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Published by Authority of Hon. H. H. Stevens, M.P.,
Minister of Trade and Commerce.

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DOMINION BUREAU OF STATISTICS - CANADA
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ASBESTOS, 1933.

Finally revised statistics relating to Canadian asbestos production during 1933, as issued by the Mining, Metallurgical and Chemical Branch of the Dominion Bureau of Statistics at Ottawa, reveal a most gratifying improvement in the industry as compared with conditions existing during the previous year. Shipments at 158,367 tons represent an increase of 28.8 per cent over the output for 1932. The value of the 1933 production totalled \$5,211,177 as against \$3,039,721 in 1932 or an increase of 71.4 per cent. The average price for the year was \$32.90 per ton as compared with \$24.72 in 1932 and \$29.29 in 1931. Rock mined in 1933 amounted to 1,566,919 tons or an increase of 36.8 per cent over the tonnage of the preceding year. The first three months of 1933 were very unsatisfactory from an industrial viewpoint. Prices were low and adverse market conditions existed. An upward trend commenced in April with the last quarter of the year showing shipments of 57,313 tons as compared with 16,887 tons made during the first three months. It will be noted, in comparing the table of production for 1933 with those in previous reports, that the grades as recorded for publication have been reduced from eight to three; this change will in no way affect the value of totals for comparative purposes.

Production of Canadian asbestos during 1933 came entirely from the Eastern Townships in the province of Quebec. The following brief excerpts, from a paper by J. G. Ross and staff of one of the larger operating companies, are included as being of possible interest to those readers not already familiar with the occurrence and mining of asbestos in Canada.

"The producing mines of the area (Thetford-Black Lake) from the Vimy Ridge mine at the southwest to the King mine on the northeast, cover a distance of about seven miles. The productive areas lie within the boundaries of a large mass of serpentinized peridotite which widens out to nearly eight miles at its greatest width. They are roughly aligned, however, within a quarter of a mile to a mile from the northwest contact. Asbestos does not occur closer to the contact and farther within the mass, but in commercial quantities, generally along this line only The asbestos occurs as small veins or as a fibrous development on slip-page planes. Veins range from microscopic widths to four inches and more in thickness, and may have the form of gash veins or be continuous for a hundred feet. They strike and dip at all angles and degrees and may be closely or widely spaced.... when the fibres of asbestos are roughly normal to the wall of the vein this is called a cross-fibre vein; if in approximately the plane of the vein, it is called slip fibre. Both types of fibre are of the mineral chrysotile - the cross-fibre type is much higher in quality and in commercial value than the slip-fibre."

The other major asbestos producing area in Quebec is located in Shipton township, Richmond county, the mining operations being approximately 40 miles southwest from the Thetford district. The mineral also occurs here in a serpentine formation.

Both surface and underground methods are utilized in the mining of Quebec asbestos and the milling practices employed in the recovery of the various high grade fibres are considered among the most efficient employed anywhere in the world.

Notes on Asbestos Research being done at the National Research Laboratories, Ottawa.

1. Active Silica and Magnesium Salts from Serpentine Rock - Patents have been obtained for a process of manufacturing active silica and salts of magnesium from serpentine rock obtained as waste or tailings from the milling of asbestos-bearing serpentine rock. The active silica has valuable adsorptive properties which make it useful industrially and of the salts of magnesium which are obtained by this process the more important are magnesium sulphate or epsom salts and magnesium chloride.
2. Asbestos Cements - A comprehensive study of asbestos cements has been undertaken and considerable data concerning the properties of the various grades being used, has already been obtained.

In this connection the physical composition of milled asbestos, as revealed by mineralogical and microscopic examination, is also being studied. Information obtained in this way may throw further light on the relation between method of treatment and quality of fibre.

3. Magnetic Iron in Asbestos - The mode of occurrence and amount of magnetic iron in asbestos is being studied with the view of eliminating this impurity.
4. Moulded Composition from Asbestos - Patents have been obtained on a new method of moulding asbestos products whereby a wide range of physical properties can be obtained.

