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THE ASBESTOS MINING INDUSTRY IN CANADA 1944

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THE ASBESTOS MINING INDUSTRY, 1944

Canadian production of asbestos in 1944 totalled 419,265 short tons valued at $20,619,516 compared with 467,196 tons worth $24,409,416 in 1943. The mineral in 1944 came, as in recent years, entirely from deposits located in the province of Quebec.

There were nine firms engaged in asbestos mining during 1944; employees numbered 4,050 and salaries and wages paid were reported at $6,401,185. Fuel and electricity consumed were valued at $1,636,031 and $1,166,707 were expended for explosives, drill steel and other process supplies. The value of new equipment and plant purchased during the year under review totalled $294,389 and the industry paid $3,950,331 in taxes in 1944. Total sales of asbestos during 1944 included 1,547 short tons of crude material valued at $621,956; 190,233 tons of fibres worth $14,305,966 and 231,389 tons of shorts at $5,691,594.

Exports of Canadian asbestos in 1944 included 1,541 short tons of crude valued at $649,564; 181,668 tons of milled fibres worth $13,634,772; asbestos waste, refuse and shorts, 212,728 tons at $5,361,358, and asbestos manufactures, $184,189. Imports of various asbestos products were appraised at $1,977,516.

The following information is from a report "Asbestos in 1944" as prepared by the Bureau of Mines, Ottawa:

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

"The asbestos produced in Canada is practically all of the chrysotile variety and comes almost entirely from areas of serpentinized 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.

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

"No amosite or crocidolite has 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 is suitable for use in acid filters and for other purposes where long harsh fibres are required. Small trial shipments for testing for this use were made from a property near Calabogie, Ontario, and from another near Val d'Or, Quebec, in 1944.

"Production has been continuous from the Thetford area since 1878 and reserves of asbestos-bearing rock are huge. 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 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.

"The asbestos-bearing rock is mined in open pits and underground. The block-caving method of underground mining is coming into general use. This method was put into operation at the King mine of Asbestos Corporation in 1934. Johnson's Company is now using the same method, and Bell Asbestos Mines and Canadian Johns-Manville are sinking shafts preparatory to recovering rock by block-caving operations.

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

"Prices throughout 1944 remained the same as in 1943. F.O.B. Quebec mines, in U.S. funds, tax and bags included, they were as follows: No. 1 crude, $650 to $750 per ton; No. 2 crude, $165 to $385; spinning fibres $124 to $233; magnesia insulation and compressed sheet fibres $124 to $146.50; shingle fibres $62.50 to $85; paper fibres $44 to $49; cement stock $28.50 to $33; floats, $19.50 to $21; shorts, $14.50 to $26.50 per ton.

"The post-war outlook for the asbestos industry appears to be good. Throughout the war Canadian producers were able to sell their entire output in spite of the loss of overseas markets, and with the coming of peace these overseas markets will again be open to Canadian fibre. Development of new asbestos products has been rapid in recent years. Of particular significance are the developments in asbestos-cement products which require the short grades of fibre, the marketing of which formerly constituted a problem. In 1944 an asbestos fabric reinforced with glass fibre was developed which has greater strength than the straight asbestos cloth and is being used for covering."

Table 1 - SALES AND SHIPMENTS(x) OF CANADIAN ASBESTOS, 1942-1944

	1942		1943		1944	
	Tons	$	Tons	$	Tons	$
Crudes	2,889	1,233,184	2,016	888,099	1,547	621,956
Fibres	199,829	15,339,128	217,889	16,071,843	190,233	14,305,966
Shorts	236,741	6,090,971	247,291	6,209,563	227,485	5,691,594
TOTAL	439,459	22,663,283	467,196	23,169,505	419,265	20,619,516
Sand, gravel, and stone (waste rock only) (a)..	8,090	7,925	6,914	6,745	4,521	3,539

Table 1 - SALES AND SHIPMENTS(x) OF CANADIAN ASBESTOS, 1942-1944 (Concluded)

	1942	1943	1944
		(tons)	
Quantity of rock mines	8,233,516	7,929,471	7,778,805
Quantity of rock milled	6,795,459	6,828,532	6,587,740
Value of containers ..... $	(b)	1,233,166	1,213,321

(x) All from the province of Quebec unless otherwise noted; values include cost of containers.
(a) This production is included under the sand and gravel industry.
(b) Data not available.

