Asbestos

By Oliver Bowles and F. M. Barsigian

GENERAL SUMMARY

ALTHOUGH production of asbestos in Canada, our principal source of supply, reached an all-time high in 1950, the demand for asbestos products steadily increased, and virtually all grades of asbestos were in short supply. Shortages were more acute for African than for Canadian fibers.

Domestic production nearly equaled the record output of 1949 but amounted to only about 6 percent of our domestic requirements. One mine in Vermont produces the bulk of the domestic output. Relatively small quantities of chrysotile, some of it of spinning grade, are produced in Arizona, and a small output of amphibole asbestos is recorded from several States.

Imports and apparent consumption exceeded all previous records. Imports from Canada attained an all-time high. Imports of low-iron chrysotile from Southern Rhodesia, however, and amosite and crocidolite from the Union of South Africa, were much smaller in 1950 than in 1949. This has created a rather critical situation with respect to these grades, which are obtainable from virtually no other foreign sources. All of the amosite and nearly all of the crocidolite are obtained from the Union of South Africa.

Industrial demand, much of it for defense orders, was so high that it was difficult to obtain material for the National Stockpile. Some progress has been made in developing substitutes. Prices of Canadian crudes remained constant throughout the year, but those of other grades advanced substantially during the fourth quarter. Prices of all grades were again advanced early in 1951.

TABLE 1.—Salient statistics of the asbestos industry in the United States, 1946–50

	1946	1947	1948	1949	1950
Domestic asbestos:					
Produced, short tons	14,426	25,139	37,237	42,918	41,358
Sold or used, do	14,075	24,035	37,092	43,387	42,434
Value	$504,764	$918,558	$1,806,261	$2,614,416	$2,925,050
Imports (unmanufactured), short tons	[1] 455,663	594,839	647,881	[1] 509,366	705,253
Value	[1] $18,770,817	$29,821,519	$37,974,092	$33,939,582	$47,250,245
Exports (unmanufactured), short tons	11,011	[1] 2,036	6,530	17,621	18,901
Value	$1,395,367	[1] $308,414	$1,173,259	$3,618,703	$3,619,428
Apparent consumption, short tons	[1] 458,727	[1] 616,838	678,443	[1] 535,132	728,786
Exports of asbestos products [2]	$8,169,466	$11,135,113	$9,321,351	$9,666,560	$8,111,922

[1] Revised figure.
[2] 1946–49 figures revised to exclude value of "Magnesia and manufactures." *See* footnote 1, table 6.

PRODUCTION

Domestic production and sales of asbestos were a little lower in 1950 than in 1949. Chrysotile was produced in Vermont and Arizona and amphibole in California, Georgia, North Carolina, and Oregon.

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TABLE 2.—Asbestos sold or used by producers in the United States, 1946–50, by varieties

Year	Chrysotile		Amphibole		Total	
	Short tons	Value	Short tons	Value	Short tons	Value
1946	13,645	$499,260	430	$5,504	14,075	$504,764
1947	23,586	912,340	449	6,218	24,035	918,558
1948	(1)	(1)	(1)	(1)	37,092	1,806,261
1949	(1)	(1)	(1)	(1)	43,387	2,614,416
1950	(1)	(1)	(1)	(1)	42,434	2,925,050

[1] Bureau of Mines not at liberty to publish figure separately.

Alaska.—No asbestos was produced in 1950 from the Alaska deposits in the Kobuk River district, but Philip S. Hoyt, P. O. Box 83, Aguila, Ariz., reported that in 1951 he planned production of asbestos suitable for filter fiber.

Arizona.—Production of chrysotile in Arizona almost doubled in 1950, and some high-quality material suitable for the National Stockpile was recovered. The following firms and individuals were active: Arthur Enders, P. O. Box 362, Globe; Gila Asbestos Co., Globe (started operations in March 1950 at the Wilson Cherry Creek mine near Young); Kyle Asbestos Mines of Arizona, P. O. Box 302, Globe; Phillips Asbestos Mines, Drawer 71, Globe; and R. G. Robertson, 1417 East MacDowell St., Phoenix (Bear Canyon mine on the San Carlos Indian Reservation).

