

## THE TEXTILE TRADES.

### General Report.

The following report summarises in comparable form the principal results of the Censuses of 1930 and 1924 for the textile group of trades, of which detailed particulars are given in the succeeding reports on individual trades. The particulars in this report relate to the United Kingdom except where otherwise specified.

### Principal results.

The main particulars obtained for 1930 and 1924 are set out in the following table :—

Trade.	Gross output (selling value of goods made and value of work done).	Cost of materials used and amount paid for work given out.	Net output (excess of Col. (2) over Col. (3)).	Average number of persons employed (except out-workers).	Net output per person employed.	Mechanical power available.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
	£'000.	£'000.	£'000.	Number.	£	Thous. H.P.	
Cotton Spinning†... {	1930	78,624	58,796	19,828	190,736	104	1,146.6
	1924	195,271	148,358	46,913	252,655	186	1,233.2
Cotton Weaving†... {	1930	79,631	56,120	23,511	198,653	118	353.9
	1924	172,026	135,351	36,675	275,122	133	366.2
Woollen and Worsted ... {	1930	114,833	77,281	37,552	230,342	163	515.3
	1924	194,289	141,082	53,207	274,397	194	523.0
Silk and Artificial Silk ... {	1930	23,012	12,213	9,199‡	59,876	154	127.1
	1924	20,299	10,147	10,152	39,932	254	55.2
Linen and Hemp... {	1930	22,981	16,170	6,811	72,724	94	105.1
	1924	37,563	25,463	12,100	99,305	122	111.2
Jute ... {	1930	9,605	6,965	2,640	28,727	92	65.8
	1924	14,206	9,816	4,390	34,402	128	59.9
Hosiery† ... {	1930	39,444	23,090	16,354	105,410	155	38.6
	1924	42,495	27,267	15,228	95,529	159	29.5
Textile Finishing... {	1930	30,379	11,132	19,247	105,254	183	315.8
	1924	43,421	14,962	28,459	114,837	248	285.2
Lace ... {	1930	7,449	4,707	2,742	15,635	175	14.2
	1924	9,130	6,180	2,950	17,854	165	13.9

Trade.	Gross output (selling value of goods made and value of work done).	Cost of materials used and amount paid for work given out.	Net output (excess of Col. (2) over Col. (3)).	Persons employed (except out-workers).	Net output per person employed.	Mechanical power available.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	£'000.	£'000.	£'000.	Number.	£	Thous. H.P.
9 Rope, Twine and Net† ...	1930 6,229	4,169	2,060	14,801	139	29.6
	1924 7,433	5,089	2,344	13,617	172	27.2
Canvas Goods and Sack ...	1930 4,995	3,641	1,354	7,746	178	6.9
	1924 7,201	5,407	1,794	8,971	200	5.9
Asbestos Goods and Engine and Boiler Packing†	1930 3,809	1,932	1,877	7,226	260	15.5
	1924 3,681	1,637	2,044	6,345	322	12.7
Flock and Rag ...	1930 4,014	3,148	866	5,833	148	16.9
	1924 6,476	5,087	1,389	6,705	207	12.8
13 Elastic Webbing ...	1930 1,770	868	902	5,799	156	3.6
	1924 1,923	1,065	858	5,514	156	2.8
Coir Fibre, Horse-hair and Feather†	1930 1,995	1,271	724	3,825	189	6.5
	1924 2,225	1,351	874	4,531	193	4.0
Roofing Felts ...	1930 1,034	593	441	1,227	359	2.6
	1924 931	544	387	1,117	346	1.6
Packing ...	1930 1,558	670	888	5,441	163	2.7
	1924 3,090	1,428	1,662	7,959	209	2.4
Unclassified textile trades (Northern Ireland)* ...	1930 1,025	619	406	2,995	136	5.7
	1924 1,166	796	370	3,192	116	4.5
TOTAL—UNITED KINGDOM ...	1930 432,387	283,385	147,402	1,062,250	139	2,772.4
	1924 762,826	541,030	221,796	1,261,984	176	2,751.2
England and Wales	1930 368,447	242,535	124,312	872,511	142	2,451.3
	1924 670,135	483,162	186,973	1,037,986	180	2,433.3
Scotland ...	1930 42,709	26,278	16,431	122,642	134	217.0
	1924 59,933	36,193	23,740	137,236	173	218.2
Northern Ireland...	1930 21,231	14,572	6,659	67,097	99	104.1
	1924 32,758	21,675	11,083	86,762	128	99.7

\* Includes Rope, Twine and Net; Hosiery; Asbestos Goods and Engine and Boiler Packing; Cotton Spinning; Cotton Weaving; and Coir Fibre, Horse-hair and Feather Trades.

† Great Britain.

‡ Exclusive of Excise duty estimated at £1,600,000.

**Comparability of results.**—All particulars relating to Great Britain, for both 1930 and 1924, are confined to firms employing more than ten persons, but those relating to Northern Ireland

apply to firms employing more than five persons for the year 1930 and to all firms for the year 1924. This slight difference in scope, however, has no appreciable effect on the comparability of the aggregates for the group as a whole. Comparability between the aggregates for Northern Ireland is, however, affected by the different allocation of the shirt and collar trade in the two years (see page 141).

