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DOMINION BUREAU OF STATISTICS
MAR 9 1945
43-28-2-45

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THE ASBESTOS MINING INDUSTRY, 1943

Canadian production of asbestos in 1943 totalled 467,196 short tons valued at \$24,409,416 compared with 430,459 short tons worth \$22,863,283 in 1942. The value of the 1943 output was the greatest ever recorded in the history of the Canadian asbestos mining industry, and the tonnage was exceeded only by that of 1941 when the mines reported a production of 477,846 tons. The mineral in 1943 came, as usual, entirely from deposits located in the province of Quebec.

Nine firms were engaged in asbestos mining during 1943; capital employed amounted to \$20,831,000; employees numbered 3,344; and salaries and wages paid were reported at \$5,576,734. Fuel and electricity consumed was valued at \$1,625,450 and \$1,651,260 were expended for explosives, drill steel, and other process supplies. The value of new equipment purchased totalled \$300,738 and the industry paid, during the year under review, a total of \$4,511,704 in taxes.

Exports of Canadian asbestos in 1943 included 1,990 tons of crude valued at \$859,511; 210,837 tons milled fibres worth \$15,673,929; asbestos waste, refuse and shorts, 230,172 tons at \$5,348,031, and asbestos manufactures, \$159,209. Imports of various asbestos products were appraised at \$2,305,162.

The following information is from a report "Asbestos in 1943" as prepared by M. F. Goudge of the Bureau of Mines, Ottawa:

"Asbestos of commerce consists mostly of the three varieties known as chrysotile, amosite, and crocidolite or blue asbestos, with chrysotile being by far the most important and widely used. Three other varieties that have only a limited field of usefulness are fibrous actinolite, fibrous tremolite, and anthophyllite.

"The asbestos produced in Canada is practically all of the chrysotile variety and comes almost entirely from areas of serpentized rock in the Eastern Townships, Quebec, where the producing centres are Thetford Mines, Black Lake, East Broughton, Vimy Ridge, Asbestos, and St. Remi de Tingwick. The Canadian deposits are the largest known in the world. Production has been continuous from the Thetford area since 1873 and reserves of asbestos-bearing rock are enormous. Core-drilling to depths greater than 1,700 feet has revealed the presence of fibre comparable in quantity and quality with that in the present workings. Most of the output consists of vein fibre obtained from veins $\frac{1}{4}$ to $\frac{1}{2}$ inch in width, though veins exceeding 5 inches in width do occur. The fibres run crosswise of the vein and thus the width of the vein determines the length of fibre. Slip fibre, occurring in fault planes, is obtained largely in the East Broughton area.

"In 1943 there were six producing companies. Asbestos Corporation Limited worked two properties at Thetford Mines and one each at Black Lake and Vimy Ridge. Johnson's Company operated at Thetford Mines and at Black Lake. Bell Asbestos Mines, Limited operated at Thetford Mines; Quebec Asbestos Corporation, Limited, at East Broughton; Canadian Johns-Manville Company, Limited, at Asbestos; and Nicolet Asbestos Mines, Limited, at St. Remi de Tingwick.

"The asbestos-bearing rock is mined in open pits and underground. Most of the underground work consists of block-caving, though other methods of underground mining are also used.

"Small deposits of chrysotile asbestos are known in other parts of Quebec and also in Ontario and British Columbia. Several have been worked from time to time. The asbestos from some of these small deposits has a very low content of iron and is entirely free from magnetite, and should be suitable for use in making insulation for electrical machinery.

"No amosite or crocidolite have yet been found in Canada, but there are numerous deposits of fibrous tremolite, fibrous actinolite, and anthophyllite, which varieties are commercially termed amphibole asbestos. The fibres of these varieties are harsher and weaker than those of chrysotile and there is little demand for them at present. None of these deposits is being worked, although formerly fibrous actinolite was quarried near the village of Actinolite, Hastings county, Ontario, for use in the making of roofing materials. Asbestos deposits reported as having been found in recent years in Manitoba and in northern and western Ontario are of the amphibole varieties. The amphibole fibres are too harsh and brittle to be spun, but they have a higher resistance to acids than has chrysotile and it is possible that material from some of the deposits may be suitable for use in acid filters and for other purposes where long harsh fibres are required.

