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Great Britain.

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IMPERIAL MINERAL RESOURCES
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THE MINERAL INDUSTRY OF
THE BRITISH EMPIRE

AND

FOREIGN COUNTRIES.

WAR PERIOD.

TALC.

(1913-1919.)



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PREFACE.

The following digest of statistical and technical information relative to the production, consumption and value of Talc will form a part of the volume or volumes on the Mineral Resources of the British Empire and Foreign Countries constituting the Annual Mineral Conspectus of the Bureau.

In this, the first year of publication, an effort has been made to fill in as far as possible, the hiatus due to the war in the publications relating to mining and metallurgical statistics. Labour, health and safety statistics have been omitted owing to the difficulty involved in procuring reliable information for the war period, but in future issues these statistics will be included in respect of each year. Resort will also be had to graphical representation of statistics of production, consumption, costs, and prices.

The weights are expressed in long tons, that is to say, the British statute ton of 2,240 lb., and values in pounds, shillings and pence at par rates of exchange.

Dr. F. H. Hatch, a Governor of the Imperial Mineral Resources Bureau, is Chairman of the Advisory Technical Committee which has revised this work.

R. A. S. REDMAYNE,
Chairman of the Governors.

2, Queen Anne's Gate Buildings,
London, S.W.1.

July, 1921.

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GENERAL.

Talc is a hydrated silicate of magnesium. It has a specific gravity about 2.7, is very soft, and has a characteristic soapy feel. Ordinary talc is foliated, but the laminæ, though flexible, are not elastic. In colour it varies from white, grey-green, apple-green, to dark green. It is not acted upon by ordinary acids and is a bad conductor of heat and electricity. When heated it loses a small amount of water, hardens, and can then be polished.

The compact, fine-grained variety of talc is known as steatite or soapstone. It is usually grey in colour and has a crystalline structure. A comparatively impure variety is known as pot-stone.

Much of the talc or steatite of commerce is the mineral pyrophyllite, a hydrated silicate of aluminium; it is somewhat harder than talc, but otherwise closely similar in its physical characters.

The name agalmatolite is applied loosely to both steatite and pyrophyllite.

Talc is subjected to careful sorting at the mine. Pieces which by their texture and colour are suitable for cutting, are set aside for subsequent sawing into slabs from which are manufactured lava-tip gas burners, and tailors' crayons and pencils. A large amount is used in the form of sticks and pencils for marking purposes in iron and steel works. The residue is usually sorted and graded according to the colour of the material, but some mines prefer to sort to one uniform standard, discarding all varieties of colour other than that selected.

Dressing operations consist of crushing, grinding and grading. Simple screening is the method generally adopted for grading. Latterly considerable attention has been given to pneumatic separation, and many separators have been devised to work by this method.

Probably 90 per cent. of the talc mined is ground to flour and used in the manufacture of paper, moulded rubber goods, and foundry facings. Only the highest grades of white talc can be used for toilet preparations such as talcum powder. Very high-grade talc powder is used in medicine. Other important uses for ground talc of good grade are in the manufacture of French chalk and soap, and for lubricating purposes. It is also used as a filler in the manufacture of certain classes of linen and cotton fabrics. Talc has a considerable power of absorption and this property is utilized in bleaching cotton goods and for

cleaning silk and other cloths. Much powdered talc is used in the manufacture of waterproof paints, and the fibrous variety is used by manufacturers of gypsum wall plasters. Low-grade ground talc finds a limited application as a polish for glass and leather.

Commercial ground talc must be free from impurity. The objectionable minerals are quartz, unaltered amphibole, pyroxene, iron ore, iron pyrites, calcite and dolomite.

The use of talc, particularly the fibrous variety, as a filler in the manufacture of paper of nearly every grade is rapidly extending. Paper made from any of the ordinary materials, whether rags, waste cotton, wood pulp, or chemically prepared woods and straws, requires sizing before it can be used for writing or printing. The materials generally used for sizing are starch, resin or glue. Such sized paper is, however, transparent, and it is customary to render the paper opaque by filling with China clay or other materials. Talc is now largely used in the manufacture of all kinds of opaque paper, especially in the United States.

Soapstone, on account of its resistance to acids, is largely used for the manufacture of laboratory sinks, table tops, and tanks. Owing to its refractoriness it is used for lining stoves and furnaces. For use in this way the stone should be well seasoned, or mined from dry seams, and should be free from impurities, such as pyrites. As a bad conductor of electricity, steatite is used extensively for panelling switchboards, for flooring, and in electric plants.

WORLD'S PRODUCTION.

The United States is the leading producer and consumer of talc and soapstone. Before the war France stood second in the list of producing countries and Italy third. The larger part of the French and Italian output was a high-grade product, suitable for toilet preparations, gas-tips, &c., and there does not seem to have been any great demand for lower-grade material. The uses to which lower-grade talc and soapstone can be put have increased largely during the last few years. Increasing quantities of medium-grade fibrous talc are consumed in paper-making, and the rubber industry is constantly requiring large supplies.

In Germany, Austria and the United States, medium-grade talc is extensively used, but in nearly all the other producing countries only the highest grade of talc or special quality soapstone is mined, as the lower-grade material will not stand high transportation charges. The large deposits of talc and soapstone known to exist in Spain, Brazil, Uruguay, India, Japan and

China, are little worked, as there is only a small demand in those countries for the medium and low-grade product.

In the United States, before the war, crude talc was worth from £1 to £2 per ton at the factory; since that date prices have risen considerably. In 1914 the British prices of French chalk were from £3 to £7 per ton. In 1919 the prices ranged from £5 to £16 per ton. The highest grades of talc suitable for toilet purposes, insulators, gas tips, &c., were sold at from £20 per ton upwards.

World's Production of Talc.

(long tons).

—	1913.	1914.	1915.	1916.	1917.	1918.	1919.
United Kingdom	40	180	850	301	1,233	936	688
Union of South Africa ...	—	—	39	118	746	652	788
Canada ...	10,937	9,650	10,612	11,700	14,110	16,222	16,645
India ...	2,524	999	1,077	1,214	7,829	12,983	2,040
Australia ...	104	80	60	387	234	619	622*
Austria (exports)	7,953	6,093	5,883	5,668	3,866		
France ...	59,208					56,660	
Bavaria ...		1,707	1,814	1,867	2,136	9,158	
Italy ...	44,622	41,343	45,135	52,557	41,989	34,910	34,176
Norway (exports)	2,392	3,147	3,355	6,282	2,896		
Spain ...	4,336	4,538	948	3,504	3,395	3,275	2,975
United States ...	156,994	153,836	166,867	190,144	195,400	185,988	168,000

* Provisional figure.

BRITISH EMPIRE.

The talc-producing countries within the Empire are the United Kingdom, Canada, India, Australia and South Africa. Deposits of talc are reported as occurring in Jamaica and in New Zealand, but there has been no recorded production from either of these two countries during the period under review. The "talc" of Newfoundland is really pyrophyllite.

During the war the shortage of high-grade French talc directed considerable attention to the Empire deposits, and in each producing country output was increased. During the period under review there was a strong demand in the United States for Canadian talc. This was met chiefly by increased production from the existing mines, no new deposits of importance being opened up. In the year 1915, South Africa entered the list of talc-producing countries. Important deposits are now being

mined in the Transvaal, and a permanent industry appears to have been established. The Indian output is obtained chiefly from steatite in the marble rocks, near Jubbulpore. Although production increased to the record figure of 12,983 tons in the year 1918, the output fell in the following year to below pre-war level. In both the United Kingdom and Australia production increased substantially, but the total output from these countries is comparatively small.

United Kingdom.*

Small veins of steatite and talc occur in Cornwall, notably in the neighbourhood of Kennack, Mullion, Kynance and Pentreath. Steatite was formerly mined at Wheal Foss, $1\frac{1}{2}$ mile south of Mullion, and at Gew Graze in the same district, but very little was mined in Cornwall during the period under review.

Rocks consisting mostly of talc are widely distributed in the metamorphic rocks of Scotland. Material from Dunoon in the Cowal district, Argyllshire, is worked at Kilsyth. Steatite occurs in the chlorite schists at Klebber Geo in the extreme north of Shetland. The deposit was formerly quarried on a small scale, but the locality is so remote as to render the deposit of no economic value.

An output of 100 tons of talc was reported as having been quarried in the Island of Fetlar in the Shetlands in the year 1914. The talc occurs in veins 4 to 7 feet in thickness in talc schists. The rock obtained was transported by boat to Lerwick and ground in mills at Bonnybridge near Falkirk. Difficulties of transport arising from the war rendered the undertaking unprofitable and the quarry closed down.

Talc is also reported as occurring in Balta and Unst Islands in Shetland, at Eilean Glas in Harris, and on the shores of Loch Alsh near Ardintoul. There are many outcrops of talc-schists in the Highlands, but the mineral carries too many impurities to be of value for industrial purposes.