The specifications for a Standard Testing Machine as developed by the National Research Council and which had been approved last year by the Associate Committee on Asbestos Research, have now been accepted by the asbestos producers; these producers have agreed to bring all their old testing machines up to these specifications by July, 1934. Specifications for standard testing screens as recommended by the National Research Council have also been accepted by the producers.

The National Research Laboratories are making a study with the object of preparing special short grade fibres to be used as fillers for synthetic resins.

SALES AND SHIPMENTS OF CANADIAN ASBESTOS, 1932 - 1933.

	<u>1 9 3 2</u>				<u>1 9 3 3</u>			
	Tons		\$		Tons		\$	
Crudes	471		119,221		1,306		341,734	
Fibres	45,323		1,885,841		82,605		3,843,887	
Shorts	77,183		1,034,659		74,456		1,025,556	
TOTAL	122,977		3,039,721		158,367		5,211,177	
Sand, gravel and stone (waste rock only(x))	3,473		3,369		6,445		3,215	

(x) This production is included under the sand and gravel industry.

	<u>1 9 3 2</u>				<u>1 9 3 3</u>			
	Tons				Tons			
Quantity of rock mined	1,145,340				1,566,919			
Quantity of rock milled	1,029,709				1,329,814			
Quantity of tailings retreated	709,094				521,930			

PRODUCTION OF ASBESTOS IN CANADA, 1924-1933.

Year	Tons	\$	Year	Tons	\$
1924	225,744	6,710,830	1929	306,055	13,172,581
1925	273,524	8,977,546	1930	242,114	8,390,163
1926	279,403	10,099,423	1931	164,296	4,812,886
1927	274,778	10,621,013	1932	122,977	3,039,721
1928	273,033	11,238,360	1933	158,367	5,211,177

IMPORTS INTO CANADA AND EXPORTS OF ASBESTOS, 1932 and 1933.

