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Mica, Canada

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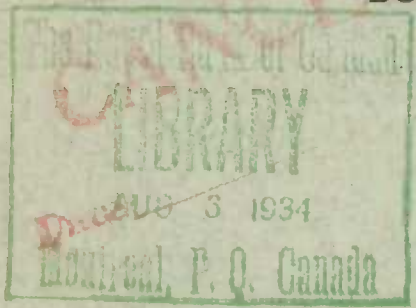
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**CANADA**

**DEPARTMENT OF TRADE AND COMMERCE**

**DOMINION BUREAU OF STATISTICS**



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**THE MICA INDUSTRY**

**IN**

**CANADA**

**1933**

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DEPARTMENT OF TRADE AND COMMERCE  
DOMINION BUREAU OF STATISTICS  
MINING, METALLURGICAL AND CHEMICAL BRANCH  
OTTAWA - CANADA.

Dominion Statistician: R. H. Coats, M.D., F.R.S.C., F.S.S. (Hon.)  
Chief, Mining, Metallurgical and Chemical Branch: W. H. Losee, B.Sc.

MICA, 1933.

The output of mica in Canada during 1933 totalled 944 tons valued at \$49,284, as compared with 309 tons worth \$6,828 in 1932, according to finally revised statistics issued by the Mining, Metallurgical and Chemical Branch of the Dominion Bureau of Statistics at Ottawa. The mineral in 1933 was produced in Quebec, Ontario and British Columbia, with the greater part of the Dominion output coming, as in former years, from the two first named provinces. The increases of 205.6 per cent in quantity and 621.8 per cent in value of the 1933 production over that of the preceding year indicates a distinct improvement in business conditions throughout the mica consuming industries and more especially in those specializing in the manufacture of electrical equipment. An interesting feature of mica movements during the last calendar year and early months of 1934 was the pronounced upward trend of Canadian exports to the United Kingdom. This would not only suggest that the high quality of Canadian mica was receiving broad recognition in the British market but that the increasing demand for the Canadian product was international in scope.

"The mica of commerce is derived exclusively from granite pegmatites and basic magnesian rocks known as pyroxenites. The former yield the potash variety muscovite, or white mica, while the latter furnish phlogopite, or amber mica. Practically the whole of the Canadian production consists of phlogopite. This variety is far less common than muscovite, which constitutes the bulk of the world's supply of mica, and, outside of Canada, few occurrences are known. The most important of these are in Madagascar ... Phlogopite is also known to occur in Chosen (Korea), Ceylon, Mexico and Central Africa ... Muscovite, on the other hand, is widely distributed... India is by far the largest producer of muscovite mica.

"In mining, mica crystals, or "books" as they are sometimes termed, usually break up into plates an inch or more in thickness. These are recovered from the pit and taken to a cobbing and trimming shed at the mine. Here, adhering rock is broken off, the plates are roughly split and most of the waste, broken or imperfect mica is recovered. The resulting sheets, termed "rough cobbled" mica, are usually shipped to centrally-located mica "shops" where they undergo a further splitting and trimming and are graded according to size and quality ... Practically all of the work necessary to prepare mica for the market is performed by hand with the aid of a small splitting knife ... almost the entire recorded world's production of sheet mica, today, is utilized in the electrical industries. Among its more important uses for such purposes are:-

1. For separating the copper bars of commutators and for commutator rings, cones and cores.
2. For electrical heating units, such as cookers, irons and toasters.

3. For disks, washers, bushings, etc., in all types of electrical power and lighting equipment.
4. For tubes for induction coils, commutator sleeves, rheostat rods, and general high potential insulating purposes.
5. For separating the plates or leaves of electrical condensers.