California.—In Inyo County production of amphibole was reported by the Huntley Industrial Minerals, Inc., P. O. Box 305, Bishop. Powhatan Mining Co., 6721 Windsor Mill Road, Baltimore 7, Md., produced tremolite from the Sylvester mine near Hazel Creek in Shasta County. Sales of tremolite were reported by the Loma Blanca Mines, Inc., from Shasta County. There was no commercial production from this operation in 1950; in November 1950 the lease expired, and the property reverted to the owners. The Blas Asbestos Corp., La Moine, Calif., did not operate in 1950, and in August 1950, Johns-Manville Corp. took an option on the property.

Georgia.—Powhatan Mining Co. produced amphibole in Meriwether County, Ga., near Gay. Industrial Minerals Corp. reported development work on tremolite in Rabun County.

Montana.—Interstate Products Co., Inc., has done some development work on its amphibole-asbestos properties in the Gallatin Canyon.

North Carolina.—Powhatan Mining Co. produced amphibole in Transylvania County near Lake Toxaway. Industrial Minerals Corp., Asheville, continued development work on amphibole deposits in Macon and Yancey Counties.

New Mexico.—According to report, W. S. Beall, of Las Vegas, is developing a tremolite-asbestos deposit in the Guienas Canyon district 8 miles southeast of the Elk Mountain mining district, west of Las Vegas.

Oregon.—Philip S. Hoyt, P. O. Box 83, Aguila, Ariz., reported production in Oregon of asbestos suitable for use as filter fiber.

Vermont.—The Vermont Asbestos Mines Division of the Ruberoid Co., 500 Fifth Ave., New York 18, N. Y., the largest producer of

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chrysotile in the United States, prepared a range of well-graded fibers in its new mill, which began operation in 1949. The company used part of the output in its own asbestos-products plants.

CONSUMPTION AND USES

As shown in table 3, the apparent consumption of raw asbestos in the United States was about 36 percent higher in 1950 than in 1949; it was, in fact, the highest in the history of the industry. For both textiles and brake linings the demand was greater than the supply. Insulation products and building materials were in strong demand. The relationships between the consumption of asbestos, industrial production, and the volume of building construction are shown graphically in figure 1.

Articles on asbestos that appeared during the year included one on preparation of raw asbestos in the textile plant and the processes