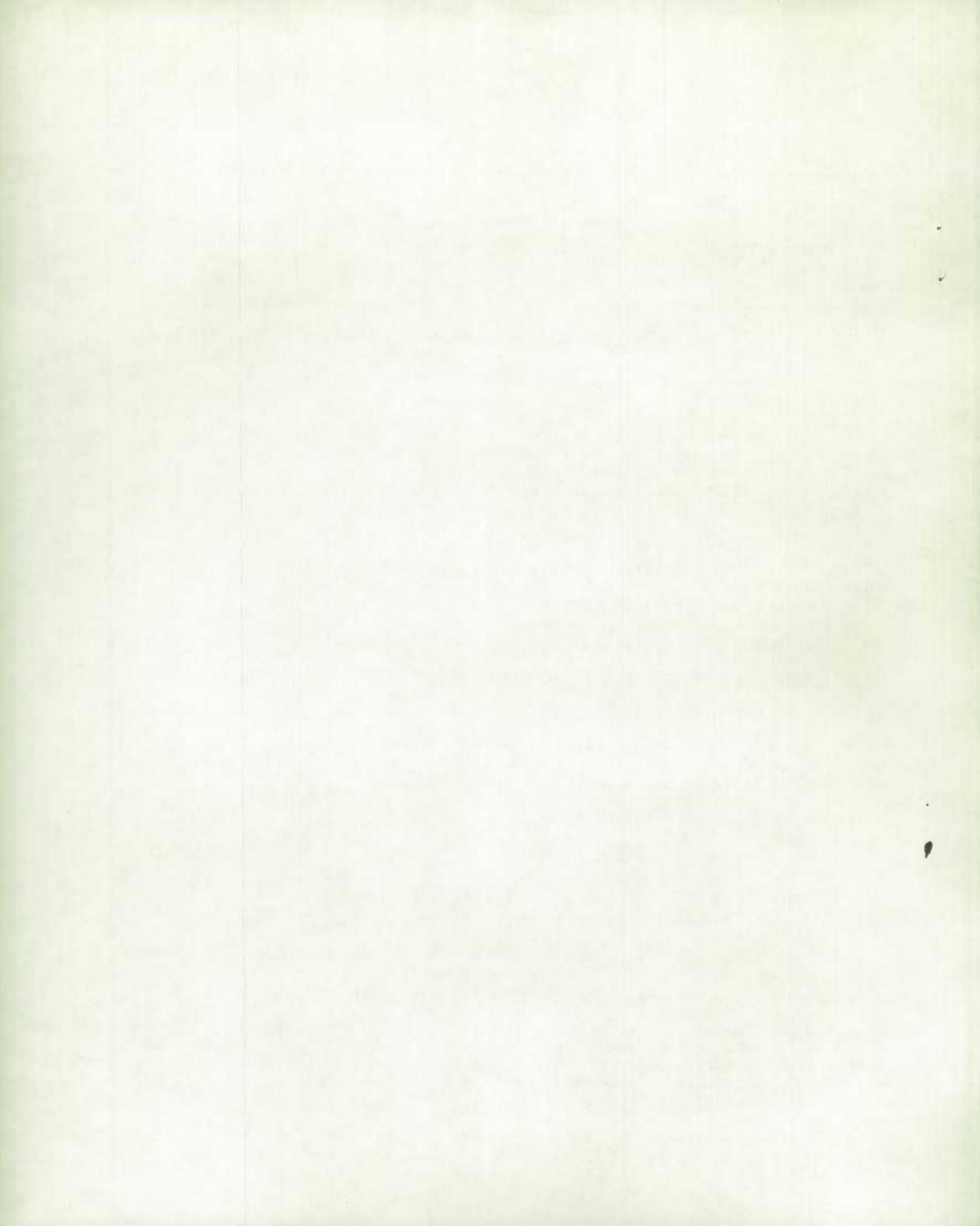
	1	9	3	2		1	9	3	3	
	Quantity				\$	Quantity				\$
<u>IMPORTS --</u>										
Asbestos brake and clutch lining .....	...			194,745		...			165,994	
Asbestos packing	ton	55		52,733		79			54,148	
Asbestos in any form other than crude, and all manufactures of, n.o.p. ....	...			226,619		...			233,966	
TOTAL IMPORTS .....	...			474,097		...			454,108	
<u>EXPORTS --</u>										
Asbestos	ton	42,661		2,115,140		78,701			3,998,377	
Asbestos sand and waste	ton	69,769		986,095		70,296			991,417	
Asbestos manufactures, including asbestos roofing .....	...			75,517		...			73,044	
TOTAL EXPORTS .....	...			3,176,752		...			5,062,838	

PRINCIPAL STATISTICS OF THE ASBESTOS MINING INDUSTRY IN CANADA, 1932 and 1933.

	1	9	3	2		1	9	3	3
Number of firms				7					7
Capital employed				\$ 30,081,362					\$ 31,173,325
Number of employees - On salaries				136					140
On wages				1,273					1,489
Total				1,409					1,629
