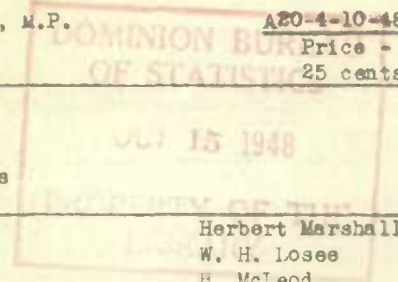


Department of Trade and Commerce
Dominion Bureau of Statistics
Census of Industry and Merchandising
Mining, Metallurgical and Chemical Statistics
Ottawa - Canada



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THE MICA MINING INDUSTRY, 1947

Canadian production or primary shipments of all grades of mica in 1947 totalled 8,318,755 pounds valued at \$200,903, compared with 8,720,669 pounds worth \$199,039 in 1946. Of the total output in 1947, mines in the province of Quebec contributed 3,272,293 pounds valued at \$120,712 and Ontario 3,238,462 pounds worth \$55,951; the British Columbia mines shipped 1,808,000 pounds valued at \$24,240. The shipments in eastern Canada were phlogopite (amber mica) and the western Canada production was composed of muscovite or white mica.

Table 1 - PRINCIPAL STATISTICS OF THE MICA MINING INDUSTRY IN CANADA, 1946 and 1947

| | 1946 | 1947 | | | |
|---|------------|---------|---------|------------------|---------|
| | CANADA | Quebec | Ontario | British Columbia | CANADA |
| | (x) | | | | (x) |
| Number of firms or operators | 27 | 25 | 12 | 1 | 38 |
| Number of employees: Administrative | 16 | 11 | 3 | ... | 14 |
| Workmen | 113 | 83 | 21 | ... | 104 |
| TOTAL | 129 | 94 | 24 | ... | 118 |
| Salaries and wages: Salaries | \$ 30,984 | 22,547 | 4,340 | ... | 26,887 |
| Wages | \$ 122,632 | 99,680 | 20,784 | ... | 120,464 |
| TOTAL | \$ 153,616 | 122,227 | 25,124 | ... | 147,351 |
| Selling value of products (gross) | \$ 199,039 | 120,712 | 55,951 | 24,240 | 200,903 |
| Cost of fuel and electricity | \$ 20,308 | 17,643 | 1,966 | ... | 19,609 |
| Cost of process supplies used | \$ 17,778 | 8,766 | 220 | ... | 8,986 |
| Selling value of products (net) | \$ 160,953 | 94,303 | 53,765 | ... | 172,308 |

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

Table 2 - MICA PRODUCTION (PRIMARY SALES) IN CANADA, BY CLASSES, 1946 and 1947

| Grade | 1946 | | 1947 | |
|---|-----------|-----------------------------------|-----------|-----------------------------------|
| | Pounds | Total value f.o.b. shipping point | Pounds | Total value f.o.b. shipping point |
| Rough, mine-run or rifted | 692,339 | 35,381 | 246,947 | 30,504 |
| Mica sold for mechanical splitting .. | 254,363 | 42,523 | 291,549 | 54,357 |
| Splittings | 13,050 | 10,725 | 10 | 3 |
| Ground or powdered | 2,657,230 | 51,146 | 4,177,251 | 66,596 |
| Scrap - Mine or shop waste and mica mined and sold for grinding | 5,073,092 | 38,216 | 3,578,898 | 30,781 |
| Flake (mica schist) - Natural or recovered by milling | ... | ... | ... | ... |
| Trimmed mica | 30,595 | 21,048 | 24,100 | 18,662 |
| TOTAL MICA SHIPMENTS | 8,720,669 | 199,039 | 8,318,755 | 200,903 |
| Varieties: Phlogopite mica (amber) .. | 7,104,739 | 175,579 | 6,510,755 | 176,663 |
| Muscovite mica (white) .. | 1,615,930 | 23,460 | 1,808,000 | 24,240 |

This report was prepared by A. R. Deir, Mining Statistician.