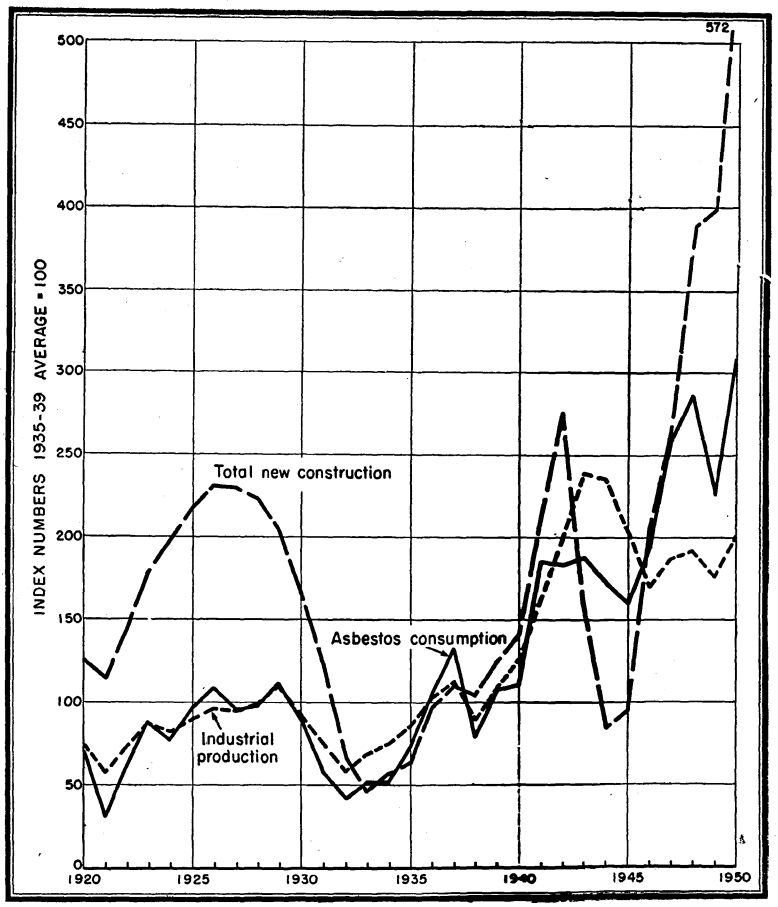


FIGURE 1.—Consumption of asbestos compared with total new construction and industrial production, 1920-50. Statistics on value of construction from Bureau of Foreign and Domestic Commerce and on industrial production from Federal Reserve Board.

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employed in carding and spinning.[1] A wider use of asbestos in air filtering is indicated in another article.[2] There was also published a general summary of facts about asbestos and its industrial applications.[3]

TABLE 3.—Apparent consumption of raw asbestos in the United States, 1941–50

Year	Short tons	Value	Year	Short tons	Value
1941	438,741	$18,309,005	1946 [1]	458,727	$17,880,214
1942	433,949	21,582,096	1947 [1]	616,838	30,431,663
1943	445,902	23,351,483	1948	678,443	38,607,094
1944	389,241	18,864,291	1949	[1] 535,132	32,935,295
1945	378,030	15,926,622	1950	728,786	46,555,867

[1] Revised figure.

Foreign as well as domestic demand for all grades of raw asbestos was at a high level during 1950. Rehabilitation of asbestos-products plants in continental Europe increased the demand for both Canadian and African fibers in that area. The expanding military program resulted in numerous defense orders for products in which strategic grades of asbestos are used; in consequence, there was a shortage both of the spinning grades of Canadian fiber and the special grades that originate in Africa. The urgent need for increased production of asbestos, especially in the United States, stimulated active interest in exploration, but no promising results had as yet been reported.

PRICES

As quoted in the magazine Asbestos, the following prices, in short tons, f. o. b. mines, were constant throughout the year for Canadian asbestos: Group 1 (Crude No. 1) $960–$1,050; group 2 (Crude No. 2, Crude Run-of-Mine, and Sundry), $400–$550. Other grades were constant in price from January to October as follows: Group 3 (Spinning Fiber), $232–$425; group 4 (Shingle Fiber), $95.50–$141; group 5 (Paper Fiber), $78.50–$88; group 6 (Waste, Stucco or Plaster), $58; group 7 (Refuse or Shorts), $28–$52. From November to the end of the year the latter groups were quoted as follows: Group 3 (Spinning Fiber), $250–$425; group 4 (Shingle Fiber), $105–$155; group 5 (Paper Fiber), $85–$97; group 6 (Waste, Stucco, or Plaster), $63; group 7 (Refuse or Shorts), $30–$57.

Prices of Vermont asbestos, in short tons f. o. b. Hyde Park or Morrisville, Vt., were constant from January to October 1950 as follows: Shingle Fibers, $111.50–$124, Paper Fiber, $79–$96.50, Waste, Stucco, or Plaster, $59; Refuse or Shorts, $28.50–$52.50. From November to the end of the year, prices were advanced as follows: Shingle Fiber, $122.65–$148.50; Paper Fiber, $86.90–$106.15; Waste, Stucco, or Plaster, $64.90; Refuse or Shorts, $31.20–$57.60. Early in 1951 Canadian prices were advanced substantially, but Vermont prices were frozen at the December level.