The cutting of pile fabrics was included in the scheduled list of trades covered by the 1930 Census (see report on the Textile Finishing Trade, p. 191), but was excluded from that of 1924. According to returns made at the 1930 Census, firms engaged in this class of trade employed, on the average, only 1,428 persons, and this change has, therefore, no material effect on the group aggregates.

At both Censuses, firms were normally assigned to the trade appropriate to the class of manufacture with which they were chiefly concerned and the aggregates for individual trades may be affected to some extent by the assignment of the same firm to different trades at the two periods. This may have occurred where a firm's business covered more than one Census trade and the relative importance of one department to the other may have been reversed in the inter-censal period. With a view to securing greater comparability between the results for 1924 and 1930, certain firms in the Cotton and Woollen Trades which between 1924 and 1930 had become mainly manufacturers of artificial silk were retained in the trade in which they were mainly concerned in 1924. With negligible exceptions, all changes of this kind are accounted for in the totals for the whole group.

#### Deficiencies due to the exclusion of small firms in Great Britain.

—There will be found in the report on each trade a brief section setting out the number of persons reported to have been employed in both 1924 and 1930 by firms employing not more than ten persons, with details of the chief classes of goods made and work done by these firms in the earlier year. Taking the textile group as a whole, 15,577 persons were stated to have been employed by firms of this class at the 1930 Census and 10,209 at that of 1924. Thus, of the aggregate number of employees recorded by firms of all classes, the proportion employed by the smaller firms was 1.5 per cent. in 1930 and 0.9 per cent. in 1924.

About 500 firms to which schedules were sent furnished no information at the 1930 Census, but these outstanding cases are known to have consisted either of small businesses or of businesses which were in operation for only a part of the censal year. The number of firms that furnished no particulars at the previous Census was about 1,150.

As indicated by the greater number of firms that furnished no particulars at the earlier Census, the apparent increase between 1924 and 1930 in the proportion employed by the smaller firms is due partly to deficiencies in the 1924 survey of the activities

of these firms, whose business records did not in many cases permit them to supply the detailed information required for that year. In some measure the increase results from relatively greater depression in trades, such as the Cotton Trade, in which production is normally carried on in large units.

#### Periods covered by firms' returns.

As explained in Note 1 on page xi, firms were given the option of making returns for the calendar year 1930 or for their period of account most closely corresponding thereto, provided that the ending date of that period was not later than 31st March, 1931. The following table shows, for the textile group of trades as a whole, the total number of returns and the numbers of persons employed according to the periods covered by the returns received.

Returns in respect of 12 months ended	Number of returns.		Persons employed.	
	Number.	Per cent. of total.	Average number.	Per cent. of total.
April, 1930 ... ..	76	1.2	18,948	1.9
May, 1930 ... ..	68	1.1	9,636	1.0
June, 1930 ... ..	250	3.9	66,400	6.7
July, 1930 ... ..	56	.9	7,479	.8
August, 1930 ... ..	81	1.3	16,242	1.6
September, 1930 ... ..	232	3.6	43,272	4.3
October, 1930 ... ..	159	2.5	35,471	3.6
November, 1930 ... ..	280	4.4	53,904	5.4
December, 1930 ... ..	3,614	56.9	507,750	51.0
January, 1931 ... ..	245	3.9	39,497	4.0
February, 1931 ... ..	170	2.7	32,230	3.2
March, 1931 ... ..	1,116	17.6	164,324	16.5
<b>TOTAL ... ..</b>	<b>6,347</b>	<b>100.0</b>	<b>995,153</b>	<b>100.0</b>

The above particulars relate only to firms in Great Britain, a similar analysis of the returns furnished at the Census of Northern Ireland not being available.

The mean terminal date of all returns furnished for the Textile Trades at the Fourth Census was about the middle of the third week of December, 1930, and the recorded production may be taken as representing substantially the output of the calendar year. Nearly 57 per cent. of the total number of returns received were for the calendar year, and the firms concerned employed rather more than one half of the total number of persons recorded. The following table shows the number of returns and the numbers employed in each trade in respect of these firms.

Returns covering the twelve months ended December 31st, 1930.

Trade.	Number of returns.		Persons employed.	
	Number.	Per cent. of total.	Average number.	Per cent. of total.
Cotton (Spinning) ... ..	467	51	90,109	47
Cotton (Weaving) ... ..	639	54	97,308	49
Woollen and Worsted ... ..	722	54	108,866	47
Silk and Artificial Silk ... ..	109	56	31,292	52
Linen and Hemp ... ..	54	58	6,254	39
Jute ... ..	47	56	16,014	56
Hosiery ... ..	520	65	65,661	62
Textile Finishing ... ..	459	62	55,201	55
Lace ... ..	150	60	9,275	59
Rope, Twine and Net ... ..	93	61	7,147	48
Canvas Goods and Sack ... ..	105	60	4,133	55
Asbestos Goods and Engine and Boiler Packing ... ..	40	63	3,677	51
Flock and Rag ... ..	92	59	3,634	64
Elastic Webbing ... ..	17	59	4,176	72
Coir Fibre, Horsehair and Feather	42	69	2,521	66
Roofing Felts ... ..	8	50	562	58
Packing ... ..	50	55	1,920	37
<b>TOTAL ... ..</b>	<b>3,614</b>	<b>57</b>	<b>507,750</b>	<b>51</b>

#### Production.

As between one trade and another the money value of the gross output (column 2 of the table on page 1) is largely dependent on the intrinsic value of the materials from which the products are manufactured, while as between one year and another the figure for the same trade is influenced by changes in the prices of those materials and in manufacturing costs and profits. Further, in certain trades duplication in the gross output value leads to a considerable over-statement of the value of the products as finally delivered, this factor affecting each trade to a different extent. For these reasons the gross output figure does not provide a satisfactory representation of the position either of different trades in relation to each other in a given year or of the same trade in different years.