Table 3 - PRODUCTION (SALES) OF MICA IN CANADA, BY PROVINCES AND BY VARIETIES, 1947

| Province | Phlogopite | | Muscovite | | T O T A L | |
|------------------------|------------|---------|-----------|--------|-----------|---------|
| | Pounds | \$ | Pounds | \$ | Pounds | \$ |
| Quebec | 3,272,293 | 120,712 | ... | ... | 3,272,293 | 120,712 |
| Ontario | 3,238,462 | 55,951 | ... | ... | 3,238,462 | 55,951 |
| British Columbia | ... | ... | 1,808,000 | 24,240 | 1,808,000 | 24,240 |
| TOTAL CANADA | 6,510,755 | 176,663 | 1,808,000 | 24,240 | 8,318,755 | 200,903 |

Table 4 - PRODUCTION (SALES) OF MICA IN CANADA, 1938-1947

| Year | Short tons | \$ | Year | Short tons | \$ |
|------------|------------|---------|------------|------------|---------|
| 1938 | 519 | 80,989 | 1943 | 4,025 | 553,856 |
| 1939 | 1,068 | 147,321 | 1944 | 3,342 | 841,026 |
| 1940 | 975 | 237,145 | 1945 | 3,522 | 233,270 |
| 1941 | 1,743 | 335,288 | 1946 | 4,360 | 199,039 |
| 1942 | 3,010 | 383,567 | 1947 | 4,159 | 200,903 |

The total value of mica produced in Canada from the first official recording of mica statistics in 1886 to the end of 1947 amounted to \$10,825,764.

Table 5 - IMPORTS AND EXPORTS OF MICA, 1946 and 1947

| | 1 9 4 6 | | 1 9 4 7 | |
|------------------------------------|-----------|-------------|-----------|-------------|
| | Pounds | Value \$ | Pounds | Value \$ |
| <u>Imports -</u> | | | | |
| Mica and manufactures of, n.o.p. . | ... | 280,142 | ... | 571,638 |
| Vermiculite, crude | ... | 56,826 | ... | 129,992 |
| <u>Exports -</u> | | | | |
| Mica, scrap and waste | 3,899,400 | 33,601 | 2,560,600 | 21,724 |
| Mica splittings | 8,400 | 6,913 | 3,400 | 2,186 |
| Mica manufactures | ... | 2,193 | ... | 185 |
| Mica, rough, untrimmed | 675,900 | 99,059 | 430,200 | 71,002 |
| Mica, trimmed | 25,800 | 47,494 | 46,100 | 25,492 |
| Mica, ground | 451,000 | 17,808 | 180,000 | 6,940 |
| TOTAL MICA EXPORTS | ... | 207,068 | ... | 127,529 |

Table 6 - CONSUMPTION OF MICA IN CANADA, IN SPECIFIED INDUSTRIES, AS REPORTED TO THE ANNUAL CENSUS OF INDUSTRY, 1946 and 1947

| | 1 9 4 6 | | 1 9 4 7 | |
|--|--------------------|------------------------|--------------------|------------------------|
| | Quantity (tons) | Cost at works \$ | Quantity (tons) | Cost at works \$ |
| In electrical apparatus industry | 178 | 355,160 | 208 | 519,408 |
| In rubber industry | 132 | 16,868 | Not yet available | |
| In roofing | 1,064 | 39,651 | Not yet available | |
| In wallpaper | 199 | 27,201 | Not yet available | |
| In mica manufacturing industry | 70 | 109,475 | 54 | 92,088 |
| TOTAL ACCOUNTED FOR | ... | 548,355 | ... | ... |

Table 7 - NUMBER OF WORKMEN ON PAYROLL OR TIME RECORD ON THE LAST DAY OF EACH MONTH OR NEAREST WORK DAY, 1946 and 1947

| Month | 1 9 4 6 | | | | 1 9 4 7 | | | |
|-----------------|---------|--------------|----------|--------|---------|--------------|----------|--------|
| | Mine | | Shop (x) | | Mine | | Shop (x) | |
| | Surface | Under-ground | Male | Female | Surface | Under-ground | Male | Female |
| January | 34 | 27 | 47 | 8 | 24 | 20 | 42 | 7 |
| February | 30 | 26 | 45 | 8 | 25 | 18 | 46 | 7 |
| March | 28 | 26 | 44 | 8 | 29 | 18 | 42 | 5 |
| April | 33 | 22 | 39 | 7 | 30 | 16 | 46 | 8 |
| May | 42 | 16 | 38 | 6 | 26 | 14 | 49 | 8 |
| June | 38 | 17 | 43 | 6 | 34 | 15 | 51 | 6 |
| July | 43 | 16 | 55 | 5 | 36 | 12 | 52 | 5 |
| August | 46 | 15 | 62 | 5 | 37 | 11 | 51 | 6 |
| September | 37 | 15 | 62 | 5 | 38 | 12 | 50 | 7 |
| October | 37 | 16 | 60 | 5 | 32 | 12 | 49 | 5 |
| November | 23 | 6 | 58 | 6 | 31 | 12 | 42 | 6 |
| December | 25 | 10 | 52 | 6 | 14 | 8 | 47 | 6 |
| AVERAGE | 37 | 16 | 52 | 7 | 34 | 15 | 47 | 8 |