[1] Bloomfield, Gerd M., Speaking About Asbestos Yarn: Asbestos, vol. 31, No. 12, June 1950, pp. 4–10; vol. 32, No. 1, July 1950, pp. 6–12; vol. 32, No. 2, August 1950, pp. 10–13.
[2] Asbestos, The Air-Filtering Industry: Vol. 32, No. 1, July 1950, pp. 14–15.
[3] Bowles, Oliver, Varieties and Uses of Asbestos: Asbestos, vol. 32, No. 3, September 1950, pp. 4–12.

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FOREIGN TRADE [4]

Imports.—As the United States is the principal consumer of asbestos and produces only a small percentage (6 percent in 1950) of its requirements, large tonnages are imported. In 1950 imports were 38 percent higher than in 1949. Of this total, 96 percent came from Canada, 2 percent from the Union of South Africa, and about 1½ percent from Southern Rhodesia. On a value basis, the African percentages are much higher.

TABLE 4.—Asbestos (unmanufactured) imported for consumption in the United States, 1946–50, by countries and classes

[U. S. Department of Commerce]

Country	Crude (including blue fiber)		Mill fibers		Short fibers		Total	
	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value
1946	[1] 13,878	[1] $1,775,764	153,235	$10,391,013	288,550	$6,604,040	[1] 455,663	[1] $18,770,817
1947	35,951	4,810,852	162,405	13,957,307	396,483	11,053,360	594,839	29,821,519
1948	38,088	5,420,600	176,908	18,028,161	432,885	14,525,331	647,881	37,974,092
1949								
Australia	249	58,965					249	58,965
Bolivia	69	9,927					69	9,927
Canada	[2] 846	[2] 313,328	[2] 127,347	[2] 14,437,052	342,590	12,721,533	[2] 470,783	27,471,913
Italy	[2] 24	1,211	76	8,786			[2] 100	9,997
Portugal	([3])	65					([3])	65
Southern British Africa	[2] 497	97,580					[2] 497	97,580
Southern Rhodesia [4]	[2] 13,641	[2] 2,979,827	81	30,395			[2] 13,722	[2] 3,010,222
Spain	([3])	27					([3])	27
Union of South Africa [5]	[2] 22,720	[2] 3,123,731					[2] 22,720	[2] 3,123,731
U. S. S. R.	1,221	156,850					1,221	156,850
United Kingdom	[2] 5	278					[2] 5	278
Venezuela			([3])	27			([3])	27
Total, 1949	[2] 39,272	[2] 6,741,789	[2] 127,504	[2] 14,476,260	342,590	12,721,533	[1] 509,366	33,939,582
1950								
Australia	273	60,882					273	60,882
Bolivia	39	4,894					39	4,894
Canada	830	347,727	177,865	21,108,380	499,663	20,041,799	678,358	41,497,906
Chile	65	21,225					65	21,225
Finland	1	135					1	135
Italy	5	2,227	14	12,184			19	14,411
Portugal	40	3,137					40	3,137
Southern British Africa	1,330	300,083					1,330	300,083
Southern Rhodesia [4]	9,336	2,813,041	556	286,825			9,892	3,099,866
Union of South Africa [5]	14,658	2,164,504	147	12,302			14,805	2,176,806
U. S. S. R.	426	69,180					426	69,180
United Kingdom	1	300	4	1,420			5	1,720
Total, 1950	27,004	5,787,335	178,586	21,421,111	499,663	20,041,799	705,253	47,250,245

[1] Revised figure. Changes in crude asbestos entries and country totals for 1946 in Minerals Yearbook, 1947, p. 147, are as follows: China (39 short tons, $3,000), total (39 short tons, $3,000); Southern Rhodesia (4,214 short tons, $762,820), total (4,438 short tons, $788,051); Union of South Africa (6,324 short tons, $633,312), total (6,324 short tons, $633,312), grand total, crude (13,878 short tons, $1,775,764), grand total, all countries (455,663 short tons, $18,770,817).

