant
ONTARIO (Concluded) -		
Loughborough Mining Co. Ltd. (a)	Sydenham	Sydenham
Orser, C. C. (a)	Verona	Crow Lake
Orser, S. H. (a)	Verona	Wanup
Perkins Mining Co. (a)	c/o A. Wallingford, Gatineau Pointe, Quebec	(c)
Purdy, J. (a)(f)	Eau Claire	Mattawan Tp.
Rathkopf, A. H. (Amber Ridge Mica Co.)(x)	27 William St., New York, N.Y.	Burgess Tp.
Tully, J. (a)	R. R. 5, Perth	N. Burgess Tp.
Wallingford, W. A. (a)	Gatineau Pointe, Quebec	N. Burgess Tp.
Watts, R. W. (a)	Perth	(c)
White Mica Mining Syndicate Ltd. (x)	Room 1314 .. 67 Yonge St., Toronto	Methuen Tp.
BRITISH COLUMBIA -		
Fairey & Co. (b)	661 Taylor St., Vancouver	Oliver
Roy, P. M. (mica schist)	33 Desner Block, Prince Rupert	Baker Inlet