(x) Includes outside workers.

Table 8 - POWER EQUIPMENT (Including Stand-by or Emergency Equipment) 1947

| | Ordinarily in Use | | In Reserve or Idle | |
|--|-------------------|-------------------|--------------------|-------------------|
| | Number of units | Total horse power | Number of units | Total horse power |
| Steam engines | 2 | 75 | 3 | 115 |
| Steam turbines | ... | ... | ... | ... |
| Diesel engines | 1 | 315 | ... | ... |
| Gasoline, gas and oil engines, other than Diesel engines | 9 | 250 | 1 | 3 |
| Hydraulic turbines or water wheels | ... | ... | ... | ... |
| Electric motors operated by purchased power | 21 | 348 | 2 | 30 |
| TOTAL | 33 | 988 | 6 | 148 |
| Electric motors operated by generated power | 1 | 7 | 3 | 15 |
| Stationary power boilers | 2 | 70 | 1 | 40 |
| Motor-generator sets | 1 | 30 | ... | ... |

Table 9 - FUEL AND ELECTRICITY USED, 1946 and 1947

| Kind | Unit of measure | 1 9 4 6 | | 1 9 4 7 | |
|---|-----------------|-----------|---------------------|----------|---------------------|
| | | Quantity | Cost at works \$ | Quantity | Cost at works \$ |
| Bituminous coal - From Canadian mines | ton | 8 | 124 | ... | ... |
| Imported | ton | 85 | 1,020 | 85 | 1,020 |
| Anthracite coal - From United States | ton | 25 | 425 | 25 | 325 |
| Gasoline | Imp.gal. | 17,455 | 5,570 | 8,271 | 2,742 |
| Kerosene or coal oil | Imp.gal. | ... | ... | 105 | 23 |
| Fuel oil and diesel oil | Imp.gal. | 12,684 | 1,462 | 22,213 | 2,951 |
| Wood (cords of 128 cubic feet of piled wood) | cord | 157 | 1,103 | 107 | 811 |
| Electricity purchased for power and lighting, including service charges | K.W.H. | 1,357,230 | 10,604 | 534,353 | 8,439 |
| TOTAL | ... | ... | 20,308 | ... | 19,609 |
| Electricity generated for own use | K.W.H. | 9,300 | ... | 4,800 | ... |

The following information has been extracted from a report on the Mica Industry by the Bureau of Mines, Ottawa:

Main source of phlogopite production is the general Ottawa region, both in Ontario and Quebec. Production of muscovite has been small and intermittent, and only rarely, as in the 1942-44 period, has mining for this type of mica been undertaken on an important scale.

Most of the output of sheet phlogopite is handled and prepared for market by producers and dealers having trimming establishments in or near Ottawa. A few operators have made direct mine shipments of semi-rough mica to the United States for the production there of punched shapes. The making of thin splittings, now done on a very much smaller scale than formerly, is mostly farmed out in small rural communities in the Ottawa district. Scrap mica still continues to be recovered on a considerable scale from old mine dumps, and these furnish most of the scrap sold for grinding, as well as considerable amounts of screened untrimmed small mica shipped to the United States for the making of mechanical splittings.

In Quebec, the Nellis mine, near Cantley, in Hull township, operated by Blackburn Bros., Blackburn Bldg., Ottawa, continued to be the leading producer of sheet mica. This company prepares its output in a shop at Ottawa and also operates a grinding plant at its mine. J. B. Gauthier, of Buckingham, re-opened an old mine in Denholm township and produced a few thousand pounds. The remainder of the Quebec output came mainly from a number of small, scattered operations in the general Gatineau-Lievre River section, most of the material being rough mica sold to dealers, or scrap salvaged from old mine dumps.