[2] Revised figure.

[3] Less than 0.5 ton.

[4] Includes 579 tons ($119,744) of chrysotile crude in 1949 and 207 tons ($44,895) in 1950 credited by U. S. Department of Commerce to Mozambique. Since Mozambique is not an asbestos producer, it is assumed that this actually originated in Southern Rhodesia.

[5] Includes in 1949, 2,930 tons ($113,279) of amosite crude, and in 1950, 1,000 tons ($96,075) of amosite crude and 10 tons ($2,715) of blue (crocidolite) crudes credited by U. S. Department of Commerce to Mozambique. Since Mozambique is not an asbestos producer, it is assumed that this originated in the Union of South Africa.

[4] Figures on imports and exports compiled by M. B. Price and E. D. Page, of the Bureau of Mines, from records of the U. S. Department of Commerce.

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Exports.—Exports of unmanufactured asbestos were exceptionally high in 1949 and 1950. Exports of asbestos products, however, declined somewhat from 1949.

TABLE 5.—Asbestos and asbestos products exported from the United States, 1946–50

[U. S. Department of Commerce]

Year	Unmanufactured asbestos		Asbestos products [1]
	Short tons	Value	Value
1946	11,011	$1,395,367	$8,169,466
1947	[2] 2,036	[2] 308,414	11,135,113
1948	6,530	1,173,259	9,321,351
1949	17,621	3,618,703	9,666,560
1950	18,901	3,619,428	8,111,922

[1] 1946–49 figures revised to exclude value of "Magnesia and manufactures." *See* footnote 1, table 6.
[2] Revised figure.

TABLE 6.—Asbestos and asbestos products exported from the United States, 1949–50, by kinds

[U. S. Department of Commerce]

Product		1949		1950	
		Quantity	Value	Quantity	Value
Unmanufactured asbestos:					
Crude and spinning fibers	short tons	6,591	$1,741,984	6,255	$1,682,403
Nonspinning fibers	do	5,541	1,327,876	11,078	1,803,457
Waste and refuse	do	5,489	548,843	1,568	133,568
Total unmanufactured	do	17,621	3,618,703	18,901	3,619,428
Asbestos products: [1]					
Brake blocks	do	142	275,293	219	397,147
Brake lining:					
Molded and semimolded	do	1,543	2,641,045	1,751	2,686,954
Not molded	linear feet	763,961	479,645	532,358	342,542
Clutch facing	number	934,820	523,756	1,055,685	577,032
Construction materials	short tons	21,362	2,418,172	12,925	1,755,149
Pipe covering and cement	do	4,336	963,599	1,143	205,185
Textiles, yarn, packing, and sheets	do	1,209	1,891,831	1,215	1,814,105
Manufactures, n. e. s.		[2]	473,219	[2]	333,808
Total			9,666,560		8,111,922

[1] The item "Magnesia and manufactures" carried in this table for many years has been omitted because it includes a great variety of products only one of which (pipe covering) contains asbestos. The value of exports of "Magnesia and manufactures" was as follows: 1949—$1,231,457; 1950—$830,674.
[2] Quantity not recorded.

TECHNOLOGY

Further progress was made in developing processes for removing iron **from Canadian** asbestos to make it a suitable substitute for the low-iron **chrysotile** obtained in Southern Rhodesia. The shrinkage in **imports from Southern** Rhodesia was a powerful stimulus for such research. The Johns-Manville Corp. began making low-iron "Quinterra" asbestos paper in a new mill designed for this purpose at Tilton N. H. Raybestos-Manhattan, Inc., continued its research and pilot-plant work on a low-iron asbestos paper, "Novabestos." The Naval

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Research Laboratory in Washington, D. C. also developed a process, employing the centrifugal action of water in a papermaker's "Vortrap," which accomplishes a remarkable reduction in the iron content of Canadian fiber.