"A certain amount of clear sheet muscovite finds employment in stove doors, lamp canopies, gas masks, etc. Ground mica, made from mine waste or shop scrap, finds various uses and production has been considerably increased in recent years... The roofing industry probably absorbs the greater part of the ground mica produced. Coarsely ground mica, chiefly muscovite, is used for Christmas tree "snow." The finest grade of ground mica is taken by the wall-paper trade; only white mica is suitable for this purpose. Ground mica is also used, for its decorative effect, to surface stucco and plaster and in concrete. The rubber trade uses a considerable amount of ground mica in the manufacture of tires, the mica serving as a lubricating or dusting medium during stages of manufacture." (H. S. Spence - Report 701 - Department of Mines, Ottawa).

During 1933 mica trimming shops were operated in both Quebec and Ontario. In the former province mining was conducted in the townships of Hull, Wakefield and Cameron of the Buckingham-Hull area and at Laurel in Argenteuil county and in Bergeronnes township, Saguenay county. In Ontario shipments were made principally from stocks on hand and were reported from the Bancroft, Sydenham, and Bob's Lake areas. In British Columbia the output came from Armstrong in the Yale district. Ground mica sales were reported by producers in all three of the mica producing provinces. Ground mica was consigned to the roofing, rubber, oil refining and other industries, while the higher grades of sheet mica were sold for the manufacture of electrical equipment.

The Department of Mines, Victoria, B.C., reports that several deposits of fair-grade sericitic mica, varying in colour from white to greyish white, have been discovered in the Tuck Inlet area contiguous to Prince Rupert and also in the Baker Inlet section about 35 miles south of Prince Rupert. A small amount of work has been done on these deposits and samples submitted to provincial consumers have aroused some interest.

The Department of Mines, Southern Rhodesia, states that "the market for Rhodesian mica has almost entirely disappeared. This, to some extent, may be due to unsatisfactory grading and classification of the Rhodesian mica, as it has been reported from overseas that it was not unusual to find smaller sizes of mica in cases than the grading indicated. The market for clear ruby mica is stated to be showing considerable improvement and there is a possibility that Rhodesian producers may have an opportunity of finding buyers for their product provided they can forward consignments carefully graded and classified. The value of the mica production in Southern Rhodesia in 1933 was reported at £389.

A report by the United States Department of Mines contains the following information: "During the five-years 1928-1932 inclusive, domestic marketed production has supplied only 16 to 36 per cent by quantity and 17 to 39 per cent by value of the requirements of sheet mica larger than punch and less than 5 per cent of the consumption of mica splittings. On the other hand, the United States produces virtually all the punch muscovite and most of the scrap mica it consumes. India furnishes the greater part of the sheet muscovite larger than punch and almost all the muscovite splittings required by the United States. Canada and Madagascar supply phlogopite in the form of splittings and sheet mica."

"Vermiculite" was of little or no commercial value prior to 1925. The term "vermiculite" is applied to a group of micaceous minerals that generally are alteration products of biotite, phlogopite and other varieties of mica. The most pronounced characteristic of vermiculites is their extraordinary expansion on heating; the volume may increase up to sixteen times the original ... vermiculite is of little or no value in its raw state and the following applications relate to the treated material. Its value in heat and cold insulation has been demonstrated and it is an effective sound insulator. Vermiculite has been recommended as an insulating material in fireless cookers, incubators, ovens, pipe and boiler coverings, and refrigerators ... as a sound deadener it is of particular value in moving picture studios and apartment houses. Insulating cements made from Colorado vermiculite are now on the market. The mineral is also used in the manufacture of insulating brick, automobile mufflers and high-temperature gaskets." (United States Bureau of Mines -- Information circular 6720).

Particulars relating to current conditions in the Japanese and Belgian mica markets are contained in No. 1588, Volume 51, and No. 1581, Volume 50, respectively, of the Commercial Intelligence Journal. Canadian producers desiring this information should address their inquiries to the Department of Trade and Commerce, Ottawa.

