

THE ENGINE AND BOILER PACKING AND ASBESTOS
TRADES.

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Introductory.*

The tables on pages 261 to 264 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 engine and boiler packing and asbestos goods. The number of such separate returns was 151. About 10 firms to which schedules were sent did not furnish returns, but these firms for the most part had very small establishments. On the basis of the information available it is estimated that they did not employ more than 30 persons in all and that their total net output probably did not exceed £5,000.

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.

* See also the Notes on pages vii to xv.

Particulars.	Unit.	1924.	1912.	1907.
Value of goods made and work done (Gross output)	£'000	3,913	1,103	643
Cost of materials used	"	1,740	534	322
Net output	"	2,173	569	321
Average number of persons employed	No.	6,850	3,419	2,349
Net output per person employed ..	£	317	166	137
Mechanical power available:—				
Prime movers	H.P.	6,070	3,729	2,286
Electric motors driven by purchased electricity	"	7,731	1,013	(not recorded)

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 163, or 4·8 per cent. of the number employed by the remaining firms, as shown in the above table. Moreover, correspondence on defective returns for 1912 had not been completed when the war compelled suspension of this work and in these circumstances detailed information for 1912 is not given in the remainder of this report. The resulting defects in the aggregate figures given above are, however, not important.

Value of output and cost of materials.—The figures in the above table representing the value of goods made and work done and the cost of materials used are the aggregates of the figures recorded by the firms that made returns, and, for the reasons explained in paragraphs (i) and (ii) on pages xii and xiii, they overstate the value of the output of, and the cost of the materials used by, the Engine and Boiler Packing and Asbestos Trades considered as a whole. The matter is discussed on page 257, where it is estimated that the value, free from duplication, of the output of the Engine and Boiler Packing and Asbestos Trades in 1924 was about £3,854,000, and the cost of the materials purchased from sources outside the trade and worked up into its products was about £1,681,000.

Production.

Detailed information relating to the output of the Engine and Boiler Packing and Asbestos Trades will be found in Table II on page 261.

Principal products.—The following table shows, for 1924 and 1907, the value and (where recorded) the quantity of the principal classes of output, the aggregate figures for each year being inclusive of similar products returned on schedules for other trades. No particulars of quantity were required in 1907.

Kind of goods.	1924.				1907.
	Returned on schedules for				Total.
	The Engine and Boiler Packing, etc., Trades.		All trades.		
Quantity.	Selling value.	Quantity.	Selling value.	Selling value.	
	Th. tons	£'000	Th. tons	£'000	£'000
Engine and boiler packings and coverings (not including asbestos or metallic packings)—					
{ Quantity stated	1·6	189	1·7	197	} 502
{ Quantity not stated .. .. .	..	188	..	208	
Metallic packings .. .. .	..	119	..	120	
Asbestos manufactures (including asbestos packings)—					
{ Quantity stated	70·0	2,350	70·1	2,407	} 323
{ Quantity not stated .. .. .	..	400	..	433	
Slag wool and silicate cotton ..	..	59	..	59	29
TOTAL VALUE .. .. .	..	3,305	..	3,424	854

Other products.—In addition to the principal products shown in the preceding table, firms that made their returns on schedules for the Engine and Boiler Packing and Asbestos Trades recorded for 1924 an output of belting, ropes, etc., valued at £131,000, and of other goods, valued at £190,000. These goods, being of kinds mainly produced in other trades, are dealt with in the reports on those trades. The corresponding figures for 1907 were £27,000 and £39,000, respectively.

Work done for the trade.—Firms that made their returns on schedules for the Engine and Boiler Packing and Asbestos Trades stated that they received £287,000 in 1924 for applying compositions, etc. There was no separate record of such work in 1907.

Value of output free from duplication.—The slag wool and silicate cotton, valued at £59,000, made for sale by firms in the Engine and Boiler Packing and Asbestos Trades were probably mainly used by other firms in these trades in the manufacture of boiler coverings and engine packings, and the value of the gross output in 1924 may be put at about £3,854,000, free from duplication.

Cost of materials.—The cost of materials used by firms that made their returns on schedules for the Engine and Boiler Packing and Asbestos Trades was returned as £1,740,000 in 1924, a sum which, by the exclusion of purchases of the products of other firms in the trade, is reduced to about £1,681,000.

Net output.—The net output in 1924 of the firms that made their returns on schedules for the Engine and Boiler Packing and Asbestos Trades (whose gross output was valued at £3,913,000) was £2,173,000, that sum representing, without duplication, 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 £317, as compared with £137 in 1907.

Exports and imports.—Exports of asbestos manufactures in 1924 amounted to 13,960 tons, valued at £957,000, and retained imports to 14,850 tons, valued at £231,000. The quantity of engine and boiler packings exported in 1924 was 1,220 tons, valued at £119,000, while retained imports amounted to 90 tons, valued at £20,000.