Considerable work was done in the Bureau of Mines Electrotechnical Laboratories at Norris, Tenn., on asbestos synthesis, particularly in the field of the amphiboles, but no reports have yet been issued.

The Asbestos Textile Institute has maintained a research fellowship at Rutgers University since 1946. One of its accomplishments has been development of a testing machine for evaluating the resistance of asbestos textiles to abrasion and flexing action.

WORLD REVIEW

Although official statistics are too incomplete to permit an accurate estimate of total production at this time, it appears that for the first time in history world output exceeded a million tons in 1950. Canada produced about two-thirds of this total.

TABLE 7.—World production of asbestos by countries,[1] 1945–50, in metric tons

[Compiled by Helen L. Hunt]

Country [1]	1945	1946	1947	1948	1949	1950
Argentina	153	(2)	(2)	(2)	(2)	(2)
Australia:						
New South Wales	2,674	241	290	330	284	[3] 289
South Australia	7	8	40	41	17	(2)
Tasmania	281					
Western Australia	1,109	380	1,069	977	1,318	[3] 494
Bolivia (exports)	61		141	147	182	(2)
Brazil	2,723	1,214	2,631	1,304	(2)	(2)
Canada (sales) [4]	423,559	506,371	600,391	650,230	521,543	794,095
Chile	313	280	(2)	150	291	(2)
Cyprus	3,182	4,142	6,795	8,106	12,556	(2)
Egypt	85	65	1,015	1,625	117	260
Finland [5]	4,197	5,781	6,351	10,818	8,395	(2)
France	400	575	934	104	1,059	(2)
French Indochina					(2)	(2)
French Morocco	480	446	825	399	402	511
India	833	312	123	28	148	(2)
Italy	5,222	8,814	10,719	13,044	15,365	21,433
Japan	8,044	3,997	4,249	4,809	5,456	4,948
Kenya	339	165	582	510	716	(2)
Korea:						
Northern	1,303	(2)	(2)	(2)	(2)	(2)
Southern						(2)
Madagascar	1	1	(6)	(6)	2	(2)
New Zealand	2					(2)
Portugal	20	12	91	414	101	271
Southern Rhodesia	51,068	50,686	49,073	62,502	72,246	64,888
Spain				35	40	(2)
Swaziland	21,243	29,155	25,360	29,421	30,814	29,635
Switzerland	35	40				(2)
Turkey	138	55	36	203	170	(2)
Union of South Africa	25,597	18,348	27,344	41,490	64,334	79,298
United States (sold or used by producers)	11,091	12,769	21,804	33,649	39,360	38,495
Venezuela	(2)	65	240	192	192	(2)
Total (estimate)	632,000	724,000	872,000	995,000	895,000	1,206,000

[1] In addition to countries listed asbestos is produced in Algeria, Bulgaria, China, Czechoslovakia, Uganda, and U. S. S. R. Estimates by authors of the chapter are included in total.
[2] Data not available; estimate by authors of the chapter included in total.
[3] January to June, inclusive.
[4] Exclusive of sand, gravel, and stone (waste rock only), production of which is reported as follows: 1945, 4,635 tons; 1946, 5,749 tons; 1947, 8,718 tons; 1948, 40,066 tons; 1949, 32,015 tons; 1950 data not available.
[5] Includes asbestos flour.
[6] Less than 1 ton.