Salaries and wages - Salaries				\$ 279,950					\$ 261,684
Wages				\$ 876,365					\$ 1,017,409
Total				\$ 1,156,315					\$ 1,279,093
Cost of fuel and electricity				\$ 827,303					\$ 771,327
Selling value of products				\$ 3,043,090					\$ 5,214,392

FUEL AND ELECTRICITY USED IN THE ASBESTOS MINING INDUSTRY IN CANADA, 1932 and 1933.

	1	9	3	2		1	9	3	3
	Quantity				Value	Quantity			
					\$				
Bituminous coal - Canadian .. short ton	19,763				125,443	14,825			99,348
Foreign ... short ton	1,709				12,915	110			945
Anthracite coal	short ton	5,086			35,179	6,159			41,443
Coke	short ton	630			7,500	126			1,502
Gasoline (exclusive of vehicles) Imp.gal.	17,500				2,877	18,289			3,201
Kerosene	Imp. gal.	2,701			525	3,195			490
Fuel oil	Imp. gal.	78,719			5,651	6,402			732
Electricity purchased	K.W.H.	44,519,259			637,213	53,024,036			623,661
TOTAL	xxx	...			827,303	...			771,327



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DIRECTORY OF FIRMS IN CANADIAN ASBESTOS MINING INDUSTRY, 1933.