Suzorite Company, Limited, a subsidiary of Siscoe Metals, Limited, proceeded further with plans to develop recovery of flake phlogopite from a large body of "suzorite" rock in Suzor township, Lavolette county, Quebec. The deposit lies 6 miles north of the main line of the Canadian National Railway, and 15 miles northeast of Parent. A well-surfaced road was built to the property during 1947, and about 8,000 tons of crude rock was mined and shipped to a plant installed by the company at Shawinigan Falls, Quebec. Nearly 5,000 tons of this was processed for the production of various grades of flake and powdered mica and of rock granules.

In Ontario, Sydenham Mining Company, Limited, continued to operate the old Lacey mine, near Sydenham, in Loughborough township, Frontenac county, until April when the mine was closed. This company shipped its product in rough-trimmed form to its affiliate, Lacey Mica Company, of New Brighton, Staten Island, N. Y. Loughborough Mining Company (General Electric Company) continued the recovery of scrap mica from old waste dumps at the Lacey mine, and was the leading shipper of this class of product. In Faraday township, Hastings county, Bancroft Mica and Stone Products Mining Syndicate, Limited, undertook further development of a deposit of dark-coloured phlogopite (or lepidomelane) west of Bancroft. This occurrence is remarkable both for the quantity of mica in sight and for the large size of the crystals. However, much of the material has poor splitting properties and thus far recovery of sound sheet from run-of-mine mica has proved rather low. Also the dark colour and high iron content make it unsuitable for general electrical insulation purposes. It serves, however, for less exacting uses, as in low-voltage domestic heater appliances and washers, and most of the production has been employed for such purposes. Trimming is done in the company's shop at Bancroft.

Late in 1947, F. Lemieux, of Godfrey, unwatered the old Orser mine at Thirty-Island Lake, in Bedford township, Frontenac county, and commenced shipments early in 1948. The mica from this property possesses high heat resistance and was in demand during the early war years for aviation sparkplug use. The remaining small sales of sheet mica in Ontario came chiefly from properties in the Perth area, Lanark county.

In British Columbia, ground muscovite mica made from schist rock mined in the Albreda region by George Campbell continued to be produced by Fairley and Company, 661 Taylor Street, Vancouver, and by George W. Richmond and Company, 4190 Blenheim Street, Vancouver, for sale to the local roofing trade. Crude rock purchased by the first-named company was reported as 822 tons.

Mica is outstanding as an insulating material in all forms of electrical equipment and appliances, and almost all the production of sheet muscovite and phlogopite is used in the electrical industry. Some clear mica, mostly muscovite, is used as stove windows and in lighting equipment, and there is a limited demand for special large-sized, flawless sheet for use in marine compass dials, boiler gauges, and in the iconoscopes of television transmitters. The recent development of the ceramic type of sparkplug has virtually eliminated the use of mica for aviation sparkplugs.

Large quantities of muscovite are used in the form of thin sheets for radio and magneto capacitor films, and for the bridges and supports in radio tubes. Heavily spotted and stained muscovite ("electric" mica) is used mainly in domestic heater appliances. Fine flake or powdered mica, made mainly from muscovite, but also from phlogopite and biotite, is used chiefly in the roofing and paint trades. It is also used in rubber manufacture, wall-paper, plastics, moulded electrical insulation, lubricating greases, foundry core and mould washes, fire resistant wallboard, pipe-line enamel, Christmas tree "snow", and for oil-well drilling, and annealing. The better grades are made by wet-grinding methods from clean shop waste, and the lower grades from dry-ground mine scrap and schist rock.

In the United States, ground mica production in 1946 rose to a record high of 62,113 short tons, of which 53,908 tons was dry-ground mica and 8,205 tons wet-ground. Forty-eight per cent of the sales was used by the roofing trade, 23 per cent in paints, 8 per cent in rubber manufactures, and 5 per cent for wall-paper.