The net output figure eliminates any over-statement due to the factor of duplication, but its utility as a basis of comparison between different trades in the same year is subject to the reservations mentioned in the Introductory Notes (p. x); moreover, the relationship between the net output reported by a given trade for different years is affected by fluctuations in the various items which the figure comprises, viz., wages and salaries, rent, sales expenses, etc., as well as depreciation and profits. Measurement of production by net output is therefore only a rough guide and the important qualifications to which the results are subject should not be overlooked. In this

connection attention is drawn to the estimate made of the relative volume of production in the two years for the group as a whole (see page 7). Net output per head eliminates the variable factor of the numbers of persons employed, but the use of figures of net output per head for purposes of comparison is subject to the qualifications already mentioned, and it will be seen later that the decline in net output per head in the Textile Trades between 1924 and 1930 was much larger than would appear from a consideration of the volume of production in the two years in relation to the numbers employed.

**Net output.**—The recorded value of the total net output in the textile group as a whole was lower in 1930 than in 1924 by one-third, and the net output per employee declined by 21 per cent. Though this result was largely due to the depressed condition of the Cotton Trade, which contributed about 30 per cent. of the total net output in 1924, it will be observed from the table on page 1 that a decline was shown by 14 out of the 18 trades contained in the group, and in eight cases the decline was greater than would appear to be attributable to a fall in prices. In the Cotton Trade, the decline from the 1924 figure was about 48 per cent., in the Packing Trade 46 per cent., and in the Jute Trade nearly 40 per cent., while the Textile Finishing and the Flock and Rag Trades showed declines of between 30 and 40 per cent.

Only one trade of major importance, viz., Hosiery, recorded a higher net output than in 1924, but increases were also shown in three minor trades, viz., Roofing Felts, Elastic Webbing and the small miscellaneous group shown for Northern Ireland. The high figure of net output per employee in the Textile Finishing and the Asbestos Goods, etc., Trades may be associated with the employment of a relatively larger number of male operatives in these two trades. The lowest figures for both years were reported by the Jute and the Linen and Hemp Trades. Comparing the net output of the three main divisions of the United Kingdom in 1930 with that in 1924, the total for England and Wales declined by 34 per cent., for Scotland by 31 per cent., and for Northern Ireland by 40 per cent.

**Volume of production.**—The following table shows, for each principal class of commodities produced by the Textile Trades, the total output value recorded for the year 1930, and the result of a re-valuation of the output of similar classes of goods in 1924, based on the average factory value shown by the returns for 1930. In order to complete the calculation it has been necessary to make estimates in respect of the relatively small proportion of goods for which particulars of quantities were not obtained. This calculation eliminates the factor of price changes, and provides a measure by which the output in the two years may be compared directly. The figures for both years represent the total recorded output, whether returned by

firms in the trade chiefly concerned in the production of the specified goods, or by firms in other trades.

These particulars relate only to production in Great Britain. Owing to the risk of disclosure of information relating to individual businesses, it was not found possible to publish separate particulars of the output of certain classes of goods in Northern Ireland in 1930, and a complete record of production in the United Kingdom cannot therefore be given in respect of all classes included in the table.

Kind of goods.	Total production in Great Britain.			1930 as a percentage of 1924.
	1930.	1924.		
	As returned.	As returned.	At 1930 average values.	
	£'000.	£'000.	£'000.	Per cent.
Cotton yarns (including sewing cotton) ... ..	79,822	194,654	101,222	79
Cotton manufactures (except lace and ropes, twine and nets) ...	71,446	172,074	118,194	60
Woollen and worsted ... ..	112,549	191,993	146,337	77
Silk and artificial silk ... ..	29,573	18,501	12,053	245
Linen and hemp ... ..	4,485	7,239	5,764	78
Jute ... ..	8,982	13,828	11,347	79
Hosiery ... ..	39,669	44,236	37,924	105
Textile finishing* ... ..	29,034	41,224	37,108	78
Lace ... ..	4,374	5,306	4,898	89
Ropes, twine and nets ... ..	5,778	7,372	5,783	100
Canvas goods and sacks ... ..	5,422	7,344	5,608	97
Asbestos goods and engine and boiler packing ... ..	4,267	3,280	2,524	169
Flocks and rags ... ..	3,860	6,287	4,717	82
Elastic webbing ... ..	1,247	1,410	1,296	96
Coir fibre, horsehair, and feathers	2,013	2,265	1,856	108
Roofing felts ... ..	805	680	610	132
<b>TOTAL</b> ... ..	<b>403,326</b>	<b>717,693</b>	<b>497,241</b>	<b>81</b>

\* Based on the average charges for work done.