"Few figures on recent world production are available, but it is known that Canada maintained its position as the principal asbestos-producing country. Other countries producing relatively large quantities of asbestos are Russia, Rhodesia, Union of South Africa, Swaziland, the United States, and Cyprus. Small shipments of asbestos are made from Australia (crocidolite), Bolivia (crocidolite), China (chrysotile), India (chrysotile), and Venezuela (chrysotile). The world's largest market for asbestos is in the United States, and Canada's proximity to this market confers very real advantages on the asbestos industry in this country. Another development favouring the Canadian industry is the increasing demand for short grades of fibre for use in newly developed asbestos-cement products, and in moulded plastic articles.

"Most of the Canadian production of asbestos is exported in the unmanufactured state, i.e. either in the crude condition (long-fibred material only), in a partly opened state, or completely fluffed out and ready for manufacture. The great bulk of exports goes to the United States, but substantial quantities are also exported to the United Kingdom and Australia. Since September 20, 1933, the Dominion Government has controlled the export of asbestos. Late in 1942 some minor modifications were made in the classification of standard grades of Canadian asbestos and this revised classification has been adopted by the Quebec Asbestos Producers' Association.

"Asbestos is used for a great variety of purposes, the principal asbestos products being: brake linings, clutch facings, packings, cloth, insulation, mill-board, siding, shingles, roofing, tile, and pipes.

"Current prices f.o.b. Quebec mines, in U.S. funds, tax and bags included, are as follows: No. 1 crude, \$650 to \$750 per ton; No. 2 crude, \$165 to \$385; spinning fibre, \$124 to \$233; shingle fibre, \$62.50 to \$85; paper fibre, \$44 to \$49; cement stock, \$28.50 to \$33; floats, \$19.50 to \$21; shorts, \$12 to \$16.50 per ton."

A report issued by the United States Department of the Interior contains the following information:

"Ordinarily the United States produces 4 to 6 per cent of its requirements of asbestos fibres, but in 1943 according to statistics compiled by the Bureau of

- 3 -

"Canada supplied the larger part of United States needs for chrysotile, but Canadian output is chiefly of the non-spinning shorter grades. African chrysotile was imported in substantial quantities to supplement the supply of Canadian spinning fibres. Soviet Russia, Australia, and India are other sources of supply.

Table 1 - SALES AND SHIPMENTS(x) OF CANADIAN ASBESTOS, 1941-1945

	<u>1 9 4 1</u>	<u>1 9 4 2</u> (tons)	<u>1 9 4 3</u>
Quantity of rock mined.	7,707,367	8,233,516	7,929,471
Quantity of rock milled	6,366,670	6,795,459	6,828,532
Value of containers ... \$	(b)	(b)	1,238,166

(b) Data not available.

Year	Tons	\$	Year	Tons	\$
1926	279,403	10,090,423	1935	310,467	7,054,614
1927	274,778	10,321,013	1936	301,287	9,953,183
1928	273,033	11,238,360	1937	410,026	14,503,791
1929	306,055	13,172,581	1938	283,793	12,890,195
1930	242,114	8,390,163	1939	364,472	15,359,212
1931	164,236	4,812,886	1940	346,805	15,619,365
1932	122,977	3,039,721	1941	477,846	21,469,340
1933	153,367	5,211,177	1942	433,459	22,603,283
1934	135,380	4,936,326	1943	467,196	23,169,505

Asbestos

- 4 -

Table 3 - PRODUCTION OF ASBESTOS IN CANADA, BY MONTHS, 1943

Month	Short tons	Month	Short tons
January	32,541	July	45,767
February	36,161	August	40,050
March	40,275	September	33,252
April	33,353	October	33,911
May	48,867	November	38,989
June	43,487	December	36,523

Table 4 - IMPORTS INTO CANADA AND EXPORTS OF ASBESTOS, 1942 and 1943

	1	2	4	5		1	2	4	5
	Tons	\$				Tons	\$		
<u>Imports -</u>									
Asbestos clutch facings for automobiles, motor vehicles and chassis	x x x	317,115	x x x	347,844					
Asbestos brake linings for automobiles, motor vehicles and chassis	x x x	707,834	x x x	405,220					
Asbestos brake linings and clutch facings, n.o.p.	x x x	96,820	x x x	37,439					
Asbestos in any form other than crude, and all manufactures of, n.o.p.	x x x	1,330,172	x x x	1,368,216					
Asbestos packing	139	158,373	140	146,443					
TOTAL	x x x	2,610,300	x x x	2,305,162					
<u>Exports -</u>									
Asbestos (crude)	2,796	1,190,989	1,990	859,511					
Asbestos milled fibres	198,452	15,056,981	210,837	15,673,929					
Asbestos waste, refuse and shorts	226,209	5,666,331	230,172	5,848,031					
Asbestos manufactures, including asbestos roofing	x x x	173,361	x x x	139,200					
TOTAL	x x x	22,038,162	x x x	22,520,630					