Deposits of talc and soapstone of economic value are found in many counties of Ireland, notably Donegal, Mayo and Wicklow. The only deposits which have been worked continuously during the period under review are those at Crohy Head near Dungloe, and Garton near Churchill, both in county Donegal.

* Mines and Quarries: General Report with Statistics, Part III., by the Chief Inspector of Mines (Annual). Annual Statements of the Trade of the United Kingdom. Special Reports on the Mineral Resources of Great Britain, Mem. Geol. Surv., 1917, 5, 36.

Production of Talc in the United Kingdom.

Year.	Quantity (long tons).	Value (£).
1913	40	30
1914	180	90
1915	850	575
1916	301	404
1917	1,233	1,742
1918	936	1,268
1919	688	1,011

*Imports of Talc, French Chalk, Steatite, Mineral White,
Silica and Soapstone into the United Kingdom.*

From	Quantity (long tons).						
	1913.	1914.	1915.	1916.	1917.	1918.	1919.
Austria-Hungary ...	744	—	—	—	—	—	—
France	4,983	6,629	6,514	7,321	9,265	13,439	7,004
Italy	2,483	2,651	3,629	3,667	2,030	1,422	1,811
United States	254	233	2,134	3,356	1,242	169	1,025
Other Foreign Countries	1,682	1,769	1,263	755	237	153	1,901
Total from Foreign Countries.	10,146	11,282	13,550	15,099	12,774	15,183	11,741
Total from British Possessions.	1,068	693	561	71	11	—	102
TOTAL	11,214	11,975	14,101	15,170	12,785	15,183	11,843
	Value (£).						
Austria-Hungary ...	3,995	—	—	—	—	—	—
France	17,711	21,253	23,152	30,775	43,799	113,900	71,754
Italy	12,995	13,916	19,547	21,128	18,455	25,677	27,628
United States	1,661	1,979	16,165	27,806	13,099	2,695	11,793
Other Foreign Countries	5,439	7,329	3,881	2,538	1,925	1,750	12,722
Total from Foreign Countries.	41,801	44,477	62,745	82,247	77,278	144,022	123,897
Total from British Possessions.	6,015	4,362	3,917	855	191	—	1,265
TOTAL	47,816	48,839	66,662	83,102	77,469	144,022	125,162

*Exports of Talc, French Chalk, Steatite, Mineral White,
Silica and Soapstone from the United Kingdom.*

(Foreign Produce.)

To	Quantity (long tons).						
	1913.	1914.	1915.	1916	1917.	1918.	1919.
Russia	—	32	146	271	—	—	—
Other Foreign Countries ...	375	275	326	391	117	81	79
Total to Foreign Countries	375	307	472	662	117	81	79
Total to British Possessions	169	290	352	173	80	37	44
TOTAL	544	597	824	835	197	118	123
	Value (£).						
Russia	—	281	1,502	3,083	—	—	—
Other Foreign Countries ...	2,102	2,242	1,999	2,340	1,142	1,405	1,321
Total to Foreign Countries	2,102	2,523	3,501	5,423	1,142	1,405	1,321
Total to British Possessions	1,315	1,776	2,233	1,242	711	688	993
TOTAL	3,417	4,299	5,734	6,665	1,853	2,093	2,314

Rhodesia.*

Soapstone or massive talc occurs frequently in the older crystalline rocks of Southern Rhodesia. Large deposits occur in all the principal mining districts, often close to the railway lines. No output has so far been recorded, although many claims have been staked.

Union of South Africa. †

Talc is widely distributed in the older rocks of the Union of South Africa. Previous to 1914 the only output was that from prospecting operations, but during the war there sprang up an important industry which is now capable of supplying practically all local needs, and possibly also a considerable export trade when shipping facilities again become normal.

Large bodies of high-grade to medium-grade talc occur and are mined in the Transvaal, notably at the Verdite Mine, which is situated in the Barberton district about three miles north-west of

* The Mineral Resources of Rhodesia, by F. P. Mennell. S. Afr. Journ. Ind., 1918, 1, 1417.

† Annual Reports of the Government Mining Engineer for the Union of South Africa. Report on certain Minerals used in the Arts and Industries. P. A. Wagner, South Afr. Journ. Ind., 1918, 1, 903-909. Talc, by T. G. Trevor, South Afr. Journ. Ind., 1920, 3, 534.

Noordkaap Station on the Barberton railway. The Verdite Mine was formerly worked for the gold content of the ore only, but the gold is now a by-product in talc-mining. The talc occurs as nearly vertical bands in the ultra-basic rocks of the Jamestown Series. These bands often attain a thickness of 15 feet. The quality of the talc varies. The highest grade is a pale green sub-translucent rock with a fibrous structure. When ground it is used for toilet and medicinal purposes. The lower-grade talc is quite opaque, of a dark green colour, and is frequently associated with gold. Part of the talc mined is cut into blocks for the manufacture of acetylene gas burners, pencils, &c. The ground material is suitable for all the purposes for which ground talc is used.

About the year 1918, the Scotia talc mine was opened up on the Kaap River in the Barberton district. The deposits on this property consist of a series of beds of high-grade talc which have a total thickness of about 400 feet. The beds now being mined vary in thickness from 10 to 25 feet. They are composed of foliated or grey to translucent green talc of good quality. A new plant capable of handling 500 tons a month has been erected at a distance of about two miles from the mine. The crushed mineral is pulverized, and a product obtained which varies in fineness from 30,000 to 90,000 screen size. Material ranging from 30,000 to 80,000 screen size is sold for foundry and other industrial uses. Only the finest powder is used for medicinal and toilet preparations.

Other important talc deposits are situated between Eureka Siding and Jamestown, and talc is also being ground in Johannesburg from the talcose schists of the Krugersdorp district.

In addition to these, a grade of ground talc suitable for covering boilers and steam pipes is being produced from a talc-tremolite rock occurring near Pomeroy in Zululand.

Production and Sales of Talc in Union of South Africa.

Year.	Production.	Sales and Shipments.	
	Quantity (long tons).	Quantity (long tons).	Value (£).
1915	...	39	218
1916	...	118	586
1917	746	701	1,962
1918	652	598	1,713
1919	788	676	3,102

NOTE.—With the exception of 11 tons, value £33, from Natal in 1918, the whole of the production was from the Transvaal. The value for 1919 includes £932 for steatite obtained from quarries in Natal; the quantity is not stated.

Canada.*

The talc-mining industry in Canada made considerable progress during the period under review. Several small mines are operated in Quebec and British Columbia, but the chief output is from Madoc, in Hastings county, Ontario, where the deposits occur in a crystalline limestone of the Grenville series.

The talc is of good quality, and the deposits frequently attain a thickness of 25 to 40 feet. Mining operations have now reached a depth of over 250 feet without any alteration in the character of the deposits. The larger part of the talc produced is ground at Madoc and exported to the United States.

Production of Talc in Canada.

Year.	Crude.†		Refined.†		Total.	
	Quantity (long tons).	Value* (£).	Quantity (long tons).	Value* (£).	Quantity (long tons).	Value* (£).
1913 ...	—	—	—	—	10,937	9,579
1914 ...	—	—	—	—	9,650	8,420
1915 ...	10,612	8,449	—	—	10,612	8,449
1916 ...	11,653	10,120	47	177	11,700	10,297
1917 ...	11,772	10,804	2,338	5,142	14,110	15,946
1918 ...	11,403	9,895	4,819	14,938	16,222	24,833
1919 ...	10,931	10,224	5,714	14,004	16,645	24,228

† Not recorded separately prior to 1915.

* Values converted to £ sterling at the rate of 1 dollar = 4s. 2d.

Imports, Exports, and Sales of Talc in Canada.

Year.	Imports (a).		Exports (b).	Total refined sold (c).	
	Quantity (long tons).	Value* (£).	Value* (£).	Quantity (long tons).	Value* (£).
1913 ...	359	2,230	—	—	—
1914 ...	521	1,871	—	—	—
1915 ...	137	389	—	6,025	16,167
1916 ...	—	—	—	7,320	20,530
1917 ...	—	—	27,424	12,235	35,789
1918 ...	—	—	43,396	14,199	46,285
1919 ...	—	—	43,781	14,221	48,958

(a) Not recorded separately since 1915.

(b) Not recorded prior to April, 1917.

(c) Product of Canadian plants; not stated prior to 1915.

* Values converted to £ sterling at the rate of 1 dollar = 4s. 2d.

* Annual Reports of the Ontario Bureau of Mines, Toronto; Annual Reports on the Mineral Production of Canada, Ottawa; Annual Statements of the Trade of Canada, Ottawa.

Imports of Refined Talc into Canada (a).
Fiscal years ending March 31.