This method of comparison indicates that the volume of production of all textile products in Great Britain in 1930 was lower than in 1924 by nearly one-fifth. The figures in each column represent the total output and no allowance for duplication is made for either year. It is probable that any differences between the two years in the proportion of the output which was duplicated were not sufficiently great to affect very materially the result indicated; but it may be noted that for the Cotton Trade there was a relatively larger amount of duplication

in 1924 than in 1930, so that for the output free from duplication the decline between 1924 and 1930 would be smaller than that shown by the above table.

Employment in the Textile Trades in Great Britain declined from 1,175,222 in 1924 to 995,153 in 1930, and if the total output for 1930 and the revalued output for 1924 are divided by the number of persons employed, the resulting figure, per employee, provides a basis of comparison which takes account of price changes and differences in numbers of persons employed. The resulting figures are £405 for 1930 and £423 for 1924.

On this method of calculation, the output per employee in the textile group of trades in 1930 was lower by between 4 and 5 per cent. than in 1924. The extent to which this decline may have been due to irregular working cannot be estimated.

#### Number of establishments.

The following table shows the number of separate establishments covered by the results for 1930, and the total number of returns received for 1930 and 1924. In the case of a firm owning more than one establishment situated in the same Census area and engaged in the same Census trade, a combined return covering all such establishments was usually accepted provided the number of operatives employed at each establishment was shown separately. The number of establishments reported was thus greater than the number of returns received.

Trade.	1930.		1924.
	No. of establishments.	No. of returns.	No. of returns.
✓ 1 - Cotton Spinning ... ..	1,000	911	1,114
✓ 2 - Cotton Weaving ... ..	1,291	1,182	1,456
✓ 3 - Woollen and Worsted ... ..	1,582	1,336	1,684
✓ 4 - Silk and Artificial Silk... ..	236	195	185
✓ 5 - Linen and Hemp ... ..	100	93	146
✓ 6 - Jute ... ..	90	84	80
✓ 7 - Hosiery ... ..	930	804	795
✓ 8 - Textile Finishing ... ..	857	745	783
✓ 9 - Lace ... ..	283	252	322
✓ 10 - Rope, Twine and Net ... ..	175	152	157
✓ 11 - Canvas Goods and Sack ... ..	211	176	187
✓ 12 - Asbestos Goods and Engine and Boiler Packing ... ..	65	63	62
✓ 13 - Flock and Rag ... ..	173	157	206
✓ 14 - Elastic Webbing ... ..	34	29	35
✓ 15 - Coir Fibre, Horse-hair and Feather ... ..	65	61	70
✓ 16 - Roofing Felts ... ..	20	16	18
✓ 17 - Packing ... ..	126	91	131
TOTAL ... ..	7,238	6,347	7,431

These figures relate only to firms in Great Britain, the number of establishments not being recorded separately in the Report on the Census of Production of Northern Ireland.

#### Size of firms.

In the following table the main particulars recorded at the Census of 1930 for the Textile Trades are grouped according to the average numbers of persons shown in the returns.

Size of firm (average numbers employed).	No. of returns.	Gross output.	Cost of materials used.	Amount paid for work given out.	Net output.*	Average number of persons employed (excluding out-workers).	Net output per person employed.
		£'000.	£'000.	£'000.	£'000.		£
11-24 ...	1,030	9,061	5,878	493	2,692	18,026	149
25-49 ...	1,214	20,129	12,984	253	6,889	43,424	159
50-99 ...	1,382	43,627	28,393	1,037	14,196	99,476	143
100-199 ...	1,318	80,519	53,111	1,557	25,821	186,552	138
200-299 ...	649	66,203	44,541	914	20,748	156,965	132
300-399 ...	286	38,561	25,446	365	12,720	98,019	130
400-499 ...	151	26,061	16,851	334	8,823	66,727	132
500-749 ...	162	35,843	22,576	586	12,621	97,160	130
750-999 ...	63	22,509	14,267	337	7,871	54,821	144
1,000-1,499 ...	57	25,343	14,983	177	9,905	68,995	144
1,500 and over	35	43,300	23,011	719	18,457	104,969	176
TOTAL ...	6,347	411,156	262,041	6,772	140,743	995,153	141

\* Excluding Excise duty.

The firms employing less than 300 persons represented about half the production and employment covered by the above table, the proportion as measured by employment being 51 per cent., by gross output 53 per cent., and by net output 50 per cent. The firms employing less than 100 persons and those employing 1,000 and over were approximately equal in importance. For the former group the proportions were 16, 18 and 17 per cent. as measured by employment, gross output and net output, respectively and for the latter group 17, 17 and 20 per cent.

The figures for the Textile Trades as a whole were very largely affected by those for the Cotton Trade, and the following table shows the net output per head according to size of firm for the Cotton Spinning and Weaving Trades and the remainder of the group. The figures for five of the principal trades included in the remainder are also shown separately.

