

THE CEMENT TRADE.

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Introductory.*

The tables on pages 230 to 232 are based on returns received from firms in Great Britain and Northern Ireland whose business in 1924 consisted wholly or mainly in the manufacture of cement. The number of such separate returns was 133.

Summary of results.—The following table shows the main results of the Censuses of 1924, 1912 and 1907, comparisons between the figures for the three years being subject to the qualifications mentioned in the next paragraph :—

Particulars.	Unit.	1924.	1912.	1907.
Value of goods made (Gross output)	£'000	8,071	3,745	3,735
Cost of materials used	"	3,172	2,151	1,780
Net output	"	4,899	1,594	1,955
Average number of persons employed	No.	13,590	13,725	14,819
Net output per person employed ..	£	361	116	132
Mechanical power available :—				
Prime movers	H.P.	90,426	75,961	60,079
Electric motors driven by purchased electricity	"	21,691	1,596	(not recorded)

* See also the Notes on pages vii to xv.

Qualifications affecting comparisons.—In considering the above table and the other tables in this report which show figures for different censal years, the following qualifications should be borne in mind :—

(1) The comparability of figures relating to value or cost is affected by the changes which have taken place in the general purchasing power of money.

(2) The Censuses of 1907 and 1912 covered Great Britain and the whole of Ireland, but that of 1924 applied only to Great Britain and Northern Ireland. The exclusion of Southern Ireland in 1924 does not, however, seriously affect the comparability of the figures.

(3) The Censuses of 1907 and 1924 extended to all firms, however small, but in 1912 firms employing not more than five persons (excluding the proprietors) were required to state only the average number of persons employed by them in the year. According to the information so furnished, the number of persons employed in the establishments thus excluded was 273, or 2 per cent. of the number employed by the remaining firms, as shown in the above table.

Production.

Detailed information regarding the output of the Cement Trade in 1924 will be found in Table II on page 230.

Quarry products.—Cement is generally manufactured at or near the quarries or other workings from which are obtained the limestone, chalk, etc., required for its production. These quarries and workings are usually operated by firms that quarry mineral only for their own use. It was, therefore, found convenient, in the majority of cases, for each firm to furnish one return only, covering both its cement works and its quarries or other workings. A statement was, however, required of the total quantity of minerals quarried, whether used by the firm that raised them or sold to other firms, and the following summary shows the information so furnished :—

	Tons.
Chalk	3,570,300
Limestone	1,188,900
Clay	361,100
Gypsum	171,400
Other quarry products	49,300

Production for sale.—The following table shows, for the three censal years, the value and (where recorded) the quantity of the chief products of the Cement Trade, the figures for each year being inclusive of similar products returned on schedules for other trades.

Kind of goods.	1924.		1912.		1907.	
	Quantity.	Selling value.	Quantity.	Selling value.	Quantity.	Selling value.
	Th. tons	£'000	Th. tons	£'000	Th. tons	£'000
Cement for building and engineering purposes ..	3,281·4	6,999	2,722	3,134	2,886	3,448
Chalk (prepared) and whiting ..	152·8	244	..	69	..	77
Gypsum (burnt) and plaster of Paris ..	152·7	344	}	91	..	96
Keen's, Parian and similar cements—						
{ Quantity stated ..	3	26				
{ Quantity not stated	67				
TOTAL VALUE—PRINCIPAL PRODUCTS	7,680	..	3,294	..	3,621

The output for 1924 shown above includes the following products returned on schedules for other trades:—Building cement, 68,800 tons, valued at £160,000; chalk, prepared, 56,500 tons, valued at £86,000; Keen's, Parian, and similar cements, £7,000. The output of cement for building and engineering purposes in 1924 was greater by about 13·7 per cent. than in 1907. The output of such cement per operative employed by firms that made their returns on schedules for the Cement Trade was 262 tons in 1924 and 207 tons in 1907.

Other products.—The firms that made their returns on schedules for the Cement Trade also included in their statements of output the following products which, being of kinds mainly produced in other trades, are dealt with in the reports on those trades:—

Kind of Products.	1924.	1912.	1907.
	Selling value.	Selling value.	Selling value.
	£'000	£'000	£'000
Casks (not included in value of cement) ..	402	330	21
White lime ..	55	36	19
Hydraulic and other lime ..	83	74	61
Gypsum and other quarry products sold ..	97	7	12
Other goods ..	7	29	30
TOTAL VALUE ..	644	476	143

The values shown in the foregoing tables are substantially free from duplication.

Cost of materials.—The cost of materials used by firms that made their returns on schedules for the Cement Trade was returned as £3,172,000 in 1924; the corresponding figures for 1912 and 1907 were £2,151,000 and £1,780,000, respectively.

Net output.—The net output in 1924 of the firms that made their returns on schedules for the Cement Trade (whose gross output was valued at £8,071,000) was £4,899,000, that sum representing the total amount by which the value, as delivered, of the aggregate output exceeded the cost, as purchased, of the materials used.

The net output per head of persons employed in the censal year 1924 was £361, as compared with £116 in 1912 and £132 in 1907.