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CANADA

Canadian asbestos production in 1950 recovered remarkably from the low output of 1949, caused by a prolonged strike. Shipments of 875,344 short tons, valued at $65,854,568, compared with 574,906 tons, valued at $39,746,072, in 1949 were a gain of 52 percent in quantity and 66 percent in value. Further expansion was foreseen for 1951 and 1952. The Asbestos Corp. almost doubled its mill capacity at the British Canadian mine by building a new rock mill and reconditioning an old one.[5] Johnson's Co. was building a new mill at Black Lake with a daily capacity of 4,000 tons of rock, but this was not expected to be in operation before the end of 1951. Canadian Johns-Manville Corp. made satisfactory progress in its extensive block-caving development and expected to have substantial production from three blocks during 1951. United Asbestos Corp., Ltd., has extensive properties near and under Black Lake, and a shaft has been sunk. According to report, drilling results were quite encouraging, but production was still in the indefinite future.

In 1950, for the first time, a substantial output of asbestos was indicated for areas outside of Quebec. The completed mill of the Canadian Johns-Manville Corp. in Munro Township, Cochrane District, Ontario, began operation in April. A detailed description of the deposit, and also of the mine and mill, was published.[6] Teegana Mines, Ltd., made some progress in development work and erection of a mill on a property near South Porcupine in Deloro Township, Ontario. This property had produced a small tonnage of chrysotile asbestos many years earlier.[7]

Diamond drilling established the presence of a deposit of good-quality chrysotile in northern British Columbia. Conwest-Exploration Co., Ltd., Toronto, Canada, planned extensive development work during 1951.[8] These deposits have been described in some detail.[9]

TABLE 8.—Sales of asbestos in Canada, 1949–50, by grades

[Quebec Department of Mines]

	1949			1950		
	Short tons	Value		Short tons	Value	
		Total	Average per ton		Total	Average per ton
Grade:						
Crudes	652	$420,188	$644.46	904	$587,569	$649.97
Fibers	194,583	24,463,703	125.72	305,194	41,002,785	134.35
Shorts	379,671	14,862,181	39.14	569,246	24,264,214	42.63
Total	574,906	39,746,072	69.13	875,344	65,854,568	75.23
Rock mined	8,218,045			12,210,780		
Rock milled	5,671,085			8,635,036		

[5] Asbury, W. Nowers, Industrial Mineral Notes: Canadian Min. and Met. Bull., vol. 43, No. 455, March 1950, p. 131.
[6] Northern Miner, New Asbestos Mine in Production: Vol. 36, No. 11, June 8, 1950, pp. 1–4.
[7] Northern Miner, Asbestos Producer for Porcupine: Vol. 36, No. 25, Sept. 14, 1950, pp. 17–19
[8] Communication from M. F. Goudge, Ottawa, Can.
[9] Asbestos, Asbestos in British Columbia: Vol. 32, No. 5, November 1950, pp. 16–20.

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AFRICA

Southern Rhodesia.—As indicated in table 9 asbestos production in Southern Rhodesia in 1950 declined considerably below the level of 1949 but was higher than in 1948. Increased prices are reflected in the substantial gain in value of sales in 1950. The bulk of the production is obtained from four mines in the Shabani area—the Nil Desperandum, Birthday, 170, and 177. A smaller output is obtained from the King and Gath mines in the Mashaba district and the Croft mine in the Filabusi district. Nearly all of the production is in the hands of the Rhodesian and General Asbestos Corp., a subsidiary of Turner & Newall, Ltd., of Manchester, England. The strong demand for low-iron chrysotile stimulated increasing activity in exploration and development of other asbestos deposits in Southern Rhodesia.

TABLE 9.—Asbestos produced in Southern Rhodesia, 1945–50

Year	Short tons	Value	Year	Short tons	Value
1945	56, 293	£1, 788, 386	1948	68, 897	£2, 604, 623
1946	55, 872	1, 676, 503	1949	79, 638	3, 986, 703
1947	54, 094	1, 738, 484	1950	71, 527	4, 615, 490

Union of South Africa.—Asbestos production in the Union, as indicated in table 11, made remarkable gains in 1949 and 1950. The amosite expansion program is reflected in an increase of about 40 percent in output in both 1949 and 1950 compared with 1948. The chrysotile output was nearly twice as great in 1950 as in 1949. This increase probably was due to growing activity in the new mine and mill of Kinlock Asbestos, Ltd., about 25 miles from Barberton. The output of crocidolite (blue asbestos) gained 44 percent in 1950 over 1949. Milling methods for amosite and blue asbestos were described.[10]

Swaziland.—The Havelock mine in Swaziland close to the Transvaal border has become a substantial producer of chrysotile. Output in 1950 was slightly lower than in 1949.