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 Engine and Boiler Packing and Asbestos Trades 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, 3,993 operatives, or 69 per cent. of the total of 5,776 operatives for the trades as a whole, and their net output totalled £1,591,000, or 73 per cent. of the aggregate net output of £2,173,000 for the trades as a whole. The total wage-bill of these firms, as returned to the Ministry of Labour, was £473,000, representing about 30 per cent. of their aggregate net output.

Employment.

The detailed information relating to employment in 1924 is summarised in Table III on pages 262 and 263. The following table sets out certain particulars for that year together with those relating to the 1907 Census. 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	376	4,110	280	1,527	656	5,637
Administrative, etc. ..	79	812	81	401	160	1,213
TOTAL	455	4,922	361	1,928	816	6,850
1907.						
Wage earners	74	1,431	91	572	165	2,003
Salaried	30	301	9	45	39	346
TOTAL	104	1,732	100	617	204	2,349

The number of operatives recorded month by month in 1924 was greatest in November with 285 in excess of the average and least in January with 285 less than the average. From February to August the variations upwards and downwards were slight, but a rise occurred in the autumn (see Table III B, page 263).

Mechanical Power.

The detailed information relating to mechanical power in 1924 is summarised in Table IV on page 264. The following table sets out the particulars for 1924 and 1907 relating to the capacity and kinds of *prime movers* and the capacity of *electric generators* installed.

Power equipment.	1924.			1907.
	Ordinarily in use.	In reserve or idle.	Total.	Total.
	H.P.	H.P.	H.P.	H.P.
PRIME MOVERS :—				
Reciprocating steam engines ..	1,133	277	1,410	1,630
Steam turbines	—	950	950	—
Gas engines	1,716	599	2,315	} 565
Petrol and light oil engines ..	115	—	115	
Heavy oil engines	800	400	1,200	
Water power	80	—	80	91
TOTAL	3,844	2,226	6,070	2,286
	Kw.	Kw.	Kw.	Kw.
ELECTRIC GENERATORS :—				
Driven by—				
Reciprocating steam engines ..	10	20	30	172
Steam turbines	—	660	660	—
Gas engines	180	197	377	} —
Petrol and light oil engines ..	—	—	—	
Heavy oil engines	570	375	945	
Water power	—	—	—	—
TOTAL	760	1,252	2,012	172

It will be observed that none of the electric generators with a steam turbine drive were ordinarily in use in 1924 and that, in

addition, a quarter of the prime movers other than steam turbines and little short of half the capacity of the other electric generators installed were returned as not in use.

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

Electric motors.	1924.		
	Ordinarily in use.	In reserve or idle.	Total.
	H.P.	H.P.	H.P.
Driven by—			
Electricity generated in own works	1,552	168	1,720
Purchased electricity	6,658	1,073	7,731

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 29,000.

TABLES.

I.—Summary of results.

Particulars.	Unit.	England and Wales.	Scotland.	Great Britain.	Northern Ireland.
Value of goods made and work done (Gross output)	£'000	3,717	138	3,855	58
Cost of materials used	„	1,643	65	1,708	32
Net output	„	2,074	73	2,147	26
Average number of persons employed	No.	6,376	343	6,719	131
Net output per person employed ..	£	325	212	319	202
Mechanical power available :—					
Prime movers	H.P.	5,859	190	6,049	21
Electric motors driven by purchased electricity	„	7,354	367	7,721	10

II.—Production.

Goods sold or added to stock.	England and Wales and Northern Ireland.*		Scotland.		United Kingdom.	
	Quantity.	Selling value.	Quantity.	Selling value.	Quantity.	Selling value.
	Th. tons	£'000	Th. tons	£'000	Th. tons	£'000
Engine and boiler packings and coverings (not including asbestos or metallic packings)—						
{ Quantity stated ..	†	†	†	†	1.6	189
{ Quantity not stated ..	†	†	†	†	..	188
Metallic packings ..	†	†	†	†	..	119
Asbestos manufactures*—						
{ Quantity stated ..	69.5	2,322	0.5	28	70.0	2,350
{ Quantity not stated ..	..	400	—	—	..	400
Slag wool and silicate cotton .. .. .	..	59	—	—	..	59
Beltings, ropes, etc. ..	..	131	—	—	..	131
Other goods made ..	..	177	..	13	..	190
Work done in applying composition, etc.* ..	..	221‡	..	66‡	..	287‡
TOTAL VALUE OF GOODS MADE AND WORK DONE (GROSS OUTPUT) ..	..	3,775	..	138	..	3,913

* In order to avoid the possible disclosure of information relating to individual firms, the figures for Northern Ireland have been combined with those for England and Wales. The items affected are also marked thus (*).

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

‡ Amount received for work done.