## Net output per person employed.

Size of firm (average numbers employed).	Cotton.		All other Textile Trades.	Woollen and Worsted.	Textile Finish- ing.	Hosiery.	Silk and Artificial Silk.	Jute.
	Spinning.	Weaving.						
11-24 ...	£ 113	£ 135	£ 153	£ 133	£ 179	£ 127	£ 156	—
25-49 ...	128	127	167	165	194	134	153	110
50-99 ...	96	123	159	155	186	138	131	123
100-199 ...	98	116	158	160	189	145	108	68
200-299 ...	97	119	161	168	185	151	126	99
300-399 ...	91	117	156	171	173	162	154	89
400-499 ...	99	120	159	172	162	176	112	112
500-749 ...	106	119	143	163	145	147	74	62
750-999 ...	117	102	163	168	199	178	128	99
1,000 and over	138	123	172	160		176	176	
<b>TOTAL</b>	<b>104</b>	<b>118</b>	<b>161</b>	<b>163</b>	<b>184</b>	<b>155</b>	<b>154</b>	<b>92</b>

The net output per head, both for the Textile Trades as a whole and when the Cotton Trade is excluded, was highest in the group containing the largest firms and next highest for firms employing from 25-49 persons. When Cotton is excluded, the five groups employing from 50-499 persons show a very consistent net output per head of about £160, but in the next largest group, 500-749 persons, there is a marked fall to £143 per head. This is due to a considerable extent to the figure recorded for this group in the Hosiery Trade, which apart from this unusually low figure (about £30 per head smaller than that for the groups next larger and next smaller) shows a steady increase in net output per head with the increasing size of firm. It will be noted, however, that in the case of each of the other trades, except Cotton, separately distinguished in the table, this particular group also had a lower net output per head than those on either side of it. The relatively low net output per head for the group of firms employing 500-749 persons resulted from a lower gross output per head and a lower cost of materials per head, as will be seen from the following figures, which relate to all the Textile Trades except Cotton:—

Size of firm (average numbers employed).	Gross output per person employed.*	Cost of materials (including work given out) per person employed.
	£	£
400-499 ...	393	234
500-749 ...	357	214
750-999 ...	422	259

\* Excluding estimated Excise duty on artificial silk.

## Regional distribution.

In the following table, the principal aggregates for the textile group as a whole as recorded at the Censuses of 1930 and 1924 are grouped according to the areas in which the firms were situated.

Area.	Number of returns.	Gross output.	Net output.*	Average number of persons employed (excluding outworkers).	Net output per person employed.
		£'000.	£'000.		£
1. Greater London ...	{ 1930 210 1924 248	{ 6,643 7,786	{ 2,703 3,250	{ 14,612 15,721	{ 185 207
2. Lancashire with North Cheshire and the Glossop and New Mills District of Derbyshire ...	{ 1930 2,618 1924 2,967	{ 177,278 375,355	{ 55,592 95,432	{ 450,079 568,160	{ 124 168
3. The West Riding of York- shire and the City of York	{ 1930 1,510 1924 2,017	{ 107,263 197,729	{ 34,208 52,887	{ 212,442 272,361	{ 161 194
4. Northumberland, Durham and the Cleveland dis- trict of Yorkshire ...	{ 1930 20 1924 26	{ 1,469 1,629	{ 452 588	{ 2,952 2,840	{ 153 207
5. Warwickshire, Worcester- shire and Staffordshire...	{ 1930 148 1924 159	{ 12,726 14,546	{ 5,674 7,066	{ 35,814 32,200	{ 158 219
6. The rest of England (except Monmouthshire) ...	{ 1930 1,106 1924 1,211	{ 60,862 69,239	{ 24,456 25,090	{ 152,207 141,208	{ 161 178
7 & 8. Wales ...	{ 1930 24 1924 39	{ 2,206 3,551	{ 1,227 2,660	{ 4,560 5,496	{ 269 484
<b>TOTAL—England and Wales ...</b>	{ 1930 5,636 1924 6,667	{ 368,447 670,135	{ 124,312 186,973	{ 872,666 1,037,986	{ 142 180
9. Lanarkshire, Renfrewshire and Dumbartonshire ...	{ 1930 204 1924 266	{ 14,168 20,940	{ 6,105 10,298	{ 38,305 46,178	{ 159 223
10. The rest of Scotland ...	{ 1930 507 1924 498	{ 28,541 38,993	{ 10,326 13,442	{ 84,182 91,058	{ 123 148
<b>TOTAL—Scotland ...</b>	{ 1930 711 1924 764	{ 42,709 59,933	{ 16,431 23,740	{ 122,487 137,236	{ 134 173
<b>TOTAL—Great Britain ...</b>	{ 1930 6,347 1924 7,431	{ 411,156 730,068	{ 140,743 210,713	{ 995,153 1,175,222	{ 141 179
11. Northern Ireland ...	{ 1930 396 1924 440	{ 21,231 32,758	{ 6,659 11,083	{ 67,097 86,762	{ 99 128
<b>TOTAL—United Kingdom</b>	{ 1930 6,743 1924 7,871	{ 432,387 762,826	{ 147,402 221,796	{ 1,062,250 1,261,984	{ 139 176

\* Excluding Excise duty.

The importance of the Lancashire area in the production of all textiles declined slightly in 1930, owing to the depression in the Cotton Trade, but over 42 per cent. of the total number of persons employed in the United Kingdom were recorded by firms in this area. About 20 per cent. of the total in each year were employed in the West Riding of Yorkshire.

Net output per employee was lowest in each year in Northern Ireland, where the linen industry is chiefly centred, and was also below the average in "The rest of Scotland," which contains the most important area in Great Britain connected with the production of linen and also of jute goods, and in Lancashire.