Exports and imports.—The following table, relating to the year 1924, shows the production of cement, prepared chalk, and burnt gypsum in relation to exports and retained imports:—

Kind of goods.	Production.	Exports.	Retained imports.
Cement for building and engineering purposes	3,281·4	651·2	160·3
Chalk (prepared) and whiting ..	152·8	23·7	3·9
Gypsum (burnt) and plaster of Paris ..	152·7	6·3	1·0

The average value of British-made cement in 1924 was £2·13 per ton at works, exclusive of returnable packages; that of exports was £2·47 per ton f.o.b., including packages; and that of imported cement, £2·60 per ton c.i.f. Exports in 1907 amounted to 764,000 tons, or nearly 26·5 per cent. of the quantity produced in the United Kingdom in that year; in 1924, omitting consignments (77,900 tons) to the Irish Free State, exports amounted to 573,300 tons, or nearly 17·5 per cent. of the production in that year. Retained imports in 1907 were 113,000 tons. The quantity of cement available for use in Great Britain and Ireland in 1907 was 2,235,000 tons, of which 94·9 per cent. was of British manufacture; in 1924 the quantity available for use in Great Britain and Northern Ireland was 2,790,500 tons, of which 94·3 per cent. was of British manufacture.

Wages in 1924.

Under the Census of Production Act, 1906, the powers of the Board of Trade to require information do not extend to particulars of the amount of wages paid, and, consequently, no information on this head was secured in connexion with the Census of 1924. As a result, however, of the voluntary enquiry undertaken by the Ministry of Labour into wages and hours in the United Kingdom in 1924, information was obtained as to the total wage-bill of a group of firms in the Cement Trade that made returns both to the Ministry of Labour and to the Census of Production office. According to the Census records this group of firms employed, in the week ended 18th October, 1924, 8,469 operatives, or 68 per cent. of the total of 12,554 operatives for the trade as a whole, and their net output totalled £3,229,000, or 66 per cent. of the aggregate net output of £4,899,000 for the trade as a whole. The total wage-bill of these firms, as returned to the Ministry of Labour, was £1,290,000, representing about 40 per cent. of their aggregate net output.

Employment.

The detailed information relating to employment in 1924 is summarised in Table III on page 231. The following table sets out certain particulars for that year together with those relating

to the two previous censal years. For the purpose of this comparison, the average numbers of operatives of each sex returned for 1924 have been divided between the two age-groups in the proportions shown by the data relating to the week ended 18th October.

Average number.	Males.		Females.		Males and females.	
	Under 18.	All ages.	Under 18.	All ages.	Under 18.	All ages.
1924.						
Operatives	638	12,270	16	252	654	12,522
Administrative, etc. ..	56	875	14	193	70	1,068
TOTAL	694	13,145	30	445	724	13,590
1912.						
Wage earners	830	12,968	1	53	831	13,021
Salariéd	39	686	1	18	40	704
TOTAL	869	13,654	2	71	871	13,725
1907.						
Wage earners	788	13,771	7	89	795	13,860
Salariéd	112	936	—	23	112	959
TOTAL	900	14,707	7	112	907	14,819

The numbers of operatives recorded month by month in 1924 ranged from 478 below the average, in January, to 243 above the average, in May (see Table III B, page 231).

Mechanical Power.

The detailed information relating to mechanical power in 1924 is summarised in Table IV on page 232. The following table sets out the particulars for the three censal years relating to the capacity and kinds of *prime movers* and the capacity of *electric generators* installed.

Power equipment.	1924.			1912.	1907.
	Ordinarily in use.	In reserve or idle.	Total.	Total.	Total.
PRIME MOVERS :—					
	H.P.	H.P.	H.P.	H.P.	H.P.
Reciprocating steam engines ..	28,825	2,535	31,360	54,820	50,874
Steam turbines	26,060	11,130	37,190	6,541	178
Gas engines	15,017	2,255	17,272	13,784	} 8,396
Petrol and light oil engines ..	313	135	448	496	
Heavy oil engines	2,635	1,090	3,725	} 320	} 602
Water power	431	—	431		
Other	—	—	—	—	29
TOTAL	73,281	17,145	90,426	75,961	60,079
ELECTRIC GENERATORS :—					
	Kw.	Kw.	Kw.	Kw.	Kw.
Driven by—					
Reciprocating steam engines	7,622	2,132	9,754	9,658	5,889
Steam turbines	18,400	7,800	26,200	5,360	102
Gas engines	4,492	411	4,903	} 2,974	} 694
Petrol and light oil engines ..	21	38	59		
Heavy oil engines	1,432	740	2,172	} 7	} 694
Water power	7	—	7		
Other prime movers	—	—	—	—	—
TOTAL	31,974	11,121	43,095	17,992	6,685

The capacity of *electric motors* recorded in 1924 and in 1912 was as shown below :—

Electric motors.	1924.			1912.
	Ordinarily in use.	In reserve or idle.	Total.	Total.
Driven by—	H.P.	H.P.	H.P.	H.P.
Electricity generated in own works	46,646	5,010	51,656	21,894
Purchased electricity	18,138	3,553	21,691	1,596

Corresponding information was not required for 1907. The total number of Board of Trade units of electricity purchased for power and lighting purposes in that year was returned as 3,798,000.