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>England and Wales</i> :—						
Operatives	371	3,879	285	1,557	656	5,436
Administrative, etc.*	78	779	76	376	154	1,155
TOTAL	449	4,658	361	1,933	810	6,591
<i>Scotland</i> :—						
Operatives	11	258	7	36	18	294
Administrative, etc.*	1	28	5	23	6	51
TOTAL	12	286	12	59	24	345
<i>Great Britain</i> :—						
Operatives	382	4,137	292	1,593	674	5,730
Administrative, etc.*	79	807	81	399	160	1,206
TOTAL	461	4,944	373	1,992	834	6,936
<i>Northern Ireland</i> :—						
Operatives	1	46	—	—	1	46
Administrative, etc.*	—	5	—	2	—	7
TOTAL	1	51	—	2	1	53
<i>United Kingdom</i> :—						
TOTAL	462	4,995	373	1,994	835	6,989

* Administrative, technical and clerical staff.

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

England and Wales. (Annual average : Males, 3,729 ; Females, 1,492 ; Total, 5,221.)

Week ended	Males.	Females.	Total.	Week ended	Males.	Females.	Total.
Jan. 12th ..	3,577	1,362	4,939	July 19th ..	3,688	1,553	5,241
Feb. 16th ..	3,708	1,361	5,069	Aug. 16th ..	3,603	1,504	5,107
Mar. 15th ..	3,703	1,387	5,090	Sept. 13th ..	3,730	1,553	5,283
April 12th ..	3,701	1,443	5,144	Oct. 18th ..	3,879	1,557	5,436
May 17th ..	3,539	1,528	5,067	Nov. 15th ..	3,958	1,582	5,540
June 21st ..	3,732	1,508	5,240	Dec. 13th ..	3,934	1,565	5,499

Scotland. (Annual average : Males, 257 ; Females, 35 ; Total, 292.)

Jan. 12th ..	198	31	229	July 19th ..	259	36	295
Feb. 16th ..	210	30	240	Aug. 16th ..	270	40	310
Mar. 15th ..	216	31	247	Sept. 13th ..	264	40	304
April 12th ..	264	36	300	Oct. 18th ..	258	36	294
May 17th ..	264	37	301	Nov. 15th ..	292	34	326
June 21st ..	297	38	335	Dec. 13th ..	287	35	322

Great Britain. (Annual average : Males, 3,986 ; Females, 1,527 ; Total, 5,513.)

Jan. 12th ..	3,775	1,393	5,168	July 19th ..	3,947	1,589	5,536
Feb. 16th ..	3,918	1,391	5,309	Aug. 16th ..	3,873	1,544	5,417
Mar. 15th ..	3,919	1,418	5,337	Sept. 13th ..	3,994	1,593	5,587
April 12th ..	3,965	1,479	5,444	Oct. 18th ..	4,137	1,593	5,730
May 17th ..	3,803	1,565	5,368	Nov. 15th ..	4,250	1,616	5,866
June 21st ..	4,029	1,546	5,575	Dec. 13th ..	4,221	1,600	5,821

Northern Ireland. (Annual average : Males, 124 ; Females, — ; Total, 124.)

Jan. 12th ..	184	—	184	July 19th ..	31	—	31
Feb. 16th ..	252	—	252	Aug. 16th ..	118	—	118
Mar. 15th ..	192	—	192	Sept. 13th ..	129	—	129
April 12th ..	163	—	163	Oct. 18th ..	46	—	46
May 17th ..	148	—	148	Nov. 15th ..	56	—	56
June 21st ..	81	—	81	Dec. 13th ..	84	—	84

IV.—Mechanical Power.

PARTICULARS OF PRIME MOVERS, ELECTRIC GENERATORS AND ELECTRIC MOTORS.

Power equipment.	England and Wales.		Scotland.		Great Britain.	
	Ordinarily in use.	In reserve or idle.	Ordinarily in use.	In reserve or idle.	Ordinarily in use.	In reserve or idle.
PRIME MOVERS :—	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
Reciprocating steam engines	1,083	247	50	30	1,133	277
Steam turbines	—	950	—	—	—	950
Gas engines	1,585	599	110	—	1,695	599
Petrol and light oil engines	115	—	—	—	115	—
Heavy oil engines	800	400	—	—	800	400
Water power	80	—	—	—	80	—
TOTAL	3,663	2,196	160	30	3,823	2,226
TOTAL OF PRIME MOVERS INSTALLED	5,859		190		6,049	
ELECTRIC GENERATORS :—	Kw.	Kw.	Kw.	Kw.	Kw.	Kw.
Driven by—						
Reciprocating steam engines	10	20	—	—	10	20
Steam turbines	—	660	—	—	—	660
Gas engines	180	197	—	—	180	197
Heavy oil engines	570	375	—	—	570	375
TOTAL	760	1,252	—	—	760	1,252
TOTAL OF ELECTRIC GENERATORS INSTALLED	2,012		—		2,012	
ELECTRIC MOTORS :—	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
Driven by—						
Electricity generated in own works	1,552	168	—	—	1,552	168
Purchased electricity	6,331	1,023	317	50	6,648	1,073

The power equipment returned for Northern Ireland was as follows :—

Gas engines 21 H.P. (ordinarily in use).
Electric motors driven by purchased electricity .. 10 H.P. (ordinarily in use).