<u>Name of Company</u>	<u>Head Office Address</u>	<u>Location of Plant</u>
Asbestos Corporation Ltd.	Canada Cement Bldg., Montreal, P.Q.	Thetford Mines, P.Q. East Broughton, P.Q. Black Lake, P.Q. Coleraine, P.Q. Asbestos, P.Q.
Canadian Johns-Manville Co. Ltd.	Montreal, P.Q.	Thetford Mines, P.Q. Black Lake, P.Q.
Johnson's Company	Thetford Mines West, P.Q.	Thetford Mines, P.Q. Black Lake, P.Q.
Keasbey & Mattison Co.	Ambler, Pa., U.S.A.	Thetford Mines, P.Q.
Nicolet Asbestos Mines Ltd.	c-o Greenshields & Greenshields, Transportation Bldg., Montreal, P.Q.	Tingwick Tp., P.Q. Wolfe Co., P.Q.
Northern Asbestos Co. Ltd.	Thetford Mines, P.Q.	Thetford Mines, P.Q.
Quebec Asbestos Corp. Ltd.	East Broughton Station, P.Q.	East Broughton, P.Q.

GENERAL REVIEW

An article by Walter A. Rukeyser in the Engineering and Mining Journal contains the following interesting particulars relating to chrysotile asbestos in the U.S.S.R.

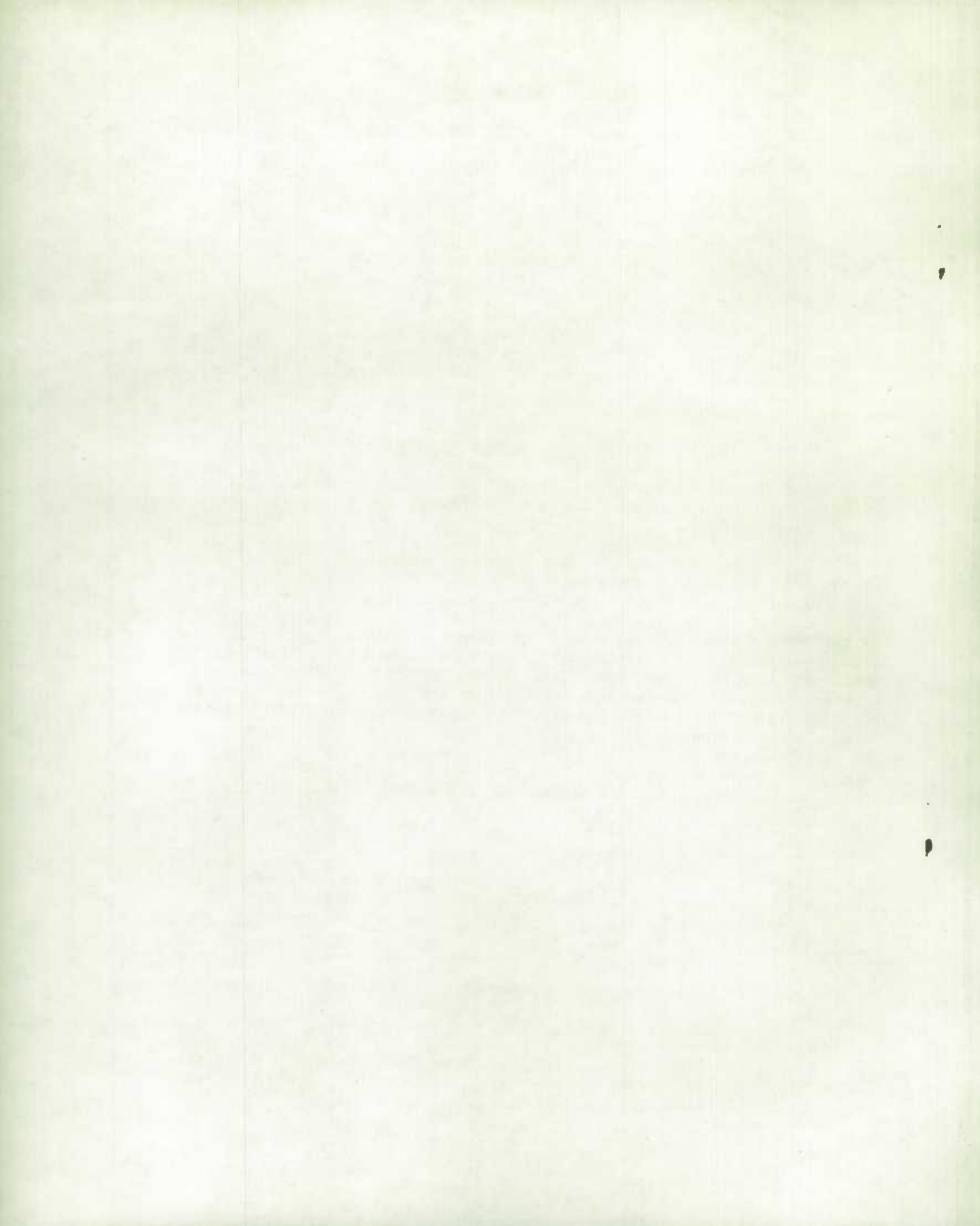
"The Bajenova deposits are by far the most important of the Soviet Union. They have in the past produced the major part of the entire Russian output and today they are the source of the entire asbestos production of the Soviets ... Bajenova is 56 km. east of Sverdlovsk (formerly Etaterinburg) on the Trans-Siberian railroad ... My belief is that as increased depth is being and will be attained, the Russian asbestos from the Bajenova district will hardly, if at all, be distinguishable in physical characteristics from the average derived from the Thetford-Black Lake area Before my final departure from the district early in 1931, decision was made that subsequent plants would more or less follow strictly conventional (Canadian) technique adapted to Russian conditions.