Table 2 - SALES AND SHIPMENTS OF ASBESTOS, 1927-1944

Year	Tons	$	Year	Tons	$
1927	274,778	10,621,013	1936	301,287	9,958,183
1928	273,033	11,238,360	1937	410,026	14,505,791
1929	306,055	13,172,581	1938	289,793	12,890,195
1930	242,114	8,390,163	1939	364,472	15,859,212
1931	164,296	4,812,886	1940	346,805	15,619,865
1932	122,977	3,039,721	1941	477,846	21,468,840
1933	158,367	5,211,177	1942	439,459	22,663,283
1934	155,980	4,936,326	1943	467,196	23,169,505
1935	210,467	7,054,614	1944	419,265	20,619,516

Table 3 - PRODUCTION OF ASBESTOS IN CANADA, BY MONTHS, 1944

Month	Short tons	Month	Short tons
January	31,987	July	31,259
February	32,663	August	37,036
March	36,675	September	38,137
April	33,839	October	37,752
May	35,644	November	36,076
June	35,495	December	32,702

Table 4 - IMPORTS INTO CANADA AND EXPORTS OF ASBESTOS, 1943 and 1944

	1943		1944	
	Tons	$	Tons	$
Imports				
Asbestos clutch facings for automobiles, motor vehicles and chassis.	xxx	347,844	xxx	350,779
Asbestos brake linings for automobiles, motor vehicles and chassis.	xxx	405,220	xxx	523,171
Asbestos brake linings and clutch facings, n.o.p.	xxx	37,439	xxx	39,919
Asbestos in any form other than crude, and all manufactures of, n.o.p.	xxx	1,368,216	xxx	963,387
Asbestos packing	140	146,443	112	100,260
TOTAL	xxx	2,305,162	xxx	1,977,516

Table 4 - IMPORTS INTO CANADA AND EXPORTS OF ASBESTOS, 1943 and 1944 (Concluded)

	1943		1944	
	Tons	$	Tons	$
Exports				
Asbestos (crude)	1,990	859,511	1,541	649,564
Asbestos milled fibres	210,837	15,673,929	181,668	13,634,772
Asbestos waste, refuse and shorts	230,172	5,848,031	212,728	5,361,358
Asbestos manufactures, including asbestos roofing	xxx	139,209	xxx	184,189
TOTAL	xxx	22,520,680	xxx	19,829,883

Table 5 - CONSUMPTION OF ASBESTOS IN SPECIFIED CANADIAN INDUSTRIES, 1942 and 1943

Industry		1942 Quantity	1942 Cost at works $	1943 Quantity	1943 Cost at works $
Electrical Apparatus and Supplies -					
Board	pound	(x)	97,604	(/)	(/)
Yarn	pound	(x)	13,597	(/)	(/)
Tape	pound	(x)	16,690	(/)	(/)
Boilers, tanks and engines	...	(x)	38,043	(x)	28,983
Asbestos Products -					
Fibre	ton	12,107	503,340	11,536	548,706
Other forms	ton	565	264,531	...	227,487
Roofing paper	ton	755	17,493	823	18,275
Cotton goods, n.e.s.	pound	20,515	1,118	10,768	607

(x) Not available.
(/) Not recorded for 1943.

Table 6 - PRINCIPAL STATISTICS OF THE ASBESTOS INDUSTRY IN CANADA, 1942-1944

		1942	1943	1944
Number of firms		8	9	9
Capital employed	$	18,741,364	20,831,427	(e)
Number of employees--On salaries (c)		329	345	354
On wages		3,420	3,499	3,696
Total		3,749	3,844	4,050
Salaries and wages--Salaries	$	731,836	772,455	805,330
Wages	$	4,567,618	4,804,279	5,595,855
Total	$	5,299,454	5,576,734	6,401,185
Selling value of products (a)	$	22,671,208	24,409,416	21,836,376
Cost of fuel and electricity (purchased)	$	1,646,291	1,625,450	1,635,829
Cost of process supplies (b)	$	2,747,682	1,651,260	1,166,909
Cost of containers	$	(d)	1,233,166	1,213,321
Net value of sales	$	18,277,235	19,899,540	17,820,317

(a) Includes value of sand and gravel.
(b) Explosives, drill steel, etc.
(c) In 1942 includes 60 females, 91 in 1943 and 87 in 1944.
(d) Not reported separately.
(e) Not recorded in 1944.