Lithium-bearing minerals occur in Manitoba and the following information supplied by the Imperial Institute through the Canadian Government Trade Commissioner, London, may prove of interest to possible producers of lithium ores:- "The demand in the United Kingdom for lithium salts, such as the carbonate and hydroxide, is very limited ... Lithium hydroxide is used principally for certain alkaline types of electrical storage batteries with a view to prolonging their life, while the carbonate is employed in the preparation of artificial mineral waters and for various salts used medicinally. The material required is usually 100 per cent pure. The names of some possible British purchasers of these salts and of high-grade amblygonite and other mica will be supplied by this Bureau on request.

Principal Statistics of the Mica Industry in Canada, 1932 and 1933.

	1932	1933
Number of firms .....	5	15
Capital employed .....\$	119,670	312,396
Number of employees - On salary .....	1	3
On wages .....	8	38
Total .....	9	41
Salaries and wages - Salaries .....\$	1,750	2,242
Wages .....\$	6,114	22,765
Total .....\$	7,864	25,007
Cost of fuel and electricity .....\$	50	80
Selling value of products .....\$	6,828	49,284

Number of wage earners on payroll or time record on 15th of each month or nearest representative date, 1933.

Month	Mine No.	Shop No.
January .....	3	7
February .....	3	7
March .....	3	5
April .....	3	7
May .....	5	15
June .....	6	17
July .....	6	35
August .....	25	40
September .....	27	42
October .....	29	48
November .....	12	50
December .....	19	36

Production of Mica in Canada, by Grades, 1932 and 1933.

	1932		1933	
	Quantity shipping point	Price per lb.	Quantity shipping point	Price per lb.
Knife trimmed ..	8,591	0.46	8,591	0.46
Thumb-trimmed ..	51,881	0.16	51,881	0.16
Splittings .....	74,550	0.37	74,550	0.37
Scrap .....	1,753,375	0.005	1,753,375	0.005
<b>TOTAL</b> .....	<b>1,888,397</b>	<b>0.006</b>	<b>1,888,397</b>	<b>0.006</b>

Production of Mica in Canada, by Provinces, Imports and Exports, 1932 and 1933.

	1932		1933	
	Pounds	Value \$	Pounds	Value \$
<b>PRODUCTION</b>				
Quebec .....	81,137	4,076	511,467	39,060
Ontario .....	537,212	2,752	1,331,430	9,371
British Columbia .....	...	...	45,500	853
<b>TOTAL</b> .....	<b>618,349</b>	<b>6,828</b>	<b>1,888,397</b>	<b>49,284</b>
<b>IMPORTS</b>				
Mica and manufactures of, n.o.p. --				
From United Kingdom .....	...	4,337	...	2,070
United States .....	...	27,383	...	29,059
British India .....	...	37,560	...	1,648
Germany .....	...	2,669	...	714
Other countries .....	...	...	...	15
<b>TOTAL</b> .....	...	<b>71,749</b>	...	<b>33,506</b>
Chalk, China, Cornwall or cliff stone and mica schist .....	...	18,875	...	17,283

Production of Mica in Canada, by Provinces, Imports and Exports, 1932 and 1933.  
(concluded)

	1932		1933	
	Cwt.	Value \$	Cwt.	Value \$
<b>EXPORTS</b>				
Mica, rough cobbled and thumb-trimmed				
To United Kingdom .....	...	...	39	2,027
United States .....	17	177	489	4,418
Mica, scrap and waste				
To United States .....	6,004	2,843	21,384	9,476
Other countries .....	...	...	140	84
Mica splittings				
To United Kingdom .....	22	737	187	6,278
United States .....	972	26,096	570	23,201
Mica plate and manufactures of (micamite) .....	...	1,260	...	729
<b>TOTAL</b> .....	...	<b>31,113</b>	...	<b>46,213</b>

The consumption of mica in the Canadian electrical apparatus and supplies industry in 1932 totalled 102,410 pounds valued at \$68,747 as compared with 150,561 pounds at \$101,531 in 1931.