From	Quantity (long tons).			
	1913.	1914.	1915.	1916.
United Kingdom	112	172	72	—
Austria-Hungary	—	3	—	—
Italy	—	—	4	—
United States	137	287	293	112
Total	249	462	369	112
	Value (£).*			
United Kingdom	842	1,327	548	—
Austria-Hungary	—	18	—	—
Italy	—	—	24	—
Switzerland	1	—	—	—
United States	495	1,062	792	307
Total	1,338	2,407	1,364	307

(a) Not recorded separately after March 31, 1916.

* Values converted to £ sterling at the rate of 1 dollar = 4s. 2d.

Newfoundland.

At Talc Mountain and at Fox Trap, near Manuels, Conception Bay, there are extensive deposits of pyrophyllite, which have been quarried on a considerable scale. The material is described as talc in the Customs returns. Soapstone of good quality has been found in many of the serpentine areas of the west coast, and in Labrador.

India.*

Talc is widely distributed among the crystalline rocks of India, where the recorded production has increased considerably during the period under review. The figures do not show the total amount quarried, as there is throughout India a considerable local production which cannot be accurately determined. The chief output is from the Marble Rocks near Jubbulpore in the Central Provinces, where the steatite occurs in limestone. It is slightly schistose and varies in colour from white to pale green. A special plant for grinding the steatite from these quarries has been erected at Jubbulpore.

* Records of the Geol. Surv. of India. A Bibliography of Indian Geology and Physical Geography, by T. H. D. La Touche; Geol. Surv. India, 1918, pp. 456-465. Annual Statements of the Sea-borne Trade of British India.

Other localities where steatite is quarried are Singhbhum and Mayurbhanj in Bihar and Orissa; Bellary, Nellore, and Salem in Madras; and Hamirpur and Jhansi in the United Provinces. There is a small production of steatite from the mines on the Arakan Yoma and from those near Hpa-aing in the Minbu district of Burma.

The Records of the Indian Geological Survey show that there are large deposits of pure steatite at Dogetha north-east of Raialo in Jaipur state, Rajputana. In the Dogetha deposit the steatite is milk-white or faintly tinged with green. It occurs in a bed more than 30 yards wide and has been opened up over a length of only 50 to 60 yards. At Morra in the same province there is an occurrence of pale-green finely-crystalline steatite. The deposit extends for a considerable distance, the steatite occurring in pockets. The stone has been quarried and transported to Agra and Delhi for the manufacture of ornamental carvings.

In Idar State steatite occurs associated with asbestos between Dev Meri and Kundel and also at Ghanta. The mineral is of fair quality and it is stated that at the first-named locality there are over two million tons in sight and within easy reach.

Production of Talc in India.

Year.	Quantity (long tons).	Value (£).
1913	2,524	6,700
1914	999	4,131
1915	1,077	2,578
1916	1,214	2,628
1917	7,829	6,470
1918	12,983	10,921
1919	2,040	5,283

Imports of Talc into India.

Fiscal years ending March 31.

From	Quantity (long tons).					
	1914.	1915.	1916.	1917.	1918.	1919.
United Kingdom	33	92	117	64	15	10
Austria-Hungary	32	8	—	—	—	—
France	273	49	—	—	—	—
Italy	19	12	41	—	—	—
Other Foreign Countries ...	22	10	—	—	—	1
Total from Foreign Countries.	346	79	41	—	—	1
TOTAL	379	171	158	64	15	11

Imports of Talc into India—continued.

From.	Value (£).					
	1914.	1915.	1916.	1917.	1918.	1919.
United Kingdom	271	652	1,015	729	325	393
Austria-Hungary	128	60	—	—	—	—
France	1,252	235	—	—	2	—
Italy	147	93	341	—	—	—
Other Foreign Countries ...	97	36	—	—	—	61
Total from Foreign Countries.	1,624	424	341	—	2	61
TOTAL	1,896	1,076	1,356	729	327	454

NOTE.—In addition to the above, talc to the value of £1 was imported from the Straits Settlements in 1914.

Australia.*

Very little talc or steatite is mined in any of the States of the Commonwealth.

Steatite is reported to occur in large quantities around Wallendbeen in the Murrumburrah mining division of New South Wales, where a deposit of iron-stained steatite was mined during the period under review. The mineral appears to be of poor quality. The total production from the two properties worked never exceeded a few hundred tons yearly.

In South Australia, small quantities of talcose material suitable for use in the manufacture of fire-grates, stoves, etc., have been mined at Talunga, three miles from Gumeracha. There is a small output of high-grade talc from the Yaranyacka talc mine in the hundred of Yaranyacka, 2½ miles west of Lipson. In Victoria, the only recorded output during the period under review was 47 tons in the year 1916 from the Heathcote division.

* Annual Reports of the Department of Mines, New South Wales. Review of Mining Operations in South Australia. Annual Reports of the Secretary for Mines, Victoria.

Production of Talc in Australia.

Year.	New South Wales.		South Australia.		Victoria.		Total.	
	Quantity (long tons).	Value (£).	Quantity (long tons).	Value (£).	Quantity (long tons).	Value (£).	Quantity (long tons).	Value (£).
1913...	54	45	50	250	—	—	104	295
1914...	80	80	—	—	—	—	80	80 †
1915...	60	60	—	—	—	—	60	60 †
1916...	237	237	103	309	47	—	387	546*
1917...	234	234	—	—	—	—	234	234
1918...	309	325	310	603	—	—	619	928
1919...	358	560 †	264	865	—	—	622	1,425 ‡

* Value of 340 tons only.

† " " 335 " "

‡ " " 599 " "

FOREIGN COUNTRIES.

Austria.

Before the war Austria produced important quantities of talc and soapstone from the deposits situated in the communes of Mautern, Aflenz, Anger, Pallau, St. Kathrein and Floing in the province of Styria. The talc produced was of high grade and large quantities were exported annually to Germany for paper making.

The production of talc during the year 1917 is estimated at 13,000 tons.

Imports and Exports of Talc into and from Austria.

Year.	Imports.		Exports.	
	Quantity (long tons).		Quantity (long tons).	
1913	1,639	...	7,953
1914	1,437	...	6,093
1915	452	...	5,883
1916	63	...	5,666
1917	152	...	3,866
1918
1919

France.*

The principal deposits of talc in France are in the department of Ariège, which produces 85 per cent. of the French output. Important deposits are worked at Montferrier in the Pyrenees

* Le Commerce de la France (Annual).

close to the Spanish frontier, and at Luzech. Other talc-producing localities include Luzenac near Cette and various places in the departments of Pyrénées-Orientales, Isère, Aude, Savoie, and Loire. There is also a small production from the island of Corsica.

French Imports and Exports of Ground Talc.

Year.	Imports.		Exports.	
	Quantity (long tons).	Value* (£).	Quantity (long tons).	Value* (£).
1913	5,457	10,520	11,312	26,200
1914	3,643	8,440	8,611	16,640
1915	4,057	15,680	7,452	23,040
1916	7,756	29,960	6,558	20,280
1917	3,362	18,160	3,842	17,800
1918	1,182	6,400	15,301	70,920
1919	6,316	33,400	9,464	42,320

* Values converted to £ sterling at the rate of 25 francs = £1.

Germany.

Talc is mined at Göpfersgrün, near Wunsiedel in Bavaria. It is from these deposits that nearly the whole of the German output of talc has been obtained.

Production of Steatite in Bavaria.

Year.	Quantity (long tons).
1913 ... ..	...
1914	1,707
1915	1,814
1916	1,867
1917	2,136
1918	9,158
1919 ... ..	...

Italy.*

The talc deposits of chief importance in Italy occur near Pinerolo, south-west of Turin. In this district there are many small mines and quarries. The rock obtained is hand-picked and broken into small sizes before being sent to the mill for grinding. It is worked cheaply on account of the use of water power and cheap labour. The principal product shipped is high-grade ground talc and massive cut talc.

* *Rivista del Servizio Minerario* (Annual). *World Resources of Talc and Soapstone*, by R. B. Ladoo; *Can. Min. Journ.*, 1919, 40, 914-915.

Italian talc is fine-grained, and is used largely for toilet and medicinal purposes.

Italian Production and Exports of Talc.

Year.	Production of Crude Talc.		Production of Ground Talc.		Exports of Talc.	
	Quantity (long tons).	Value* (£).	Quantity (long tons).	Value* (£).	Quantity (long tons).	Value* (£).
1913 ...	23,615	34,435	21,007	58,419	18,276	59,440
1914 ...	22,117	32,006	19,226	53,255	19,200	62,445
1915 ...	23,546	33,814	21,589	64,071	18,968	61,690
1916 ...	27,041	48,370	25,516	77,447	20,971	80,993
1917 ...	21,512	69,962	20,477	118,101	10,419	61,416
1918 ...	17,820	94,177	17,090	145,798	4,339	25,578
1919 ...	17,268	91,260	16,908	140,909	9,332	—

* Values converted to £ sterling at the rate of 25 lire = £1.