Planned Development of Russian Asbestos Industry, 1932 - 1938.
(Production in 1000 metric tons)

	1932	1933	1934	1935	1936	1937	1938
Bashenov District	121.5	255.5	325	360	425	505	562
Krasnouralsk District (west of Bashenov)	16.5	23.5	28	38	38	38	38
GRAND TOTAL	138	279	353	398	463	543	600

Soviet Russian exports of Asbestos from 1931 to 1933 were as follows:

	<u>Metric tons</u>	<u>Value (Rubles)</u>
1931	13,239	2,485,000
1932	16,551	2,381,000
1933	21,458	2,651,000



Monthly Production of Asbestos in Rhodesia, 1932 and 1933.

Month	1 9 3 2	1 9 3 3
	Tons	Tons
January	754.83	2,674.65
February	873.07	1,872.30
March	1,000.23	2,256.03
April	1,740.27	3,664.30
May	1,118.43	3,699.77
June	1,855.64	2,703.25
July	822.15	3,652.93
August	1,044.07	2,519.72
September	1,195.18	2,624.42
October	898.41	1,684.16
November	2,519.37	1,104.84
December	1,944.36	1,725.23
TOTAL	15,766.01	30,181.60

Asbestos Production -- Union of South Africa - 1932 and 1933.

(From "Asbestos")

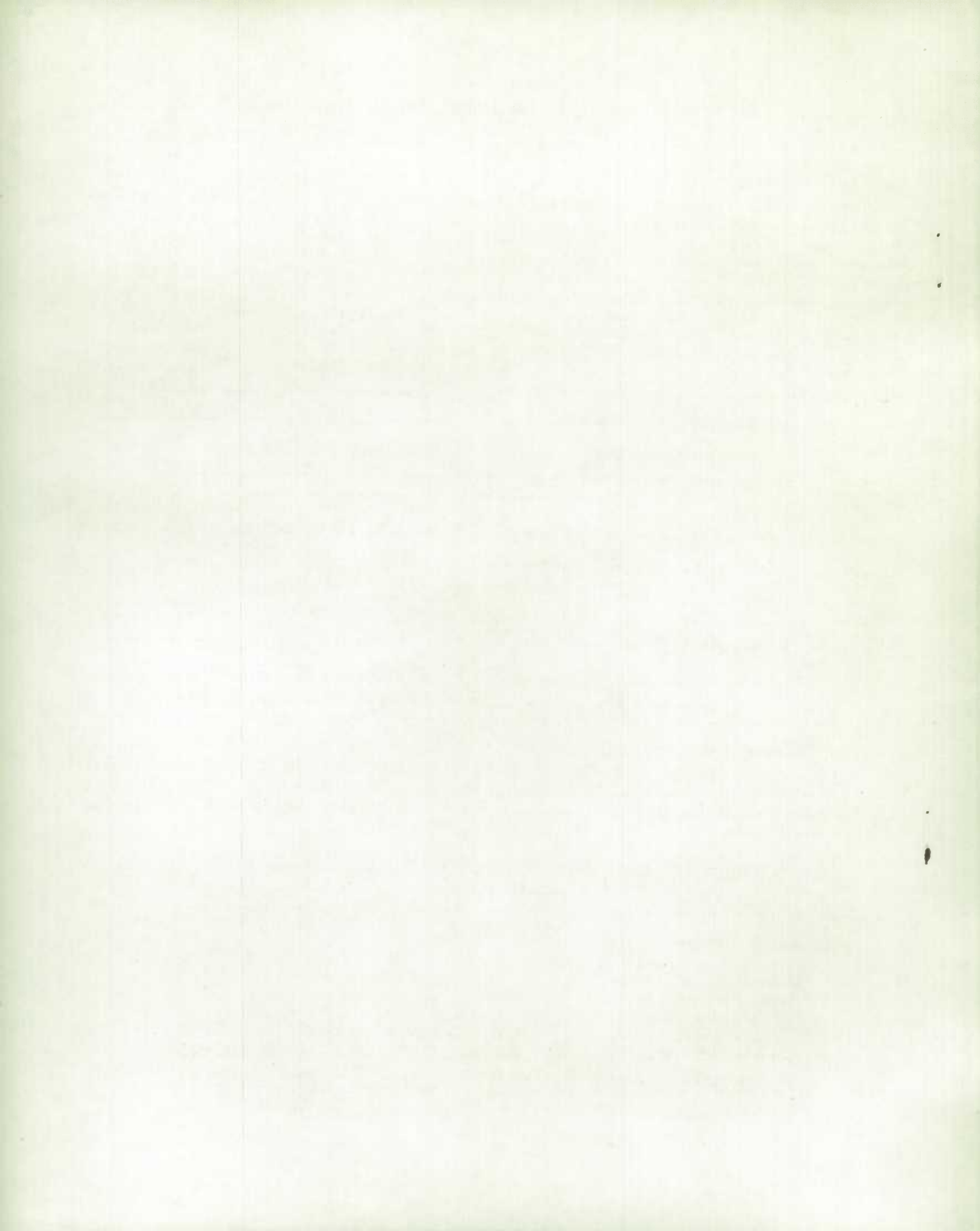
	1 9 3 2	1 9 3 3
	Ton	Ton
	(2,000 lb.)	(2,000 lb.)
	Value	Value
	£	£
Transvaal - Amosite	1,391.45	3,089.75
Chrysotile	7,715.00	9,572.20
Cape .. Blue	2,964.22	3,224.66
TOTAL	12,070.67	15,886.61

Imports of Asbestos and Manufactures Thereof into Japan, 1931 - 1933.

	1 9 3 1	1 9 3 2	1 9 3 3
	Kin	Kin	Kin
	Yen	Yen	Yen
In lump, powder			
or fibre	12,069,100	12,704,400	22,939,700
Other	1,289,400	726,100	722,200
TOTAL	13,358,500	13,430,500	23,661,900
1 kin = 1.3228 lb.			