The reported consumption of ground mica in the manufacture of Canadian composition roofing in 1932 amounted to 21 tons valued at \$683.

Imports into and Consumption of Mica in the United Kingdom, 1931-1933.

Year	Tons	Value
		L
1931 .....	1,984	244,994
1932 .....	1,634	172,926
1933 .....	1,882	218,421

General Imports of Mica into the United States, 1933.

	Pounds	Value \$
Unmanufactured (dutiable) .....	3,842,673	176,773
Cut or split (dutiable) .....	1,040,046	202,215
Manufactures (dutiable) .....	556,461	13,794

Production of Mica in India, by States, 1931 and 1932.

	1931		1932	
	Cwt.	Cwt.	Cwt.	Cwt.
Madras .....	6,958	8,389		
Bihar and Orissa .....	51,720	24,097		
Ajmer Merwara .....	185	177		
Total British India .....	58,863	32,643		
Jaipur .....	100	70		
<b>GRAND TOTAL</b> .....	<b>58,963</b>	<b>32,713</b>		

Exports of Mica from India, 1931 - 1933.

		1931	1932	1933
In blocks .....	Cwt.	8,276	6,693	16,772
	Rupees	14,95,203	13,82,135	24,29,557
Splittings .....	Cwt.	44,690	40,328	40,945
	Rupees	26,57,565	19,66,808	16,62,676
<b>Total of Mica -</b>				
To United Kingdom .....	Cwt.	22,891	22,389	23,575
	Rupees	24,05,167	18,60,262	22,68,698
Germany .....	Cwt.	3,831	5,013	6,161
	Rupees	2,00,931	2,39,505	3,20,961
France .....	Cwt.	4,810	788	1,067
	Rupees	97,992	87,719	79,831
United States .....	Cwt.	12,378	11,264	19,812
	Rupees	7,18,550	5,44,569	8,94,321
Other countries .....	Cwt.	9,056	7,567	7,102
	Rupees	7,26,128	6,16,888	5,28,222
<b>TOTAL</b> .....	Cwt.	52,966	47,021	57,717
	Rupees	41,48,768	33,46,943	40,92,033

Exports of Mica from Madagascar, 1928-1933.

(Quintal = 220.4 lb.)

Year	Phlogopite	Muscovite	TOTAL
	Quintals	Quintals	Quintals
1928 .....	6,353	330	6,683
1929 .....	4,020	240	4,260
1930 .....	3,780	190	3,970
1931 .....	1,190	10	1,200
1932 .....	1,290	...	1,290
1933 .....	2,450	10.08	2,450.08

No white mica was extracted during the past two years. Exports to France were 532 quintals in 1932 and 536 in 1933; figures for other countries not available.

Exports are reported to represent approximately the production; extraction is stated to be very easy and stocks are usually not retained.

Mica production (local sale) in the Union of South Africa amounted to 604,815 tons worth £723 in 1933 as compared with an output of 276,076 tons valued at £521 in 1932.



WORLD PRODUCTION OF MICA, 1930-1932.

(This statement taken from the Imperial Institute's publication "The Mineral Industry of the British Empire and Foreign Countries")

(Long tons)

Producing country	1930	1931	1932
<u>BRITISH EMPIRE</u>			
Nigeria .....	(8 cwt.)	(17 cwt.)	(17 cwt.)
Northern Rhodesia .....	4	1	...
Southern Rhodesia .....	162	66	13
Tanganyika Territory .....	21	9	12
Union of South Africa (b) .....	878	843	242
Canada -			
Rough cobbled .....	20	...	...
Thumb trimmed .....	4	22	1
Splittings .....	34	17	2
Scrap .....	987	1,156	274
Ceylon (exports) .....	...	2	2
India (exports) -			
Sheet .....	741	414	335
Splittings .....	3,404	2,235	2,016
Australia .....	26	29	30
<u>FOREIGN COUNTRIES</u>			
Norway .....	48	15	31
Sweden .....	72	64	60
Madagascar -			
Muscovite .....	20	14	(88 lb.)
Phlogopite, etc. ....	322	217	136
United States (sales) -			
Sheets (uncut) .....	654	430	151
Scrap .....	6,011	5,912	6,286
Argentina .....	98	50	54
Brazil (exports) .....	51	54	41
Korea .....	28	17	(a)
Guatemala (c) .....	(8 cwt.)	...	...