Norway.*

Talc is produced in Norway chiefly in the provinces of North and South Bergenhus. The principal mills for grinding talc are situated at Sognefjord, north of Bergen, and in Cistesto, Vikor, south of Bergen.

Soapstone is mined at Gudbrandsdal, and used for interior architectural decorative work.

Exports of Talc and Steatite from Norway.

Year.	Quantity (long tons).	Value* (£).
1913	2,392	5,565
1914	3,147	4,946
1915	3,355	5,855
1916	6,282	16,919
1917	2,896	8,952
1918		
1919		

* Values converted to £ sterling at the rate of 18·6 kroner = £1

Spain.†

The Spanish production of talc is obtained chiefly from various mines to the north of Figueras, on the south side of the Pyrenees, and in the province of Gerona.

* "Norges Bergverksdrift" (Annual), Kristiania.

† Estadística Minera de España (Annual).

There is also an extensive deposit of talc of good quality in the province of Almeria, about 45 miles from the port of Aguilas. This talc compares favourably with the best Italian grades.

Production of Talc in Spain.

Year					Quantity (long tons)
1913	...	...	...	...	4,336
1914	...	...	...	...	4,538
1915	...	...	...	...	948
1916	...	...	...	...	3,504
1917	...	...	...	...	3,395
1918	...	...	...	...	3,275
1919	...	...	...	...	2,975

United States.*

The production of talc and steatite in the United States, is chiefly from the belt of crystalline rocks extending almost continuously from Vermont to Georgia. Along this belt there are nine producing States, namely, New York, Vermont, Georgia, Maryland, Massachusetts, New Jersey, North Carolina, Pennsylvania, and Virginia. New York has long been the premier talc-producing State. The industry is centred in the Gouverneur district in St. Lawrence County, within which nearly all the producing mines are situated. The mineral occurs in beds from a few inches up to 20 feet in thickness intercalated in a schistose limestone. The talc obtained is partly fibrous and partly foliated. It is pure white in colour and yields a high-grade material suitable for toilet purposes and paper manufacture.

Vermont ranks next to New York State as regards the total value of its talc production. The talc belt extends from Johnson to Athens over a distance of a hundred miles. The principal centres of production are situated in the towns of Chester, Rochester and Waterbury. A little high-grade talc suitable for the manufacture of gas tips, talcum powder and pencils is mined in North Carolina and Georgia, and Virginia produces a considerable tonnage of talc from the talc-schists of the northern part of the State.

The Californian production increased considerably during the period under review. The talc belt is situated in San Bernardino county. The mineral is for the most part white and lies on the contact of diorite and limestone. It is used chiefly in the manufacture of tiles. The output of New Jersey and Pennsylvania is obtained from quarries situated on either side of the Delaware river, in the vicinity of Easton. The talc is associated with serpentine, which gives it a green

* Mineral Resources of the United States (Annual). The Mineral Industry, Annual.

colour. After grinding, it is used in the manufacture of paint, plaster, paper, soap and rubber goods.

During the last few years talc-mining in western Nevada has made considerable progress. The rock is high-grade and can be quarried by open-cut methods. It is stated that nine-tenths of the talcum powder at present being made in the United States is manufactured from western Nevada rock.

Soapstone is quarried in the States of Virginia, Maryland, North Carolina, Rhode Island, and Vermont. The principal producing State is Virginia, where there are many large quarries situated on the soapstone belt running through Orange, Albemarle and Nelson counties. A second belt occurs at Jetersville in Amelia county. The larger portion of the soapstone produced is sold for the manufacture of laundry tubs, sinks and laboratory fittings.

The United States output of high-grade talc is insufficient to meet the domestic demand. The highest quality, suitable for the best toilet preparations, was formerly imported from France and Italy. During the war importation from France ceased, and that from Italy was greatly reduced, but large amounts were imported from Canada. The production of domestic talc increased considerably during the period. This was due partly to the shortage of supplies of English China clay, but more to the increasing use of talc in the manufacture of rubber goods and prepared roofing.

Marketed production of Talc and Soapstone in the United States.

Year.	Talc.		Soapstone.		Total.	
	Quantity (long tons).	Value* (£).	Quantity (long tons).	Value* (£).	Quantity (long tons).	Value* (£).
1913 ...	133,278	266,671	23,716	130,849	156,994	397,520
1914 ...	134,900	279,349	18,936	109,211	153,836	388,560
1915 ...	148,514	291,916	18,353	102,164	166,867	394,080
1916 ...	172,597	367,259	17,547	102,283	190,144	469,542
1917 ...	177,333	393,682	18,067	†	195,400	—
1918 ...	170,962	435,408	15,026	123,137	185,988	588,545
1919† ...	152,000	368,000	16,000	125,000	168,000	493,000

* Values converted to £ sterling at the rate of 1 dollar = 4s. 2d.

† Estimated.

‡ Unpublished to avoid revealing value of business of one firm which constitutes bulk of output of three producers.

Imports of Talc for consumption into the United States.

Year.	Crude and unground steatite and French chalk.		Ground talc or steatite cut, powdered, washed or pulverized.		Total.	
	Quantity (long tons).	Value* (£).	Quantity (long tons).	Value* (£).	Quantity (long tons).	Value* (£).
1913 ...	—	—	—	—	12,295	28,683
1914 ...	—	—	—	—	14,048	36,942
1915 ...	1,890	2,701	14,243	38,932	16,133	41,633
1916 ...	1,810	2,634	15,049	45,465	16,859	48,099
1917 ...	2,189	2,231	14,426	53,914	16,615	56,145
1918 ...	1,281	1,928	11,370	52,359	12,651	54,287
1919 ...	1,465	2,105	11,572†	51,854	13,037	53,959

* Values converted to £ sterling at the rate of 1 dollar = 4s. 2d.

† Includes 3 tons of French chalk valued at £67.

Brazil.

Brazil possesses considerable deposits of high-grade talc and soapstone. Deposits of pure white talc are mined at Rezende in the State of Rio de Janeiro, at Lorena in the State of São Paulo, at Santo Amaro in the State of Bahia, and to a lesser extent in the State of Goyaz. High-grade massive talc is worked by natives in the States of Bahia, Minas Geraes and Ceara.

The greater part of the Brazilian output of talc is consumed locally, the exports amounting to only 41 tons in the year 1917, and 13 tons in the year 1918.

Uruguay.

Talc of good quality is mined near Las Conchillas in Colonia, Uruguay. It has been used mainly for the manufacture of paper and soap in Buenos Aires and Montevideo, but it is suitable also for pharmaceutical uses.

China.

High-grade soapstone has been mined in China for many years. The chief producing districts are situated in the Tsintien region of Chekiang province and in the provinces of Chili and Fukien. The larger proportion of the material mined consists of a highly coloured variety of soapstone only suitable for carving into ornaments, images, utensils and other articles.

Exports of Soapstone-ware from China.

Year.							Quantity (long tons).
1913	474
1914	351
1915	197
1916	166
1917	57
1918	27
1919	15

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STATISTICS, 1919-1921.

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INTRODUCTORY NOTE.

In computing values of imports and exports, different systems are used by various countries. With three important exceptions, however, the values quoted are intended to represent frontier values, that is, *c.i.f.* for imports and *f.o.b.* for exports. The exceptions are the Union of South Africa, Canada and the United States, in which countries values of imports are based on fair market values prevailing in the exporting countries and therefore practically represent *f.o.b.* prices.

In certain foreign countries the official valuation system for imports and exports is operative, the values being determined by reference to a schedule of values drawn up by a valuation commission. In some cases the schedules remain in force for several years; in others they are revised annually. Where the values shown in the following tables are determined by a valuation based upon the prices of an earlier year, the fact is indicated by a footnote.

The annual average rates of exchange used by the Bureau in converting original currency to £ (Currency), and £ (Currency) to £ (Gold), are shown in the table below, which has been compiled from information supplied by the Board of Trade and the Federation of British Industries.

The long ton used throughout this publication is the British statute ton of 2,240 lb. (avdp.).

Table of Average Rates of Exchange.

Country	Quotation	Parity	1919	1920	1921
Canada ^(a) ...	Dollars per £	4·867	4·435	4·185	4·329
France ...	Francs "	25·22	31·78	52·68	51·92
Italy ...	Lire "	25·22	39·12	76·73	90·96
Spain ...	Pesetas "	25·22	22·27	23·27	28·48
Sweden ..	Kronor "	18·16	17·39	17·89	17·09
United States ...	Dollars "	4·867	4·389	3·657	3·847
" ...	^(a) " "	"	4·129	3·720	3·970
Argentina ...	Pesos "	5·039	4·457	4·077	5·281
Japan ...	Yen "	9·76	8·69	7·32	8·00

(a) Years ended 31st March of the year following that stated.