### Employment.

The following table shows the average numbers of male and female operatives, and administrative, technical and clerical staff, in each of the Textile Trades in the two censal years. The table does not include outworkers.

*Average numbers (excluding outworkers) employed in 1930 and 1924 in the several Textile Trades.*

Trade.		Operatives.		Administrative, technical and clerical staff.		Total.
		Males.	Females.	Males.	Females.	
Cotton Spinning* ...	1930	72,042	112,228	5,467	999	190,736
	1924	99,136	146,125	6,456	938	252,655
Cotton Weaving* ...	1930	60,602	130,977	5,749	1,325	198,653
	1924	84,511	182,376	6,984	1,251	275,122
Woollen and Worsted ...	1930	87,957	129,105	10,397	2,883	230,342
	1924	106,343	153,855	11,317	2,882	274,397
Silk and Artificial Silk ...	1930	23,257	31,565	3,565	1,489	59,876
	1924	12,277	25,038	1,917	700	39,932
Linen and Hemp ...	1930	17,252	51,772	2,661	1,039	72,724
	1924	23,428	71,492	3,267	1,118	99,305
Jute ...	1930	9,140	18,765	682	140	28,727
	1924	10,756	22,769	715	162	34,402
Hosiery* ...	1930	17,349	78,993	5,575	3,493	105,410
	1924	15,058	73,390	4,588	2,493	95,529
Textile Finishing ...	1930	73,204	20,818	8,728	2,504	105,254
	1924	81,839	22,301	8,433	2,264	114,837

*Average numbers (excluding outworkers) employed in 1930 and 1924 in the several Textile Trades—continued.*

Trade.		Operatives.		Administrative, technical and clerical staff.		Total.
		Males.	Females.	Males.	Females.	
Lace ...	1930	4,988	8,724	1,251	672	15,635
	1924	5,572	10,134	1,515	633	17,854
Rope, Twine and Net*	1930	4,162	9,452	830	357	14,801
	1924	4,396	8,086	800	335	13,617
Canvas Goods and Sack ...	1930	1,929	4,747	697	373	7,746
	1924	2,047	5,829	745	350	8,971
Asbestos Goods and Engine and Boiler Packing*	1930	4,432	1,618	781	395	7,226
	1924	3,734	1,503	734	374	6,345
Flock and Rag ...	1930	2,136	2,979	540	178	5,833
	1924	2,088	3,876	577	164	6,705
Elastic Webbing ...	1930	1,627	3,752	281	139	5,799
	1924	1,587	3,488	293	146	5,514
Coir Fibre, Horsehair and Feather*	1930	1,593	1,835	274	123	3,825
	1924	1,874	2,268	259	130	4,531
Roofing Felts ...	1930	794	125	230	78	1,227
	1924	761	122	182	52	1,117
Packing ...	1930	3,183	1,442	599	217	5,441
	1924	4,851	2,325	602	181	7,959
Unclassified textile trades (Northern Ireland)†	1930	1,006	1,732	150	107	2,995
	1924	927	2,041	142	82	3,192
TOTAL—UNITED KINGDOM	1930	386,653	610,629	48,457	16,511	1,062,250
	1924	461,185	737,018	49,526	14,255	1,261,984
England and Wales ...	1930	332,228	486,371	40,920	12,992	872,511
	1924	397,455	588,065	41,412	11,054	1,037,986
Scotland ...	1930	35,280	80,153	4,843	2,366	122,642
	1924	39,834	90,134	5,140	2,128	137,236
Northern Ireland ...	1930	19,145	44,105	2,694	1,153	67,097
	1924	23,896	58,819	2,974	1,073	86,762

\* Great Britain.

† Includes Rope, Twine and Net; Hosiery; Asbestos Goods and Engine and Boiler Packing; Cotton Spinning; Cotton Weaving; and Coir Fibre, Horsehair and Feather Trades.

**Distribution by status.**—The number of *operatives* employed in this group of trades declined by 200,921, or about 17 per cent. of the 1924 total, but in spite of this heavy decrease the number of *administrative, technical and clerical staff* was higher by about 2 per cent. Employment of *operatives* increased in six trades, the outstanding case being that of Silk and Artificial Silk, which reported an increase of about 47 per cent.; this increase does not fully express

the employment position in the two years as a large output of artificial silk goods was included in the returns made by firms in other trades (notably the Cotton Weaving and the Woollen and Worsted Trades) and the employees engaged in connection therewith are not included in the total shown for the Silk and Artificial Silk Trade itself. The remaining five trades reporting an increase in the number of operatives were Hosiery, Rope, Twine and Net, Elastic Webbing, Asbestos Goods, etc., and Roofing Felts. Among the remaining twelve trades in the group, the heaviest relative decreases in the employment of operatives occurred in the Cotton, Jute, Linen and Hemp, Packing and Textile Finishing Trades. With the exception of Elastic Webbing, all the trades that recorded increases in the employment of operatives also showed increases in the numbers of their administrative, technical and clerical staff, and in the Textile Finishing and the Packing Trades an increase occurred in the employment of these classes of persons in 1930, although the numbers of operatives employed were substantially lower than in the earlier year. The number of administrative, technical and clerical staff employed in the textile group as a whole increased from 5 per cent. of the number of all employees in 1924 to 6.1 per cent. in 1930.