Madagascar.—An unusual type of peach-colored asbestos occurs in Madagascar. It has been identified by three independent laboratories

TABLE 10.—Asbestos produced in and exported from the Union of South Africa, 1946–50 [1]

	Production (short tons)			Exports	
	Transvaal	Cape Province	Total	Short tons	Value
1946	12, 636	7, 589	20, 225	21, 481	£557, 008
1947	21, 959	8, 183	30, 142	33, 237	927, 371
1948	37, 434	8, 301	45, 735	38, 550	1, 138, 792
1949	58, 918	11, 999	70. 917	63, 428	2, 600, 323
1950	71, 881	15, 211	[2] 87, 412	[3] 50, 272	[3] 2, 456, 396

[1] Data from Union of South Africa, Department of Mines, quarterly and monthly reports.
[2] Includes 320 tons produced in Natal.
[3] January to September, inclusive.

[10] Mining and Industrial Magazine, Milling South African Amosite and Blue Asbestos Fibers: Vol. 50, No. 3, March 1950, pp. 147–149.

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TABLE 11.—Asbestos produced in the Union of South Africa, 1945–50, by varieties and sources, in short tons [1]

Variety and source	1945	1946	1947	1948	1949	1950
Amosite (Transvaal)	16,737	9,838	18,780	30,372	41,974	42,391
Chrysotile (Transvaal)	1,765	1,666	2,253	4,441	7,609	14,015
Chrysotile (Natal)						320
Blue (Transvaal)	1,471	1,102	896	2,608	9,181	15,386
Blue (Cape)	8,200	7,589	8,183	8,301	11,999	15,211
Anthophyllite (Transvaal)	43	30	30	13	154	89
Total	28,216	20,225	30,142	45,735	70,917	87,412

[1] Data from Union of South Africa, Department of Mines, quarterly and monthly reports.

as anthophyllite; but, unlike most anthophyllites the fibers are as strong and flexible as those of chrysotile. The location and extent of the deposit have not yet been determined.

OTHER COUNTRIES

Corsica.—It is reported that the Canari mine produced 1,050 tons of asbestos during the first quarter of 1950.[11]

Cyprus.—Conditions in the Cyprus mines, which produce substantial quantities of short-fiber chrysotile, were described briefly.[12] Production figures for 1950 are not yet available, but the industry made large gains in 1949 when eight mills were in operation. According to a report, the fiber recovered is about 1 percent of the total rock quarried and about 3 percent of the mill rock.[13]

Italy.—Italian output of asbestos has expanded greatly during recent years. About 90 percent of production is from the Turin and Dondrio mines.[14]

Japan.—Both amphibole and chrysotile asbestos occur in Japan, but production is confined to short-fiber chrysotile. It was reported that asbestos mining there is unprofitable.[15] Mining activities are supported by the profits of asbestos-products plants.

[11] **Mining World**, vol. 12, No. 9, August 1950, p. 55.
[12] **Asbestos**, Cyprus Asbestos Mines Ltd.: Vol. 31, No. 12, June 1950, p. 10.
[13] **The Mining Journal**, Cyprus Mineral Output Booms in 1949: Vol. 234, No. 5986, May 1950, p. 480.
[14] **Mining World**, vol. 12, No. 1, January 1950, p. 50.
[15] **Lee, Donald E.**, A Further Report on Japan: Asbestos, vol. 31, No. 8, February 1950, pp. 10–14.

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