Table 5 - CONSUMPTION OF ASBESTOS IN SPECIFIED CANADIAN INDUSTRIES, 1941 and 1942

Industry		1	2	4	1		1	2	4	2
		Quantity	Cost at works				Quantity	Cost at works		
<u>Electrical Apparatus and Supplies -</u>										
Board	pound	(x)	94,358	(x)	97,604					
Yarn	pound	131,787	38,712	(x)	13,537					
Tape	pound	31,722	29,613	(x)	16,690					
Boilers, Tanks and Engines .....	...	...	24,378	(x)	38,043					
<u>Asbestos Products -</u>										
Fibre	ton	12,549	446,301	12,107	503,340					
Other forms	ton	694	253,641	565	234,551					
Roofing paper	ton	1,945	53,880	755	17,493					
Cotton goods, n.e.s.	pound	10,887	607	20,515	1,118					

(x) Not available.

Table 6 - PRINCIPAL STATISTICS OF THE ASBESTOS INDUSTRY IN CANADA, 1941-1943

	1941	1942	1943
Number of firms	9	8	9
Capital employed	\$ 21,325,553	18,741,364	20,831,427
Number of employees--On salaries (c) ...	314	329	345
On wages	3,446	3,420	3,499
Total	3,760	3,749	3,844
Salaries and wages--Salaries	\$ 679,534	731,836	772,455
Wages	4,316,707	4,567,618	4,804,279
Total	4,996,101	5,299,454	5,576,734
Selling value of products (a)	\$ 21,475,645	22,671,203	24,409,416
Cost of fuel and electricity (purchased)	1,524,450	1,646,291	1,625,450
Cost of process supplies (b)	2,721,796	2,747,632	1,651,200
Cost of containers	(d)	(d)	1,233,166
Net value of sales	17,229,399	18,277,235	19,899,540

(a) Includes value of sand and gravel.

(b) Explosives, drill steel, etc.

(c) In 1943 includes 91 females, 80 in 1942 and 45 in 1941.

(d) Not reported separately.

Table 7 - CAPITAL EMPLOYED IN THE ASBESTOS INDUSTRY IN CANADA, 1943

	\$
Present cash value of the land (excluding materials)	2,620,473
Present value of buildings, fixtures, machinery, tools and other equipment	8,653,327
Inventory value of materials on hand, ore in process, fuel and miscellaneous supplies on hand	2,071,491
Inventory value of finished products on hand	385,292
Operating capital (cash, bills and accounts receivable, prepaid expenses, etc.)	6,620,344
TOTAL	20,831,427

Table 8 - WAGE-EARNERS EMPLOYED, BY MONTHS, IN THE ASBESTOS MINING INDUSTRY IN CANADA, 1940-1943

	1940	1941	1942	1943					
Month	TOTAL	TOTAL	TOTAL	M I N E		M I L L		Male	Female
				Surface		Underground			
				Male	Female	Male			
January ..	3,634	3,072	3,366	1,313	12	509		1,629	1
February..	3,614	3,148	3,343	1,304	12	524		1,640	1
March	3,465	3,194	3,335	1,304	12	521		1,635	1
April	3,537	3,138	3,362	1,295	12	528		1,639	1
May	3,707	3,198	3,380	1,283	12	517		1,654	1
June	3,804	3,290	3,377	1,299	12	513		1,652	1
July	3,811	3,554	3,430	1,321	12	502		1,632	1
August ...	3,799	3,640	3,433	1,237	12	516		1,627	1
September.	3,723	3,806	3,510	1,304	12	521		1,637	1
October ..	3,273	3,321	3,532	1,301	12	511		1,710	1
November..	3,190	3,756	3,532	1,252	12	519		1,713	1
December..	3,130	3,740	3,523	1,200	12	525		1,650	1

Table 9 - NUMBER OF WAGE-EARNERS IN ASBESTOS INDUSTRY WHO WORKED THE NUMBER OF HOURS SPECIFIED, DURING ONE WEEK IN MONTH OF HIGHEST EMPLOYMENT, 1945
(overtime included)

Hours	Number		Hours	Number	
	Male	Female		Male	Female
30 hours or less	9	...	55 hours	6	...
31-43 hours	90	...	56-64 hours	186	1
44 hours	6	...	65 hours and over..	92	...
45-47 hours	5	15	TOTAL	3,603	16
48 hours	3,067	...	Total wages paid in		
49-50 hours	60	...	week specified ... \$	102,081	147
51-54 hours	87	...			