**Distribution by sex.**—Taking the Textile Trades as a whole, the change in the proportion of *male* to *female* employees of all kinds was relatively small, the proportion of females being 59.0 per cent. of the total in 1930 and 60.0 per cent. in 1924. Of the operatives, about 61 per cent. of the total in both years consisted of females and the proportion of females included in the administrative, technical and clerical staff increased from 22.3 per cent. of the total in 1924 to 25.4 per cent. in 1930. In the various trades the principal changes in the operative staffs were an increase in the proportion of males in the Silk and Artificial Silk Trade from 33 per cent. in 1924 to 42 per cent. in 1930, an increase from 65 to 69 per cent. in the proportion of females in the Rope, Twine and Net Trade and an increase from 35 to 42 per cent. in the proportion of males in the Flock and Rag Trade.

**Distribution by age.**—The following table classifies by age the numbers of persons (excluding outworkers) of each class recorded as employed in the various Textile Trades in the week ended 18th October, 1930 and 1924:—

Number of persons (excluding outworkers) employed in the week ended 18th October, 1930 and 1924.

Trade.	Operatives.				Administrative, technical and clerical staff.				
	Males.		Females.		Males.		Females.		
	Under 18.	Total.	Under 18.	Total.	Under 18.	Total.	Under 18.	Total.	
	Thous.	Thous.	Thous.	Thous.	No.	No.	No.	No.	
Cotton Spinning† ...	1930	11.4	70.5	21.9	109.8	343	5,467	144	999
	1924	18.7	100.9	31.9	148.8	514	6,456	121	938
Cotton Weaving† ...	1930	5.1	55.2	17.2	119.2	379	5,749	210	1,325
	1924	9.2	85.2	24.2	184.6	550	6,984	210	1,251
Woollen and Worsted ...	1930	11.1	89.0	23.0	130.6	612	10,397	375	2,883
	1924	15.4	106.2	30.3	155.1	711	11,317	407	2,882
Silk and Artificial Silk ...	1930	1.4	22.8	7.0	30.9	248	3,565	213	1,489
	1924	1.4	13.1	7.8	26.6	118	1,917	80	700
Linen and Hemp ...	1930	2.4	16.4	10.1	49.3	178	2,661	103	1,039
	1924	4.6	23.8	15.5	72.8	261	3,267	114	1,118
Jute ...	1930	1.8	8.7	3.1	17.8	84	682	19	140
	1924	2.5	10.8	3.8	22.9	106	715	21	162
Hosiery† ...	1930	2.4	17.6	18.6	80.4	549	5,575	640	3,493
	1924	2.2	15.4	18.3	74.6	515	4,588	461	2,493
Textile Finishing ...	1930	7.3	72.0	4.5	20.5	495	8,728	374	2,504
	1924	8.8	82.6	4.7	22.5	640	8,433	424	2,264
Lace ...	1930	0.5	4.9	1.7	8.6	72	1,251	92	672
	1924	0.5	5.5	2.2	10.2	76	1,515	83	633
Rope, Twine and Net† ...	1930	0.9	4.0	2.7	9.1	66	830	55	357
	1924	1.1	4.4	2.1	7.9	63	800	44	335
Canvas Goods and Sack ...	1930	0.2	1.9	1.2	4.6	59	697	55	373
	1924	0.2	2.1	1.2	6.0	62	745	45	350
Asbestos Goods and Engine and Boiler Packing† ...	1930	0.3	4.6	0.2	1.7	88	781	81	395
	1924	0.4	3.9	0.3	1.6	75	734	80	374
Flock and Rag ...	1930	0.1	2.1	0.5	2.9	30	540	41	178
	1924	0.1	2.1	0.5	4.0	33	577	18	164
Elastic Webbing ...	1930	0.3	1.6	1.2	3.8	11	281	25	139
	1924	0.3	1.6	1.0	3.6	13	293	14	146
Coir Fibre, Horsehair and Feather† ...	1930	0.2	1.6	0.4	1.9	18	274	15	123
	1924	0.3	1.9	0.5	2.2	38	259	36	130
Roofing Felts ...	1930	0.1	0.8	*	0.1	15	230	4	78
	1924	0.1	0.8	*	0.1	11	182	5	52
Packing ...	1930	0.2	3.2	0.3	1.5	50	599	24	217
	1924	0.4	4.8	0.5	2.3	57	602	25	181
Unclassified textile trades (Northern Ireland)† ...	1930	0.3	1.0	0.3	1.7	8	150	15	107
	1924	0.3	0.9	0.4	1.9	9	142	17	82
TOTAL ...	1930	46.0	378.1	113.8	594.3	3,304	48,457	2,487	16,511
	1924	66.3	466.0	145.2	747.7	3,850	49,526	2,196	14,255

\* Less than 50.

† Great Britain.

‡ Includes Rope, Twine and Net; Hosiery; Asbestos Goods and Engine and Boiler Packing; Cotton Spinning; Cotton Weaving; and Coir Fibre, Horsehair and Feather Trades.



Young persons employed in these trades numbered 165,600 in 1930 and 217,500 in 1924, and formed 16.0 per cent. and 17.0 per cent. respectively of the total of all employees. Of the total female staff, the proportion of young persons was nearly the same in each year, viz., rather over 19 per cent. and 15 per cent. for operatives and administrative, etc., staff, respectively, but of the total male staff the proportion of young persons among the operatives declined from 14 to 12 per cent. and among the administrative, etc., staff from 8 to 7 per cent.