Imports and Consumption of Asbestos -- United Kingdom, 1931 - 1933.

	1 9 3 1	1 9 3 2	1 9 3 3
	Ton	Ton	Ton
	(2,240 lb.)	(2,240 lb.)	(2,240 lb.)
Asbestos, raw and fibre			
and waste (including asbestic) -			
From - Union of South Africa and			
South West Africa			
Territory	5,581	5,612	7,384
Rhodesia	8,061	7,183	7,257
Other countries	7,400	5,311	10,274
TOTAL	21,042	18,106	24,915



A recent bulletin of the United States Department of Mines reports that in 1933 commercial production, imports and apparent consumption of asbestos in the United States showed gains compared with 1932. The total quantity of asbestos produced in the United States in 1933 was 4,745 short tons valued at \$130,677 compared with 3,559 tons valued at \$105,292 in 1932. It was practically all chrysotile from Arizona and Vermont. Amphibole was mined in Maryland, Montana and Washington.

The following table (General Imports) shows the tonnage and value of unmanufactured asbestos imported into the United States in 1932 and 1933, by countries. The countries listed are those from which the asbestos was last shipped; they are not always the countries in which the asbestos was produced.

Asbestos (unmanufactured) imported into the United States in 1933, by countries and classes (x)

(General imports)								
Country	Crude (including blue fiber)		Mill fiber		Stucco and refuse		T O T A L	
	Short tons	Value \$	Short tons	Value \$	Short tons	Value \$	Short tons	Value \$
Africa:								
British:								
Union of								
So. Africa..	233	20,173	...	...	...	...	233	20,173
Other	2,091	214,384	...	...	...	...	2,091	214,384
Canada	804	167,795	48,112	2,170,151	63,999	854,647	112,915	3,192,593
Germany	6	669	...	...	36	1,064	42	1,733
Italy	17	8,929	...	...	939	7,764	956	16,693
Malta, Gozo,								
Cyprus .....	...	...	...	...	2,274	37,395	2,274	37,395
Soviet Russia								
in Europe ..	...	...	176	17,339	795	39,439	971	56,778
United Kingdom	1	587	...	...	11	339	12	926
	3,152	412,537	48,288	2,187,490	68,054	940,648	119,494	3,540,675

(x) Figures on imports and exports compiled by C. Galihier, of the Bureau of Mines, Washington, D.C., from records of the United States Bureau of Foreign and Domestic Commerce.

Exports of unmanufactured asbestos from the United States in 1933 were 1,378 short tons valued at \$88,521, compared with 1,707 short tons valued at \$94,936 in 1932.

New structural uses for asbestos are described in the "Electrical World" as follows:

"Costing about the same as concrete for its first installation ... the use of asbestos lumber for bus and switch structures is expected by the company to reduce materially the cost of such structures in succeeding stations. The reduction will be because of the elimination of form work all walls, barriers, horizontal slabs and other parts of the structure are made of asbestos lumber."

"Chemical Age", London, states that the use of asbestos cloth for electrolytic diaphragms is one which is growing very rapidly. In the production of synthetic ammonia, in those locations where cheap electric power is available, the hydrogen is obtained by the electrolysis of water and in these cells asbestos cloth is used as diaphragms to separate the gases. White asbestos cloth is generally used for this purpose and here again the weave of the cloth is of enormous importance; generally speaking a "light tight" cloth must be used. In some types of chlorine-alkali cell an asbestos cloth diaphragm is also used, and in this case blue asbestos cloth has been found to give better results than white asbestos.

Recent press dispatches report that Turner & Newall, Ltd., one of the leading firms in the British asbestos industry, has announced the extension of its interest to the United States through the purchase of a controlling interest in the Keesbey & Mattison Company and the Ambler Shingle & Sheathing Co., both of Ambler, Pa.