Table 7 - WAGE-EARNERS EMPLOYED, BY MONTHS, IN THE ASBESTOS MINING INDUSTRY IN CANADA, 1941-1944

Month	1941 TOTAL	1942 TOTAL	1943 TOTAL	1944 MINE Surface Male	1944 MINE Surface Female	1944 MINE Underground Male	1944 MILL Male	1944 MILL Female
January	3,072	3,366	3,469	1,403	36	535	1,714	2
February	3,148	3,343	3,481	1,370	37	536	1,700	2
March	3,194	3,335	3,523	1,358	35	545	1,722	2
April	3,138	3,362	3,525	1,355	35	527	1,732	2
May	3,198	3,380	3,507	1,417	37	526	1,728	2
June	3,290	3,377	3,518	1,462	31	489	1,728	2
July	3,554	3,480	3,518	1,488	36	472	1,709	2
August	3,640	3,483	3,513	1,507	40	473	1,716	2
September	3,806	3,510	3,525	1,457	40	452	1,721	2
October	3,821	3,532	3,535	1,473	23	480	1,731	2
November	3,756	3,532	3,497	1,544	32	501	1,730	2
December	3,740	3,323	3,388	1,407	31	496	1,701	2
AVERAGE ...	3,446	3,420	3,499	1,438	34	503	1,719	2

Table 8 - NUMBER OF WAGE-EARNERS IN ASBESTOS INDUSTRY WHO WORKED THE NUMBER OF HOURS SPECIFIED, DURING ONE WEEK IN MONTH OF HIGHEST EMPLOYMENT, 1944 (overtime included)

Hours	Number Male	Number Female	Hours	Number Male	Number Female
30 hours or less	30	...	55 hours	3	...
31-43 hours	343	10	56-64 hours	131	2
44 hours	36	2	65 hours and over..	53	...
45-47 hours	98	...	Total	3,806	41
48 hours	2,989	27	Total wages paid in week specified.. $	115,094	773
49-50 hours	71	...			
51-54 hours	52	...			

Table 9 - FUEL AND ELECTRICITY USED IN THE ASBESTOS MINING INDUSTRY IN CANADA, 1943 and 1944

Kind	Unit of measure	1943 Quantity	1943 Value $	1944 Quantity	1944 Value $
Bituminous coal -					
From Canadian mines..	short ton	369	3,976	139	1,474
Imported	short ton	31,384	307,722	32,271	322,672
Anthracite coal -					
From United States ..	short ton	21,293	195,329	17,689	160,610
Other	short ton	594	4,853	...	...
Gasoline	Imp.gal.	150,302	47,231	119,502	37,389
Kerosene or coal oil..	Imp.gal.	7,989	1,460	1,797	344
Fuel oil and diesel oil	Imp.gal.	49,970	9,423	85,032	16,335
Wood	cords	...	...	15	71
Electricity purchased, including service charges	K.W.H.	137,385,310	1,055,456	144,189,107	1,096,934
TOTAL	...	...	1,625,450	...	1,635,829

Table 10 - POWER EQUIPMENT (Including stand-by or emergency equipment) 1944

Description	Ordinarily in Use		In Reserve or Idle	
	Number of units	Total horse power (x)	Number of units	Total horse power (x)
Steam engines	6	210	...	...
Steam turbines	1	120	...	...
Diesel engines	1	105	...	...
Gasoline, gas and oil engines, other than diesel engines	22	1,425	7	77
Electric motors--Operated by purchased power	1,111	54,939	39	3,254
TOTAL	1,141	56,799	46	3,331
Stationary boilers	3	80	...	...
Motor generator sets	3	57	1	60

(x) According to manufacturers' rating.

Table 11 - TAXES PAID BY ASBESTOS MINING INDUSTRY IN CALENDAR YEARS 1943 and 1944

	1943	1944
	$	$
Dominion Income Tax, including tax on non-operating revenue	1,172,891	2,205,452
Dominion Excess Profits Tax	2,719,858	1,108,470
Provincial Taxes -		
Mining taxes paid on net profits from production, including portion paid to municipality	452,710	453,440
Corporation Income Tax where levied in addition to Mining Tax	...	...
Taxes paid on capital and places of business	30	40
Acreage Taxes	218	348
TOTAL PROVINCIAL	452,958	453,828
Municipal Taxes -		
Based on property valuation	165,997	182,581
Based on non-operating revenue	...	...
TOTAL MUNICIPAL	165,997	182,581
GRAND TOTAL TAXES PAID	4,511,704	3,950,331

Table 12 - CERTAIN EXPENDITURES MADE BY THE ASBESTOS MINING INDUSTRY, 1942-1944

	1942	1943	1944
	$	$	$
Workmen's compensation	161,888	292,970	305,290
Unemployment insurance	61,833	63,629	63,917
Aggregate cost of all supplies purchased	3,503,085	3,420,456	3,271,141
Aggregate cost of plant and equipment purchased	440,542	300,738	294,889
Cost of buildings, machinery and equipment erected or installed during the year	(x)	(x)	553,273

(x) Data not recorded.