I. WORLD'S PRODUCTION OF TALC.
(Long tons)

Producing Country	1919	1920	1921
<i>British Empire—</i>			
United Kingdom	688	361	—
Union of South Africa	788	584	527
Canada(<i>a</i>)	16,645	19,349	9,048(<i>b</i>)
India	2,135	3,681	5,703
Australia	622	409	318
<i>Foreign Countries—</i>			
Austria(<i>c</i>)	(<i>d</i>)	6,783	7,884
France	35,028	51,578	(<i>d</i>)
Germany (Bavaria)	14,300(<i>e</i>)	20,606	6,513
Italy	17,268	21,130	20,693
Norway	2,940	—	2,764
Spain	2,975	2,112	1,097
United States	165,038	188,067	112,887

(*a*) Sales.

(*b*) Quantity mined during 1921 was 9,062 tons.

(*c*) Exports.

(*d*) Information not available.

(*e*) Estimated.

II. SUMMARY OF EXPORTS OF TALC.

*(Domestic Produce)**(Long tons)*

Exporting Country	Description	1919	1920	1921
<i>British Empire—</i> United Kingdom	Ground talc, etc.	(a)	372	237
Canada (b) ...	Crude talc	1,040	667	32
	Refined talc	12,394	10,394	7,812
<i>Foreign Coun-</i> <i>tries—</i>				
Austria (c) ...	Talc	(a)	6,783	7,884
Finland ...	Talc	7	(e)	—
France... ..	Ground talc	9,469	20,061	9,887
Italy	Talc	9,268	13,935	10,832
Norway	Talc, etc.	212	1,426	652
Spain (d)	Soapstone	2,253	2,011	1,438
Sweden	Talc and meerschaum	37	342	15
Egypt	Talc	(a)	29	2
Mexico (d)	Talc and mica	20	(a)	(a)
China	Soapstone ware	15	41	325

(a) Information not available.

(b) Years ended 31st of March of the year following that stated.

(c) Total exports, excluding transit trade.

(d) Total exports.

(e) Less than $\frac{1}{2}$ ton.

III. SUMMARY OF IMPORTS OF TALC.

*(Less Re-exports)**(Long tons)*

Importing Country	Description	1919	1920	1921
<i>British Empire—</i>				
United Kingdom	Talc, mineral-white and silica } Ground talc }	11,720 }	2,362 10,912	2,619 3,867
India (<i>d</i>) ...	French chalk	15	57	75
Australia (<i>a</i>) ...	Talc manufactures	87	75	77
<i>Foreign Countries—</i>				
Denmark ...	Talc	361	254	78
Finland (<i>c</i>) ...	Talc	212	1,233	727
France	Ground talc	6,318	6,649	3,980
Rumania (<i>c</i>) ...	Talc	129	350	(<i>b</i>)
Sweden	Talc and meerschaum ...	1,702	3,867	1,934
Egypt	Talc	27	239	288
Tunis (<i>c</i>)	Crude talc Ground talc	160 275	206 505	74 4
Mexico (<i>c</i>)	Talc and mica	142	(<i>b</i>)	(<i>b</i>)
United States...	Ground or prepared talc ...	11,583	9,401	10,228
Argentina (<i>c</i>)...	Talc Talc powder	354 70	715 116	2,003 30
Chile	Crude talc	154	200	94
Peru	Talc powder	11	23	19
Japan (<i>c</i>)	Talc	11,223	9,568	10,304

(a) Years ended 30th June of the year stated.*(b)* Information not available.*(c)* Total imports.*(d)* Figures refer to overseas trade only, and are for years ended 31st March of the year following that stated.

IV. DETAILS OF IMPORTS AND EXPORTS OF TALC.

Article and Country of Origin or Destination	Quantity		Original Currency Value		Value in British Currency converted at Annual Average Rate of Exchange			Gold Value	
	1919	1920	1921	1919	1920	1921	1919	1920	1921

1. UNITED KINGDOM.

Talc, Mineral-White and Silica(a).	Long tons		£ (Currency)		£ (Gold)				
	1919	1920	1921	1919	1920	1921	1919	1920	1921
IMPORTS (Total) from—	11,843	2,504	2,619	125,162	30,146	23,535	112,893	22,656	18,606
British Empire ...	102	48	13	1,265	317	147	1,141	238	116
France ...	7,005	1,320	1,839	71,754	14,529	14,991	64,720	10,919	11,852
Italy ...	1,811	750	522	27,628	11,596	6,855	24,920	8,715	5,419
United States ...	1,025	118	1	11,793	1,283	70	10,637	964	55
Other Foreign Countries ...	1,900	268	244	12,722	2,421	1,472	11,475	1,820	1,164
Total	11,843	2,504	2,619	125,162	30,146	23,535	112,893	22,656	18,606
RE-EXPORTS	123	112	—	2,314	1,833	—	2,087	1,378	—

2. CANADA (c).

Ground Talc, etc.									
IMPORTS (Total) from—									
British Empire	...	23	2,053	—	1,543	—	12,865		
France	...	8,609	86,151	16,273	64,746	12,865			
Italy	...	1,589	23,525	10,457	17,680	8,267			
Other Foreign Countries	...	744	8,921	7,279	6,704	5,755			
Total		(b)	120,650	34,009	90,673	26,887			
EXPORTS (Domestic)									
RE-EXPORTS									
Total		(b)	6,221	1,908	4,675	1,508			
"		(b)	747	1,487	561	1,176			

Crude Talc.	EXPORTS (Domestic) (d)	Long tons	Dollars		£ (Currency)		£ (Gold)	
			Total	1919	Total	1919	Total	1919
Refined Talc.								
EXPORTS (Domestic) to—								
United States	...	12,208	226,382	138,438	51,044	31,979	35,900	26,091
Other Countries	...	186	2,571	277	580	64	299	52
Total		12,394	228,953	138,715	51,624	32,043	36,199	26,143

(a) Including ground talc, etc., in 1919.
 (c) Years ended 31st March of the year following that stated.
 (b) Included with talc, mineral-white and silica.
 (d) All to United States.

Article and Country of Origin or Destination	Quantity			Original Currency Value			Value in British Currency converted at Annual Average Rate of Exchange			Gold Value		
	1919	1920	1921	1919	1920	1921	1919	1920	1921	1919	1920	1921

3. FRANCE.

	Long tons			Francs			£ (Currency)			£ (Gold)		
Ground Talc.												
IMPORTS (For Home Consumption)												
from—												
Italy	4,486			1,082,650			34,067			30,728		
Spain	1,594			384,650			12,104			10,917		
Other Countries	238			57,775			1,818			1,640		
Total	6,318	6,649	3,980	1,525,075	2,247,000	1,288,000	47,989	42,654	24,807	43,285	32,056	19,612
Exports (Domestic) to—												
United Kingdom	6,694			1,421,860			44,741			40,355		
Italy	754			160,336			5,045			4,550		
Spain	618			131,142			4,127			3,722		
Other Countries	1,403			298,144			9,381			8,462		
Total	9,469	20,061	9,887	2,011,482	5,423,000	2,291,000	63,294	102,942	44,126	57,089	77,365	34,865

4. ITALY.

	Long tons			Lire			£ (Currency)			£ (Gold)			
Talc.													
Exports (<i>Domestic</i>) to—													
United Kingdom	1,866	2,753		322,320	727,480		8,239	9,481		7,431	7,125		
France	5,322	4,431		919,530	1,170,780		23,505	15,258		21,201	11,467		
United States	1,202	3,697		207,740	977,080		5,310	12,734		4,789	9,570		
Other Countries	878	3,054		151,640	807,040		3,877	10,518		3,497	7,905		
Total	9,268	13,935	10,832	1,601,230	3,682,380	(a)	40,931	47,991	(a)	36,918	36,067	(a)	

5. SPAIN (b).

	Long tons			Pesetas			£ (Gold)		
Soapstone.									
Exports (<i>Total</i>) from—									
France	2,226	1,923	1,359	226,246	195,350	138,116	8,971	7,746	5,476
Other Countries	27	88	79	2,708	9,098	8,033	107	361	319
Total	2,253	2,011	1,438	228,954	204,448	146,149	9,078	8,107	5,795

(a) Information not available.
 (b) The values given are based wholly or mainly on the prices of 1913.