Dealers' quotations for Canadian phlogopite in 1947 remained at the same levels established in 1946, following the removal of wartime price ceilings, when prices were advanced from 25 to 50 per cent. Prices vary according to quality, as based on colour, softness, and splitting properties, and were as follows:

Knife-trimmed Block or Sheet

| <u>Size (Inches)</u> | <u>Per Pound</u> |
|-----------------------|------------------|
| 1 x 1 and 1 x 2 | \$0.50 |
| 1 x 3 | 0.85 |
| 2 x 3 | 1.15 |
| 2 x 4 | 1.65 |
| 3 x 5 | 2.50 |
| 4 x 6 | 3.50 |
| 5 x 8 | 5.00 |

Splittings

| | <u>Per Pound</u> |
|-------------|------------------|
| 1 x 1 | \$0.75 |
| 1 x 2 | 0.85 |

Ground phlogopite sold as follows, according to fineness: 20 mesh \$50; 60 mesh, \$65; 150 mesh, \$80; all prices f.o.b. Ottawa, in ton lots, bags extra. Scrap phlogopite for grinding use sold for \$17 to \$19 per short ton, according to quality.

Under the new Multilateral Trade Agreement, effective from January 1, 1948, the United States duty on small sizes of untrimmed phlogopite mica (mainly material used for mechanical splitting) was reduced from 10 per cent to 5 per cent, ad valorem. On other classes of mica, including rough-cobbed, trimmed sheet and splittings, scrap, and ground, the various rates of duty in effect hitherto remain unchanged.

DIRECTORY OF OPERATORS IN THE CANADIAN MICA MINING INDUSTRY, 1947

| <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 | Hull twp. |
| Barton & Poirier | Wilson Corners | Hull twp. |
| Blackburn Bros. Ltd. | 85 Sparks St., Ottawa | Cantley |
| Brown Bros. | Cantley | Cantley |
| Cherney, John | 265 Guigues St., Ottawa | Wentworth |
| Cross, W. C. | 209 Bridge St., Hull | Hull twp. |
| Daugherty, Archie | Cascades | Farm Point |
| Delisle, Jos. | Mistassini | Lac Manigouche |
| Deseve, J. L. | 106 Jeanne D'Arc, Hull | Denholm twp. |
| Fairbairn, Wm. | R.R. No.2, Wakefield | Denholm, twp. |



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Mica

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DIRECTORY OF OPERATORS IN THE CANADIAN MICA MINING INDUSTRY, 1947 (Concluded)

| Name of Operator | Head Office Address | Location of Mine or Plant |
|------------------------------|----------------------------------|---------------------------|
| <u>Quebec - (Concluded)</u> | | |
| Fleury Mica Mines | Chibaugamau | Rinfret |
| Gauthier, J. B. | Box 226, Buckingham | Denholm twp. |
| Giroux, Cherney and Gagne | 195 Guigues St., Ottawa | Wentworth |
| Mica Co. of Canada Ltd. | 2 Lois St., Hull | ... |
| Moore, Fred S. | Wright | Hincks twp. |
| Palement, B. | Perkins | Perkins |
| Poirier, Conrad | Wilson Corners | Wakefield |
| Poirier, Albert | Wilson Corners | Hull |
| Renaud, Jos. | Perkins | Perkins |
| Renaud, Leo | Perkins Mills | Perkins |
| Sargent, Fred | Cascades | Hull |
| Sims, A. C. | 196 Sparks St., Ottawa | Templeton |
| Suzorite Co. Ltd. | 907 Dominion Sq. Bldg., Montreal | Shawinigan Falls |
| Wallingford | Perkins | Templeton |
| <u>Ontario -</u> | | |
| Bancroft Mica & Stone Co. | Selby | Faraday twp. |
| Cordick, H. V. | Perth | Lanark |
| Donnelly, J. G. | Stanleyville | N. Burgess twp. |
| Green, W. E. & Bros. | Perth Road | Ottie Lake |
| Lee, W. W. | Westport | Bedford |
| Lemieux, Frank | Godfrey | Bedford twp. |
| Loughborough Mining Co. Ltd. | Sydenham | Frontenac |
| Orser, S. H. | Verona | Frontenac |
| Powers, Art | Stanleyville | Burgess twp. |
| Sproule, W. J. | Sydenham | Frontenac |
| Sydenham Mining Co. Ltd. | Box 252 Kingston | Loughborough |
| Tuman, H. S. | Selby | Hastings |
| Watts, R. W. | 21 Isabella St., Perth | Lanark |
| <u>British Columbia -</u> | | |
| Fairey & Co. | 661 Taylor St., Vancouver | Vancouver |