DIRECTORY OF FIRMS IN THE CANADIAN ASBESTOS MINING INDUSTRY, 1944

Name of Firm	Head or General Office Address	Location of Plant
Quebec -		
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
Flintkote Mines Ltd. (x)	283 Roxborough St. E., Toronto, Ont.	Thetford Mines
International Asbestos Co. Ltd. (x)	66 Wellington St. N., Sherbrooke	St. Adrien de Ham
Johnson's Company	Thetford Mines	Thetford Mines, Coleraine
Nicolet Asbestos Mines Ltd.	820 Transportation Bldg., Montreal	Norbestos
Quebec Asbestos Corp. Ltd.	East Broughton Station	East Broughton Station

(x) Carried on exploration or development work only.

THE ASBESTOS INDUSTRY IN THE UNITED STATES, 1944

(United States Bureau of Mines)

Production in the United States was somewhat higher in 1944 than in 1943, but even with this gain domestic sales furnished only 1½ per cent of domestic requirements.

Canada as in the past furnished the larger part of United States needs of chrysotile, but much of that supplied by Canada consists of shingle stock, paper stock, and other of the shorter nonspinning grades. Africa supplied a substantial part of the longer grades needed for military and essential civilian applications.

Chrysotile asbestos is important in the military program. The longer fibers are used for sheet packing and textiles. Asbestos textiles have many military uses to which publicity cannot be given at this time. Flame proof navy cable construction, woven friction materials, packings and gaskets are among the more important well-known uses. Rhodesian C & GI and C & G2 are preferred where electrical insulation is important, because these fibers are low in iron.

South Africa is virtually the sole source of the varieties amosite and blue (crocidolite) which have important uses in the military program. Amosite is now used extensively in the manufacture of 85-per cent magnesia and other high-temperature molded insulation.

The general situation improved greatly throughout the year. No serious interruption to imports occurred, and the flow of materials both from Canada and Africa was sufficient to meet all current requirements and to build up a reserve for future commitments.

In 1943 a plan was effected whereby the Metals Reserve Co. purchased on Government account all imported strategic grades of South African and Rhodesian asbestos for allocation to industry in accordance with the most urgent needs. In 1944 military requirements were reduced, and stocks of asbestos were regarded as adequate for prospective needs. Conditions of supply were so improved that Government purchase was no longer necessary, and it was abandoned with completion of 1944 contracts. On December 8, 1944, the War Production Board amended Order M-79 to remove all restrictions on the use of amosite and Rhodesian chrysotile. Also all fibers from Rhodesia and the Union of South Africa were removed from General Import Order M-63 on February 1, 1945.

A new fire-resistant textile has been developed consisting of 72 per cent asbestos, 22 per cent glass fiber, and 6 per cent cotton yarn. It has only half the weight per square yard of conventional asbestos cloth but has the same strength. It combines the superior flexibility of the asbestos with the high tensile strength of the glass wool.

Another new product under development for some time reached the commercial production stage in 1944. It is classed as a lime-silica high temperature insulation. It contains 15 per cent of asbestos fiber as a binder, and its temperature limit is said to be about 1200°F.

Asbestos has a multitude of uses and most of its applications during war times have their peacetime counterparts. No asbestos mines throughout the world suffered war damage. Nearly all worked at capacity during the war period. All mines will be available at the close of the war to supply raw material to asbestos-product factories throughout the world. Although war demands for asbestos will diminish, (they have already declined greatly in the field of Navy cable construction) peacetime needs will create an enlarged demand. Asbestos products plants in occupied countries that have been unable to obtain raw material will be in need of large supplies. Early in 1945 an order was placed for 3,085 tons of Canadian spinning and shingle fibers to be shipped to France. This is doubtless a forerunner of many similar orders as Belgium, Holland, Italy and other countries take steps to re-establish their industries. New factories are also in prospect for making asbestos-cement products in Mexico, South and Central America, Australasia, and the United States. It is reported that 13 asbestos-cement products plants are now in operation in Central and South America. Reconversion of automobile factories to the manufacture of commercial and pleasure vehicles will shift the demand for friction materials from military to civilian needs. The enormous backlog of residential and commercial building foreshadows a huge demand for asbestos-cement products. It is evident, therefore, that although transition from a wartime to a peacetime economy may shift the emphasis of asbestos requirements from certain fields of use to others, the general effect will be an increasing demand particularly for shingle stock and cement stock grades.

The demand for spinning fibers in the immediate post-war period will probably be strong, but from the long-range view point these grades have a less promising future than the shorter fibers. There have been no noteworthy new developments that point to an expansion in use of asbestos textile products. On the other hand there is a decided drift from woven to molded brake linings, and from woven gaskets and packings to other types that employ the shorter grades of fiber. Some competition from fibrous glass is to be expected, but it is quite unlikely that glass will invade the field of friction materials or packings. Spinning fibers generally constitute a minor part of the output of asbestos mines, nevertheless they are the most profitable products, and the prospect of reduced demand for them is a problem worthy of careful consideration by all asbestos producers.

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