Article and Country of Origin or Destination	Quantity		Original Currency Value			Value in British Currency converted at Annual Average Rate of Exchange			Gold Value		
	1919	1920	1919	1920	1921	1919	1920	1921	1919	1920	1921

6. SWEDEN.

Talc and Meerschaum.	Long tons		Kronor			£ (Currency)			£ (Gold)		
	1919	1920	1919	1920	1921	1919	1920	1921	1919	1920	1921
IMPORTS (for Home Consumption)											
from—											
Norway...	1,672	3,781	1,867	154,605	345,271	108,385	8,891	19,300	6,342	8,019	14,505
Other Countries ...	30	86	67	17,032	17,840	11,919	979	997	697	883	749
Total	1,702	3,867	1,934	171,637	363,111	120,304	9,870	20,297	7,039	8,902	15,254
EXPORTS (Domestic)											
Total	37	342	15	7,851	47,220	1,626	451	2,639	95	407	1,983
											75

7. UNITED STATES.

Ground or Prepared Talc.	Long tons		Dollars			£ (Currency)			£ (Gold)		
	1919	1920	1919	1920	1921	1919	1920	1921	1919	1920	1921
IMPORTS (Total) from—											
Canada ..	10,582	13,503	6,244	202,447	248,158	108,197	46,126	67,858	28,125	41,605	50,998
France ...	146	1,638	920	7,236	29,222	15,263	1,649	7,991	3,967	1,487	6,006
Italy ...	855	4,124	2,651	40,565	160,606	90,628	9,242	43,917	23,558	8,336	33,005
Other Countries ...	—	136	413	—	4,746	24,493	—	1,298	6,367	—	976
Total	11,583	19,401	10,228	250,248	442,732	238,581	57,017	121,064	62,017	51,428	90,985
											49,030

8. ARGENTINA (a).

	Long tons		Pesos		£ (Gold)
<i>Talc.</i>					
IMPORTS (Total) from—					
Italy	277	522	5,631	11,606	1,117
Uruguay	—	98	—	555	—
Other Countries	77	95	1,575	2,039	313
Total	354	715	7,206	14,200	1,430 (a)
				19,368	3,956

9. JAPAN.

	Long tons		Thousand yen		£ (Currency)		£ (Gold)
<i>Talc.</i>							
IMPORTS (Total) from—							
China	7,736	4,154	251	161	28,884	21,495	26,053
Kwantung Peninsula	3,487	5,408	130	162	14,960	22,131	13,493
Other Countries	(b)	6	1	2	115	273	104
Total	11,223	9,568	382	325	43,959	44,399	39,650
				326		40,750	33,368
							32,216

(a) The values given are based wholly or mainly on "Official Values" fixed by the Argentine customs "Tarifa de Avaluos, 1906." During 1920 various increases were made, consequently it is impossible to give reliable gold values for that year.
 (b) Less than ½ ton.

LIST OF STATISTICAL PUBLICATIONS.

UNITED KINGDOM.

Mines and Quarries; Annual General Report with Statistics, Part III,
by Chief Inspector of Mines.
First Annual Report of the Secretary and the Annual Report of H.M.
Chief Inspector of Mines, 1921.
Annual Statement of the Trade of the United Kingdom with Foreign
Countries and British Possessions, Vols. II and III.

UNION OF SOUTH AFRICA.

Annual Reports of the Government Mining Engineer.

CANADA.

Annual Reports on the Mineral Production of Canada.
Monthly Report of the Trade of Canada, March, 1922.

INDIA.

Annual Report on the Mineral Production of India in the Records of the
Geological Survey of India.

AUSTRALIA.

South Australia.—Mines Department; Mining Review.
Commonwealth.—Trade and Customs and Excise Revenue of the Common-
wealth of Australia.

AUSTRIA.

Statistische Uebersichten über den auswärtigen Handel Oesterreichs.

DENMARK.

Danmarks Vareindførsel og -Udførsel.

FINLAND.

Finlands Handel på Utrikes Orter samt Uppbörderna vid Tullverket.

FRANCE.

Statistique de l'Industrie Minérale en France et en Algérie.
Tableau Général du Commerce et de la Navigation de la France, Vol. I.
Documents Statistiques du Commerce de la France.

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Rivista del Servizio Minerario.
Movimento Commerciale del Regno d'Italia, Part I.
Statistica del Commercio Speciale di Importazione e di Esportazione.

NORWAY.

Norges Bergverksdrift.
Norges Handel.

RUMANIA

Comertul Exterior al Romaniei si Miscarea Porturilor.

SPAIN.

Estadística Minera de España.
 Estadística General del Comercio Exterior de España.
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SWEDEN.

Sveriges Handel.

EGYPT.

Annual Statement of the Foreign Trade of Egypt.

TUNIS.

Documents Statistiques sur le Commerce de la Tunisie.

MEXICO.

Anuario de Estadística Fiscal.

UNITED STATES.

United States Geological Survey; Mineral Resources of the United States.
 Foreign Commerce and Navigation of the United States.

ARGENTINA.

Anuario del Comercio Exterior de la Republica Argentina.

CHILE.

Anuario Estadístico de la Republica de Chile; Comercio Exterior.

PERU.

Estadística del Comercio Especial del Peru.

CHINA.

Foreign Trade of China; Part II, Vols. I and II.

JAPAN.

Annual Return of the Foreign Trade of the Empire of Japan, Part I.

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The following is a list of the Official Publications (all prices are net, and those in parentheses include postage) :—

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Monazite	...	(1920)	" 6d. (7d.)
Nickel	...	(1922)	" 1s. 6d. (1s. 7½d.)
Nitrates	...	(1920)	" 9d. (10½d.)
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Phosphates	...	(1921)	" 2s. 0d. (2s. 1½d.)
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Salt	...		<i>In the press.</i>
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Tungsten	...	(1921)	" 1s. 0d. (1s. 1½d.)
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Statistical Summary (Production, Imports and Exports)	...	(1913-20)	" 3s. 0d. (3s. 2d.)

(Continued on page 4 of cover.)

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MINERAL INDUSTRY OF THE BRITISH EMPIRE AND FOREIGN COUNTRIES. STATISTICS, 1919-21.

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Talc	(1924)	"	0s. 9d.	(0s. 9½d.)
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THE BRITISH EMPIRE
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FOREIGN COUNTRIES.

STATISTICS, 1920-1922.

TALC.



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Borates	(1920)	9d.	(10½d.)
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Copper	(1922)	4s. 0d.	(4s. 3½d.)
Felspar	(1920)	6d.	(7d.)
Fluorspar	(1921)	9d.	(10½d.)
Fuller's Earth	(1920)	6d.	(7d.)
Gold	(1922)	6s. 0d.	(6s. 5½d.)
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Part IV. British Asia	(1922)	2s. 6d.	(2s. 8½d.)
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Part VI. Europe and Africa (Foreign)	(1922)	6s. 0d.	(6s. 6d.)
Part VII. Foreign America	(1922)	4s. 0d.	(4s. 4½d.)
Part VIII. Foreign Asia	(1922)	2s. 6d.	(2s. 9½d.)
Lead	(1922)	3s. 0d.	(3s. 2d.)
Lead Poisoning. Laws and Regulations	(1922)	5s. 0d.	(5s. 4½d.)
Magnesite	(1920)	1s. 3d.	(1s. 4½d.)
Manganese	(1921)	3s. 6d.	(3s. 8½d.)
Mica	(1921)	9d.	(10½d.)
Molybdenum	(1923)	1s. 6d.	(1s. 7½d.)
Monazite	(1920)	6d.	(7d.)
Nickel	(1922)	1s. 6d.	(1s. 7½d.)
Nitrates	(1920)	9d.	(10½d.)
Petroleum	(1923)	6s. 6d.	(6s. 8d.)
Phosphates	(1921)	2s. 0d.	(2s. 1½d.)
Platinum and Allied Metals	(1922)	2s. 0d.	(2s. 2d.)
Quicksilver	(1922)	1s. 0d.	(1s. 1½d.)
Silver	(1923)	4s. 0d.	(4s. 3d.)
Strontium Minerals	(1923)	3d.	(3½d.)
Sulphur and Iron Pyrites	(1922)	1s. 6d.	(1s. 7½d.)
Talc	(1921)	9d.	(10½d.)
Tin	(1922)	3s. 0d.	(3s. 2d.)
Tungsten	(1921)	1s. 0d.	(1s. 1½d.)
Vanadium	(1922)	6d.	(7d.)
Zinc	(1921)	3s. 6d.	(3s. 8d.)
Statistical Summary (Production, Imports and Exports)	(1913-20)	3s. 0d.	(3s. 2d.)

(Continued on page 3 of cover.)

Brit.
IMPERIAL MINERAL RESOURCES BUREAU.

THE MINERAL INDUSTRY OF
THE BRITISH EMPIRE
AND
FOREIGN COUNTRIES.

STATISTICS, 1920 - 1922.

TALC.



LONDON:

PRINTED AND PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE

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INTRODUCTORY NOTE.