Machinery Equipment.

All firms in the Cement Trade were asked to furnish a voluntary statement of the number and capacity of the kilns at their works at the end of 1924. Firms with an output of 3,138,000 tons of cement, or nearly 98 per cent. of the total output of the trade, furnished the following particulars :—

Kind of kilns.	Number.		Weekly capacity.	
	In use.	Idle.	In use.	Idle.
Rotary	96	9	Tons. 63,226	Tons. 4,500
Fixed continuous	42	24	2,555	1,723
Fixed intermittent	170	134	4,416	3,774

Thus at the end of the year about one-eighth of the total capacity was idle. The number of operatives at work in December was about 1.5 per cent. above the average for the year.

TABLES.

I.—Summary of results.

Particulars:	Unit.	United Kingdom.*
Value of goods made (Gross output)	£'000	8,071
Cost of materials used	"	3,172
Net output	"	4,899
Average number of persons employed	No.	13,590
Net output per person employed	£	361
Mechanical power available :—		
Prime movers	H.P.	90,426
Electric motors driven by purchased electricity	"	21,691

* In order to avoid the possible disclosure of information relating to individual firms, figures are given only for the United Kingdom as a whole.

II.—Production.

A.—TOTAL OF QUARRY PRODUCTS RAISED IN THE YEAR, AS RETURNED ON SCHEDULES FOR THE CEMENT TRADE.

Quarry products.	United Kingdom.*	
	Quantity.	
	Tons.	
Chalk	3,570,300	
Limestone	1,188,900	
Clay	361,100	
Gypsum	171,400	
Other quarry products	49,300	

* See footnote to Table I.

B.—OUTPUT SOLD OR ADDED TO STOCK.

Kind of goods made.	United Kingdom.*	
	Quantity.	Selling value.
	Th. tons.	£'000
Cement for building and engineering purposes	3,212·6	6,839
Gypsum, burnt (including plaster of Paris)	152·7	344
Keen's, Parian and similar cements—		
{ Quantity stated	3·0	26
{ Quantity not stated		60
Chalk, prepared (including whitening)	96·3	158
Lime :—		
White lime		55
Hydraulic and other lime		83
Casks (not included in value of cement)		402
Gypsum, ground and unground, and other quarry products		97
Other goods		7
TOTAL VALUE OF GOODS MADE (GROSS OUTPUT)		8,071

* See footnote to Table I.

III.—Employment.

A.—NUMBERS EMPLOYED IN WEEK ENDED 18TH OCTOBER, 1924.

Kind of staff.	Males.		Females.		Males and females.	
	Under 18.	All ages.	Under 18.	All ages.	Under 18.	All ages.
<i>United Kingdom* :—</i>						
Operatives	639	12,287	17	267	656	12,554
Administrative, technical and clerical staff	56	875	14	193	70	1,068
TOTAL	695	13,162	31	460	726	13,622

* See footnote to Table I.

B.—OPERATIVES EMPLOYED IN ONE WEEK IN EACH MONTH OF 1924.

United Kingdom. (Annual average : Males, 12,270 ; Females, 252 ; Total, 12,522.)*

Week ended	Males.	Females.	Total.	Week ended	Males.	Females.	Total.
Jan. 12th ..	11,823	221	12,044	July 19th ..	12,377	261	12,638
Feb. 16th ..	12,113	224	12,337	Aug. 16th ..	11,976	250	12,226
Mar. 15th ..	12,263	230	12,493	Sept. 13th ..	12,274	261	12,535
April 12th ..	12,417	240	12,657	Oct. 18th ..	12,287	267	12,554
May 17th ..	12,479	286	12,765	Nov. 15th ..	12,333	262	12,595
June 21st ..	12,439	263	12,702	Dec. 13th ..	12,453	259	12,712

* See footnote to Table I.

IV.—Mechanical Power.

PARTICULARS OF PRIME MOVERS, ELECTRIC GENERATORS AND ELECTRIC MOTORS.

Power equipment.	United Kingdom.*	
	Ordinarily in use.	In reserve or idle.
	H.P.	H.P.
PRIME MOVERS :—		
Reciprocating steam engines	28,825	2,535
Steam turbines	26,060	11,130
Gas engines	15,017	2,255
Petrol and light oil engines	313	135
Heavy oil engines	2,635	1,090
Water power	431	—
TOTAL.. .. .	73,281	17,145
TOTAL OF PRIME MOVERS INSTALLED ..	90,426	
ELECTRIC GENERATORS :—	Kw.	Kw.
Driven by—		
Reciprocating steam engines	7,622	2,132
Steam turbines	18,400	7,800
Gas engines	4,492	411
Petrol and light oil engines	21	38
Heavy oil engines	1,432	740
Water power	7	—
TOTAL.. .. .	31,974	11,121
TOTAL OF ELECTRIC GENERATORS INSTALLED	43,095	
ELECTRIC MOTORS :—	H.P.	H.P.
Driven by—		
Electricity generated in own works	46,646	5,010
Purchased electricity	18,138	3,553