Table 10 - FUEL AND ELECTRICITY USED IN THE ASBESTOS MINING INDUSTRY IN CANADA,
1942 and 1943

Kind	Unit of measure	1942		1943	
		Quantity	Value	Quantity	Value
			\$		\$
Bituminous coal -					
From Canadian mines	short ton	2,242	20,440	369	3,976
Imported	short ton	27,903	253,966	31,384	307,722
Anthracite coal -					
From United States.	short ton	20,801	183,366	21,293	195,329
Other	short ton	3,491	31,983	594	4,853
Gasoline	Imp. gal.	120,465	37,247	150,302	47,231
Kerosene or coal oil.	Imp. gal.	6,743	1,209	7,983	1,460
Fuel oil and diesel					
oil	Imp. gal.	54,490	9,337	49,970	9,423
Electricity purchased,					
including service					
charges	K.W.H.	147,922,370	1,109,163	137,335,310	1,055,456
TOTAL .....	...	...	1,646,291	...	1,625,450

Table 11 - POWER EQUIPMENT (Including stand-by or emergency equipment) 1945

Description	Ordinarily in Use		In Reserve or Idle	
	Number of units	Total horse power (x)	Number of units	Total horse power (x)
Steam engines and steam turbines	6	210	...	...
Steam turbines	1	120	...	...
Diesel engines	1	105	...	...
Gasoline, gas and oil engines, other than diesel engines	33	1,161	...	...
Electric motors--Operated by purchased power	1,098	54,069	39	3,254
TOTAL	1,139	55,665	39	3,254
Stationary boilers	3	80	...	...
Motor generator sets	3	19	...	...

(x) According to manufacturers' rating.

Asbestos

- 7 -

Table 12 - TAXES PAID BY ASBESTOS MINING INDUSTRY IN CALENDAR YEAR 1943

	\$
Dominion Income Tax, including tax on non-operating revenue	1,172,891
Dominion Excess Profits Tax	2,719,858
Provincial Taxes -	
Mining taxes paid on net profits from production, including	
portion paid to Municipality	452,710
Corporation Income Tax where levied in addition to Mining Tax..	...
Taxes paid on capital and places of business	30
Acreage Taxes	218
Total Provincial	452,958
Municipal Taxes -	
Based on property valuation	165,997
Based on non-operating revenue .....	...
Total Municipal	165,997
GRAND TOTAL TAXES PAID	4,511,704

Table 13 - CERTAIN EXPENDITURES MADE BY THE ASBESTOS MINING INDUSTRY, 1942 and 1943

	1942	1943
	\$	\$
Workmen's compensation	161,888	292,970
Unemployment insurance	61,835	65,629
Aggregate cost of all supplies purchased	3,503,085	3,420,456
Aggregate cost of plant and equipment purchased	440,542	300,738

DIRECTORY OF FIRMS IN THE CANADIAN ASBESTOS MINING INDUSTRY, 1943

Name of Firm	Head or General Office Address	Location of Plant
<u>QUEBEC -</u>		
Asbestos Corporation Ltd.	Thetford Mines	Thetford Mines, Black Lake, Coleraine
Bell Asbestos Mines Ltd.	Thetford Mines	Thetford Tp.
Canadian Johns-Manville Co. Ltd.	Sun Life Bldg., Montreal	Asbestos
International Asbestos Co. Ltd.	66 Wellington St. N.,	St. Adrien de Ham
(x)	Sherbrooke	
Johnson's Company	Thetford Mines	Thetford Mines, Coleraine
Nicolet Asbestos Mines Ltd.	820 Transportation Bldg.,	Norbestos
	Montreal	
Quebec Asbestos Corp. Ltd.	East Broughton Station	East Broughton Sta.

(x) Carried on exploration or development work only.

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