In computing values of imports and exports, different systems are used by various countries. With three important exceptions, however, the values quoted are intended to represent frontier values, that is c.i.f. for imports and f.o.b. for exports. The exceptions are the Union of South Africa, Canada and the United States, in which countries the values of imports are based on fair market values prevailing in the exporting countries and, therefore, practically represent f.o.b. prices.

In certain foreign countries the official valuation system for imports and exports is operative, the values being determined by reference to a schedule of values drawn up by a valuation commission. In some cases the schedules remain in force for several years; in others they are revised annually. Where the values shown in the following tables are determined by a valuation based upon the prices of an earlier year, the fact is indicated by a footnote.

Throughout the trade statistics given in this document, materials imported or exported on government account have, as far as possible, been included.

The annual average rates of exchange used by the Bureau in converting original currency to £ (Currency), and £ (Currency) to £ (Gold), are shown in the table below, which has been compiled from information supplied by the Board of Trade and the Federation of British Industries.

The unit of quantity adopted for this publication is the British statute ton of 2,240 lb. (avdp.).

TABLE OF AVERAGE RATES OF EXCHANGE.

Country	Quotation	Parity	1920	1921	1922
Canada (a) ..	Dollars per £	4·867	4·185	4·329	4·556
Austria	Kronen ..	24·02	(b)	(b)	(b)
France	Francs ..	25·22	52·68	51·92	54·62
Italy	Lire ..	25·22	76·73	90·96	93·85
Norway	Kroner ..	18·16	22·51	26·15	25·38
Spain	Pesetas ..	25·22	23·27	28·48	28·60
Sweden	Kronor ..	18·16	17·89	17·09	16·91
United States ..	Dollars ..	4·867	3·657	3·847	4·421
United States (a)	Dollars ..	4·867	3·720	3·970	4·518
Argentina	Pesos ..	5·039	4·077	5·281	5·403
Japan	Yen ..	9·76	7·32	8·00	9·248

(a) Years ended 31st March of the year following that stated.

(b) Average rates have not been used.

I. PRODUCTION OF TALC.

(Long tons)

Producing Country	1920	1921	1922
BRITISH EMPIRE			
United Kingdom	361	—	50
Union of South Africa	584	527	304
Canada	(a) 19,349	9,062	12,946
India	3,681	2,070	906
Australia	409	318	468
Total ..	24,400	12,000	14,700
FOREIGN COUNTRIES			
Austria (b)	6,783	7,884	13,263
France	51,578	34,184	47,396
Germany (Bavaria)	20,606	6,513	4,440
Italy	21,130	20,693	26,059
Norway	—	2,765	7,695
Spain	2,112	1,097	3,029
Sweden	(c)	1,768	2,030
United States (a)	188,067	108,916	177,396
Uruguay (b)	1,772	1,727	(c)
China (b)	41	325	284
Japan	(c)	(c)	(d) 48,144
Total ..	340,000	230,000	331,000
WORLD'S TOTAL	360,000	240,000	346,000

(a) Sales.

(b) Exports.

(c) Information not available.

(d) Including "agalmatolite."

II. SUMMARY OF EXPORTS.

(Domestic Produce)

(Long tons)

Exporting Country and Description	1920	1921	1922
BRITISH EMPIRE			
United Kingdom—			
Ground talc, etc.	372	237	270
Canada (b)—			
Crude talc	667	32	—
Refined talc	10,394	7,812	8,537
FOREIGN COUNTRIES			
Austria (c)—			
Talc	6,783	7,884	13,263
Czechoslovakia (d)—			
Talc	16	24	14
France—			
Ground talc	19,058	9,394	13,743
Germany—			
Crude, ground and calcined talc	(a)	(a)	402
Italy—			
Talc	13,935	10,832	16,915
Norway—			
Soapstone	1,426	652	658
Ground soapstone and talc	4,511	3,417	3,898
Poland—			
Talc and magnesite ..	(a)	23	75
Spain (d)—			
Soapstone	2,011	1,438	1,590
Sweden—			
Talc and meerschaum ..	342	15	147
Egypt—			
Talc	29	2	—
Uruguay—			
Soapstone	1,696	1,637	(a)
Ground talc	76	90	(a)
China—			
Soapstone ware	41	325	284

(a) Information not available.

(b) Years ended 31st March of the year following that stated.

(c) Including re-exports, but excluding transit trade.

(d) Including re-exports.

III. SUMMARY OF IMPORTS.

(Less Re-exports)

(Long tons)

Importing Country and Description	1920	1921	1922
BRITISH EMPIRE			
United Kingdom—			
Talc, steatite and soapstone—			
Unground	2,392	2,619	3,912
Ground	10,912	3,867	6,411
Australia (a)—			
Talc manufactures	75	77	80
FOREIGN COUNTRIES			
Czechoslovakia (c)—			
Talc	1,098	618	904
Denmark—			
Talc	254	78	310
Finland (c)—			
Talc	1,233	727	1,307
France—			
Ground talc	6,317	3,981	5,650
Germany—			
Crude, ground and calcined talc	(b)	(b)	11,991
Poland—			
Talc and magnesite	(b)	1,118	2,068
Rumania (c)—			
Talc	350	(b)	(b)
Sweden—			
Talc and meerschaum	3,867	1,934	1,460
Algeria—			
Ground talc	154	29	54
Egypt—			
Talc	239	288	303
Tunis (c)—			
Crude talc	206	74	310
Ground talc	505	4	41
United States—			
Ground or prepared talc ..	19,401	10,228	16,342
Argentina—			
Talc	715	2,003	1,289
Talc powder	116	30	63
Chile—			
Crude talc	200	94	99
Peru—			
Talc powder	23	19	2
Uruguay—			
Talc	46	7	(b)
Japan (c)—			
Talc	9,568	10,304	12,341

(a) Years ended 30th June of the year stated.

(b) Information not available.

(c) Total imports.

IV. DETAILS OF IMPORTS AND EXPORTS.

Article and Country of Origin or Destination	Quantity			Original Currency Value			Value in British Currency converted at Annual Average Rate of Exchange			Gold Value			
	1920		1921	1920		1921	1920		1921	1920		1921	1922

1. UNITED KINGDOM.

Article and Country of Origin or Destination	Long tons			£ (Currency)			£ (Gold)					
	1920		1921	1920		1921	1920		1921	1922		
Unground Talc, Steatite and Soapstone.												
IMPORTS (<i>Total</i>) from—												
British Empire	48	13	2	317	147	25	238	116	23			
France	1,320	1,839	2,291	14,529	14,991	19,833	10,919	11,852	18,016			
Italy	750	522	671	11,596	6,855	9,194	8,715	5,419	8,351			
Norway	194	244	520	1,471	1,442	2,535	1,106	1,140	2,303			
Other Foreign Countries ..	192	1	428	2,233	100	3,773	1,678	79	3,427			
Total	2,504	2,619	3,912	30,146	23,535	35,360	22,656	18,606	32,120			
RE-EXPORTS	112	—	(a)	1,833	—	3	1,378	—	3			

Ground Talc, etc.												
Imports (Total) from—												
British Empire	23	—	92	2,053	—	740	1,543	—	672			
France	8,609	2,138	3,796	86,151	16,273	26,248	64,746	12,865	23,843			
Italy	1,589	740	1,469	23,525	10,457	16,725	17,680	8,267	15,192			
Norway	464	807	607	5,549	4,246	3,338	4,170	3,357	3,032			
Other Foreign Countries	280	301	604	3,372	3,033	5,880	2,534	2,398	5,341			
Total	10,965	3,986	6,568	120,650	34,009	52,931	90,673	26,887	48,080			
EXPORTS (Domestic)	372	237	270	6,221	1,908	2,325	4,675	1,508	2,112			
RE-EXPORTS	53	119	157	747	1,487	1,654	561	1,176	1,502			

2. CANADA (b).

	Long tons		Dollars		£ (Currency)		£ (Gold)				
Crude Talc.											
Exports (Domestic) (c) Total	667	32	—	4,760	234	—	1,137	54	869	44	—
Refined Talc.											
Exports (Domestic) to—											
United States	10,293	7,792	8,324	196,526	138,438	134,414	46,960	31,979	29,503	35,900	27,393
Other Countries	101	20	213	1,637	277	3,345	391	64	734	299	682
Total	10,394	7,812	8,537	198,163	138,715	137,759	47,351	32,043	30,237	36,199	28,075

(a) One cwt. (b) Years ended 31st March of the year following that stated. (c) All to United States.