The Mining Journal, London, states: "The market for asbestos in 1933 showed a slowly improving tendency for the better qualities of material under the influence of regulated production in British Africa and better organized marketing. The available supplies of asbestos are still large, but the increased demand experienced in the latter months of 1933 helped towards reducing those to normal proportions..... the prices of asbestos scarcely improved in 1933 and are still considerably below those of a few years ago. On the other hand, prices for most grades have been rather stable for the past two years the higher grades of asbestos marketed (United Kingdom) come chiefly from British South Africa and Russia.....The current production in Russia is around 60,000 tons annually but the official programme of future production is for several times that quantity, which suggests that Russian competition in the asbestos market is likely to be strongly felt in the future. An unofficial estimate of the Russian 1933 production is 72,000 tons."

"Iron Age" describes a new asbestos product that is claimed to possess an unusual combination of advantageous chemical and physical properties. It is made by combining a specially selected asbestos base with a phenol-formaldehyde type of resin. The high acid-resisting properties of this resin, combined with the acid resistance of the asbestos provide a material which, it is claimed, is completely acid resistant throughout.

It is reported that a British manufactured asbestos reinforced aluminium foil provides an efficient low priced insulating material which is at once light in weight, convenient to handle and apply, and infinitely durable in performance. It is claimed to be resistant to wind and air infiltration, to water and to dampness and provides insulation more effective than that given by one inch slab cork and the saving in weight, cost, labour and construction is very appreciable.

"Asbestos", Philadelphia, contains the statement that "asbestos mixed with an adhesive liquid has been invented for the spraying of fruit trees when in bud, to protect from frost. It is said this coating will last several months."

An interesting use of asbestos as a filtering medium in the production of South African grape juice is described in "Chemical Age" as follows.... "The asbestos filtering material is alluviated on to fine wire gauzes, and, in spite of the sharp filtration, an extraordinary output is achieved ... The grape juice, after decarbonation, is filtered through asbestos filtering films, which are so finely constructed that yeasts and bacteria are completely removed from the liquid."

WORLD PRODUCTION OF ASBESTOS, 1930 - 1932.

(Taken from the Imperial Institute's publication "The Mineral Industry of the British Empire and Foreign Countries" 1930-1932.
(long tons)

Producing Country	1930	1931	1932
<u>BRITISH EMPIRE</u>			
Southern Rhodesia	33,720	21,466	14,077
Swaziland .....	...	...	4
Union of South Africa (b)	23,083	11,480	7,844
Canada -			
Chrysotile	251,019	141,470	112,902(c)
Crude	3,545	2,202	421
Spinning fibre	12,886	10,115	5,361
Shingle fibre	20,170	9,782	5,915
Paper fibre		(33,260	29,191
Waste, stucco or plaster	178,053	(5,650	3,557
Refuse or shorts		(74,024	65,356
Sand and gravel	36,365	6,437	3,101
Actinolite	30	31	...
Cyprus	7,256	1,138	1,520
India	33	6	90
Australia	82	128	130
TOTAL	315,000	176,000	136,000
<u>FOREIGN COUNTRIES</u>			
Finland (Amphibole)	1,061	572	(a)
France	495	500	(a)
Greece	2	10	(a)
Italy	710	571	(a)
U.S.S.R. (Russia)	53,228	63,653	(a)
Mozambique	16	(a)	(a)
United States (sales) -			
Amphibole	526	331)	
Chrysotile	3,262	2,551)	3,178
China	310	260	(a)
Japan (estimated)	1,000	1,000	1,000
Turkey .....	...	4	...
TOTAL	61,000	69,000	(a)
WORLD'S TOTAL	376,000	245,000	(a)

(a) Information not available.

(b) Production is not available by kinds, but sales were as follows:-

	1930	1931	1932
Amosite	2,930 long tons	1,863 long tons	1,242 long tons
Blue	4,894 " "	3,259 " "	2,647 " "
Chrysotile	9,392 " "	8,873 " "	6,888 " "

(c) Sales and shipments.

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