NOTE - 1,469 long tons of mica were recorded as produced in U.S.S.R. (Russia) during year ended September, 1928.- later figures are not available.

- (a) Information not available.
- (b) Nearly all scrap.
- (c) Imports into the United States from Guatemala.

The following amounts of lithia mica were produced:-

	<u>1930</u>	<u>1931</u>	<u>1932</u>
South West Africa .....	250	100	... long tons
Czechoslovakia .....	30	7	(a) " "
Germany .....	773	404	(a) " "
Portugal .....	269	564	2,014 " "

MICA PRICES (JUNE, 1934)UNITED STATES -

Per ton, f.o.b. New Mexico, scrap, white, \$14; off color, \$10. Punch, white, for disks, per pound, 10 cents; for washers, 8 cents.

Per ton, f.o.b. New Hampshire, roofing mica, \$23; snow, \$34; 40 mesh white, \$40; 60 mesh, \$48; 100 mesh, \$60; 200 mesh, \$75. Clean dry mixed bench and mine scrap, \$15.

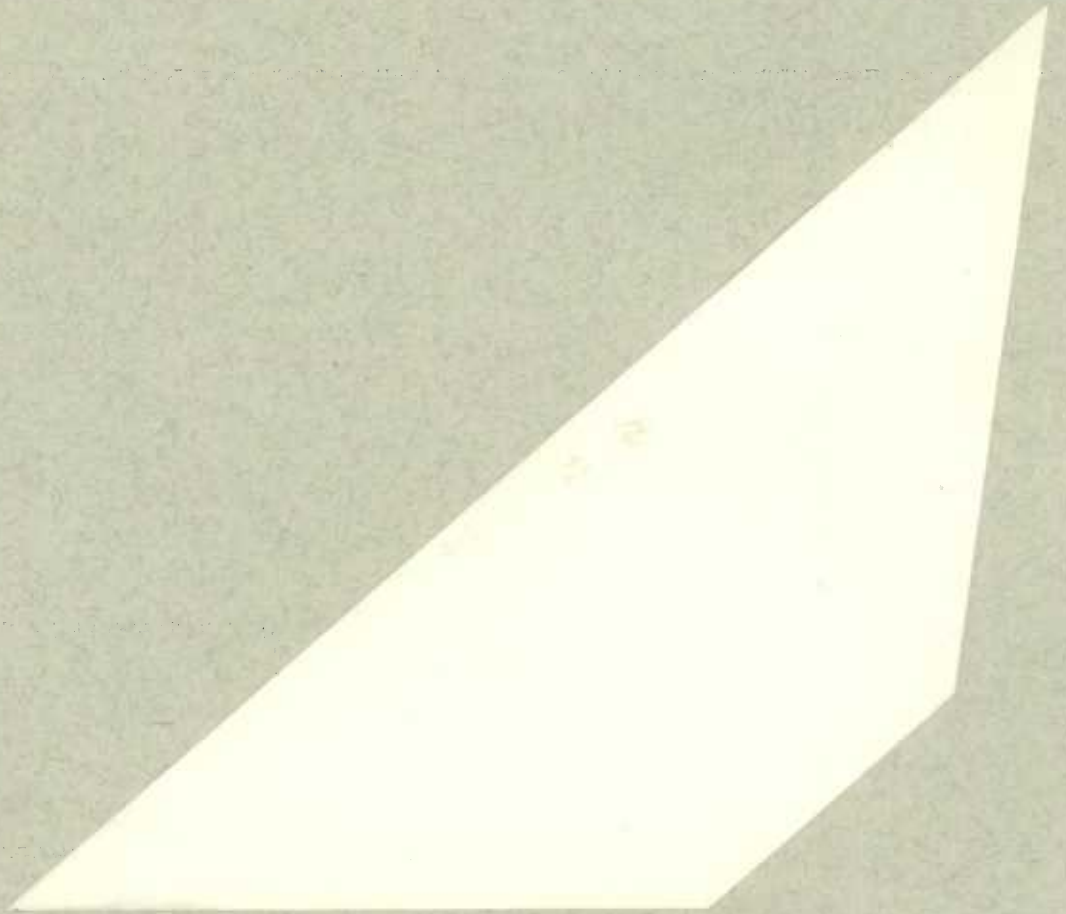
Per pound, f.o.b. North Carolina, punch, 3 to 5 cents; 1½ x 2 inch, 15 to 30 cents; 2x2, 30 to 50 cents; 2x3, 50 to 65 cents; 3x3, 65 to 85 cents; 3x4 inch, 90 cents to \$1.25; 3x5, \$1.25 to \$1.50; 4x6, \$1.50 to \$2.50; 6x8, \$2.50 to \$3.50; 8x10, \$4 to \$5. These prices apply to No. 1 and No. 2 quality stock. Stained qualities take from 10 to 25 per cent discount. White North Carolina mica, 70 mesh, \$60 to \$80 a ton. Biotite, or block mica, \$15 a ton, unground. White, Georgia, 300 mesh, \$19.50; ground roofing, 20 mesh, \$15; sericite, 300 mesh, \$15. Vermiculite, \$7.50, f.o.b. mines North Carolina. Amblygonite - per ton, f.o.b. mines, 8 to 9 per cent Li2O, \$34 to \$35. (Metal and Mineral Markets).