EXPORTS (Domestic) to—		9,711	3,786	6,082	2,763,656	923,400	1,545,250	17,785	28,291	39,427	14,061	25,698
United Kingdom	..	1,795	606	695	510,608	147,888	176,575	2,848	3,233	7,285	2,252	2,937
Italy	..	1,820	1,207	2,390	518,028	294,552	607,175	5,673	11,116	7,390	4,485	10,097
United States	..	5,732	3,795	4,576	1,631,112	925,392	1,163,000	17,824	21,293	23,269	14,091	19,342
Other Countries	..	19,058	9,394	13,743	5,423,404	2,291,232	3,492,000	44,130	63,933	77,371	34,889	58,074
Total												

5. ITALY.

Talc.	EXPORTS (Domestic) to—	Long tons		Lire		£ (Currency)		£ (Gold)				
United Kingdom	..	2,753		2,117	727,480		9,481		7,125			
France	..	4,431		4,700	1,170,780		15,258		11,467			
United States	..	3,697		5,658	977,080		12,734		9,570			
Other Countries	..	3,054		4,440	807,040		10,518		7,905			
Total		13,935	10,832	16,915	3,682,380	(b)	47,991	(b)	106,618	36,067	(b)	96,848

6. NORWAY.

Soapstone.	EXPORTS (Domestic) to—	Long tons		Kroner		£ (Currency)		£ (Gold)			
United Kingdom	..	1,426	652	658	260,900	119,300	11,590	4,560	8,710	3,610	4,294
Finland	..	(c)	981	1,183	(c)	94,700	(c)	3,620	(c)	2,890	2,620
Sweden	..	3,436	353	880	(c)	34,100	(c)	1,300	(c)	1,030	1,240
Other Countries	..	1,075	1,943	(c)	349,200	187,600	15,510	7,180	11,660	5,670	(c)
Total		4,511	3,417	3,898	458,500	329,900	20,370	12,620	15,310	9,970	6,870

(a) Excluding transit trade. (b) Information not available. (c) Included with "Other Countries."

Article and Country of Origin or Destination	Quantity		Original Currency Value		Value in British Currency converted at Annual Average Rate of Exchange		Gold Value	
	1920	1921	1920	1921	1920	1921	1920	1921

7. SPAIN (a).

	Long tons		Pesetas		£ (Currency)		£ (Gold)	
	Soapstone.							
EXPORTS (Total) to—								
France	1,923	1,359	195,350	138,116			7,746	5,476
Other Countries .. .	88	79	9,098	8,033			361	319
Total	2,011	1,438	204,448	146,149			8,107	5,795
				258,546			9,040	8,212

8. SWEDEN.

	Long tons		Kronor		£ (Currency)		£ (Gold)	
	Talc and Meerschaum.							
IMPORTS (for Consumption) from—								
Norway	3,781	1,867	345,271	108,385	19,300	6,342	14,505	5,014
Other Countries .. .	86	67	17,840	11,919	997	697	749	551
Total	3,867	1,934	363,111	120,304	20,297	7,039	15,254	5,565
				77,933			4,609	4,187
EXPORTS (Domestic) Total	342	15	47,220	1,626	2,639	95	1,983	75
		147		16,059		950		863

9. UNITED STATES.

Ground or Prepared Talc.	Long tons		Dollars		£ (Currency)		£ (Gold)					
IMPORTS (<i>Total</i>) from—	13,503	6,244	8,864	248,158	108,197	149,747	67,858	28,125	33,872	50,998	22,235	30,768
Canada	1,638	920	2,257	29,222	15,263	46,702	7,991	3,967	10,564	6,006	3,136	9,596
France	4,124	2,651	4,884	160,606	90,628	160,211	43,917	23,558	36,239	33,005	18,625	32,918
Italy	136	413	337	4,746	24,493	15,024	1,298	6,367	3,397	976	5,034	3,086
Other Countries ..	19,401	10,228	16,342	442,732	238,581	371,684	121,064	62,017	84,072	90,985	49,030	76,368
Total												

10. ARGENTINA (*b*).

Talc.	Long tons		Pesos		£ (Gold)	
IMPORTS (<i>Total</i>) from—	522		11,606			
Italy	98		555			
Uruguay	95		2,039			
Other Countries ..	715	2,003	14,200	19,368	97,210	(<i>b</i>)
Total						3,202
						16,073

11. JAPAN.

Talc.	Long tons		Thousand yen		£ (Currency)		£ (Gold)	
IMPORTS (<i>Total</i>) from—	4,154	4,160	161	140	21,995	17,500	16,530	13,835
China	5,408	6,128	162	185	22,131	23,125	16,633	18,282
Kwantung Peninsula ..	6	16	2	1	273	125	205	99
Other Countries ..	9,568	10,304	12,341	326	44,399	40,750	33,368	32,216
Total								
								36,735

(*a*) The values given for 1920 and 1921 are based wholly or mainly on the prices of 1913.

(*b*) The values given are based wholly or mainly on "Official Values" fixed by the Argentine customs "Tarifa de Avaluos, 1906." In consequence of various increases made during 1920, it is not possible to give reliable gold values for that year. The value in pesos given for 1922 appears to be high, but it is the tariff value quoted in the official trade returns.

LIST OF STATISTICAL PUBLICATIONS.

UNITED KINGDOM.

- Mines and Quarries ; Annual General Report with Statistics, Part III,
by Chief Inspector of Mines.
Annual Report of the Secretary and the Annual Report of H.M. Chief
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FRANCE.

- Statistique de l'Industrie Minérale en France et en Algérie.
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- Rivista del Servizio Minerario.
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- Annuaire du Commerce Extérieur de la République Polonaise.

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- Comertul Exterior al României si Miscarea Porturilor.

SPAIN.

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 Resúmenes Mensuales de la Estadística del Comercio Exterior de España.

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 El Comercio Exterior Argentino.

CHILE.

Anuario Estadístico de la Republica de Chile; Comercio Exterior.

PERU.

Estadística del Comercio Especial del Peru.

URUGUAY.

Anuario Estadístico de la Republica Oriental del Uruguay.

CHINA.

Foreign Trade of China; Part II, Vols. I and II.

JAPAN.

The Statistics of Agriculture, Industry and Commerce.
 Annual Return of the Foreign Trade of the Empire of Japan, Part I.
 Monthly Return of the Foreign Trade of the Empire of Japan.

Printed by H.M.S.O. Press, Harrow.

IMPERIAL MINERAL RESOURCES BUREAU.

LIST OF OFFICIAL PUBLICATIONS *(continued from page 2 of cover).*

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Antimony	(1924)	"	1s. 6d.	(1s. 7d.)
Arsenic	(1923)	"	1s. 3d.	(1s. 3½d.)
Asbestos	(1924)	"	1s. 0d.	(1s. 0½d.)
Barium	(1924)	"	1s. 3d.	(1s. 3½d.)
Bismuth	(1923)	"	0s. 9d.	(0s. 9½d.)
Borates	(1924)	"	1s. 3d.	(1s. 3½d.)
Cadmium	(1924)	"	0s. 6d.	(0s. 6½d.)
China Clay	(1924)	"	1s. 0d.	(1s. 0½d.)
Chrome Ore and Chromium	(1924)	"	1s. 0d.	(1s. 1d.)
Coal, Coke and By-Products	(1923)	"	4s. 6d.	(4s. 8d.)
Cobalt	(1924)	"	0s. 9d.	(0s. 9½d.)
Copper	(1923)	"	3s. 0d.	(3s. 1d.)
Diamonds	(1924)	"	1s. 0d.	(1s. 0½d.)
Diatomaceous Earth	(1923)	"	0s. 6d.	(0s. 6½d.)
Felspar	(1924)	"	0s. 6d.	(0s. 6½d.)
Fluorspar	(1924)	"	0s. 6d.	(0s. 6½d.)
Fuller's Earth	(1924)	"	0s. 6d.	(0s. 6½d.)
Gold	(1923)	"	1s. 6d.	(1s. 7d.)
Graphite	(1923)	"	1s. 0d.	(1s. 0½d.)
Gypsum	(1924)	"	1s. 6d.	(1s. 7d.)
Iron and Steel	(1923)	"	1s. 6d.	(1s. 7d.)
Lead	(1923)	"	2s. 0d.	(2s. 1d.)
Magnesium	(1924)	"	1s. 9d.	(1s. 10d.)
Manganese	(1924)	"	1s. 6d.	(1s. 6½d.)
Mica	(1924)	"	1s. 0d.	(1s. 0½d.)
Molybdenum	(1924)	"	0s. 6d.	(0s. 6½d.)
Monazite	(1924)	"	0s. 6d.	(0s. 6½d.)
Nickel	(1924)	"	1s. 6d.	(1s. 6½d.)
Nitrates	(1924)	"	2s. 0d.	(2s. 1d.)
Petroleum and Allied Products	(1923)	"	7s. 6d.	(7s. 8d.)
Phosphates	(1924)	"	2s. 6d.	(2s. 7d.)
Platinum and Allied Metals	(1924)	"	1s. 3d.	(1s. 3½d.)
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