CANADA -

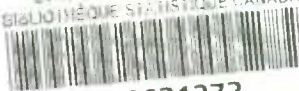
Mica ground, 20, 40 and 80 mesh, roofing grade, f.o.b. Hull, Quebec, ton, \$40.00; 80 mesh, lubricating grade, f.o.b. Hull, Quebec, \$45.00; 200 mesh, rubber grade, f.o.b. Hull, Quebec, \$85.00; silver amber, pound, 15 cents. (Canadian Chemistry and Metallurgy).

LIST OF FIRMS IN CANADIAN MICA MINING INDUSTRY, 1933.

<u>Name</u>	<u>Head Office Address</u>	<u>Plant Location</u>
<u>QUEBEC -</u>		
Blackburn Bros.	Blackburn Bldg., Ottawa, Ont.	Templeton Tp.
Brown Bros.	Cantley	Cantley
Cross, W. C.	Cascades	Hull Dist.
Flynn, Bernard J.	33 Montcalm St., Hull	Cameron Tp.
Laurel Mining Co. Ltd.	Ameau Bldg., Three Rivers	Argenteuil Co.
Martin, A. G.	236 Besserer St., Ottawa, Ont.	Hull and Wakefield Tps.
North Shore Mining Co.	c/o A. Chartier, 10 Franklin St., Quebec, P.Q.	Bergeronnes Tp.
Paradis, Pierre	Laurel	Argenteuil Co.
<u>ONTARIO -</u>		
Anderson, J. G. and Son	Lacknow	Bancroft area
Chenier, Z. E.	Rockland	
Kent Bros.	Gore St., Kingston	Kingston
Lee, W. W.	Bedford Mills	Bob's Lake
Loughborough Mining Co. Ltd.	Sydenham	Sydenham
Martin, A. G.	236 Besserer St., Ottawa	Ottawa
<u>BRITISH COLUMBIA -</u>		
B. C. Refractories Ltd.	660 Taylor St., Vancouver	Armstrong



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