**Monthly fluctuations in employment.**—In order to ascertain what fluctuations in employment there might be in the course of the censal year, firms were required to state the actual numbers of the operative staff employed in one week in each month. The figures for the various trades are shown in the respective reports, and the following table gives the monthly aggregates for the whole of the textile group:—

*Operative staff (excluding outworkers) in the Textile Trades in 1930 and 1924.*

Middle week in	Total number.	
	1930.	1924.
January ... ..	1,072,202	1,170,231
February ... ..	1,053,010	1,178,064
March ... ..	1,046,666	1,184,420
April ... ..	1,050,718	1,193,905
May ... ..	985,002	1,202,688
June ... ..	964,105	1,195,558
July ... ..	966,324	1,194,892
August ... ..	947,168	1,194,920
September ... ..	950,875	1,210,227
October ... ..	972,397	1,213,736
November ... ..	981,050	1,218,621
December ... ..	977,866	1,221,176
<b>AVERAGE FOR THE 12 MONTHS ...</b>	<b>997,282</b>	<b>1,198,203</b>

Whereas in 1924 the tendency was for employment to increase throughout the year, the number employed in January being 2.3 per cent. below the average for the year and in December 1.9 per cent. above the average, in 1930 the tendency was in the opposite direction. Employment in January, 1930, was 7.5 per cent. above the yearly average, while in December it was 1.9 per cent. below that figure. The numbers employed declined almost continuously month by month from January to August, there being a heavy drop of 65,716 between April and May, but some improvement was shown in the last quarter of the year; the number recorded in each month of this quarter was, however, smaller than that recorded for May.

**Outworkers.**—Employment of outworkers was not a factor of importance in the textile group of trades taken as a whole, the recorded number in 1930 being only 0.6 per cent. of the total average number of operatives. The total number of outworkers recorded for that year represented a decline of nearly 41 per cent. from the number reported for 1924.

*Average numbers of outworkers employed.*

Trade.	1930.			1924.		
	Males.	Females.	Total.	Males.	Females.	Total.
Silk and Artificial Silk...	37	90	127	43	353	396
Linen and Hemp ...	290	2,730	3,020	565	4,504	5,069
Jute ... ..	1	—	1	—	1	1
Hosiery ... ..	81	1,274	1,355	166	2,409	2,575
Lace ... ..	4	916	920	16	1,438	1,454
Rope, Twine and Net ...	8	713	721	14	945	959
Canvas Goods and Sack	30	51	81	9	60	69
Coir Fibre, Horse-hair and Feather ... ..	13	29	42	8	44	52
<b>TOTAL ... ..</b>	<b>464</b>	<b>5,803</b>	<b>6,267</b>	<b>821</b>	<b>9,754</b>	<b>10,575</b>

#### Wages.

The table on pages 18 and 19 summarises the information available as to the amount of wages paid by firms in the Textile Trades in 1930 and 1924. The particulars of wages shown in column (8) are those ascertained by the Ministry of Labour as a result of the voluntary inquiries undertaken by that Ministry into wages and hours of labour in the United Kingdom.

Owing, however, to various causes, including the fact that certain firms owning several establishments made combined returns to one Department and separate returns to the other, it has not been found practicable to secure comparable particulars in respect of all firms that furnished particulars of wages to the Ministry of Labour.

The numbers of operatives shown in columns (1) and (3) are those returned to the Census of Production as employed by the firms concerned in the weeks ended 18th October, 1930 and 1924, and the average during the year 1930 respectively. The amount of wages paid shown in column (8) was the aggregate returned to the Ministry of Labour in respect of the same firms. The proportion of each trade represented by the firms that furnished particulars of their wage bills is shown in columns (2) and (4) based on the numbers of operatives employed and in column (7) on net output. The average numbers of operatives employed during the year 1924, corresponding to those given in column (3) in respect of 1930, are not available.

The figures for wages for both years relate to firms employing on an average more than ten persons during the respective years and cover firms in Great Britain only with the exception of the Rope, Twine and Net Trade for 1924.

Trade.	Firms furnishing				
	Operative staff employed.				
	During week ended 18th October. (1)	Proportion of trade. (2)	Average during year. (3)	Proportion of trade. (4)	
	No.	Per cent.	No.	Per cent.	
Cotton (Spinning and Weaving) ...	1930	228,614	64.5	234,079	62.3
	1924	366,513	70.5	\$	—
Woollen and Worsted ...	1930	163,928	74.9	161,294	74.6
	1924	206,406	79.2	\$	—
Silk and Artificial Silk ...	1930	41,630	77.5	41,570	75.8
	1924	27,505	69.3	\$	—
Linen and Hemp ...	1930	7,019	46.9	7,273	47.4
Jute ...	1930	21,763	82.2	22,997	82.4
Jute, Linen and Hemp† ...	1930	28,782	69.5	30,270	70.0
	1924	45,231	79.3	\$	—
Hosiery ...	1930	66,098	67.4	64,390	66.8
	1924	55,458	61.6	\$	—
Textile Finishing ...	1930	66,805	76.2	67,542	76.2
	1924	63,094	63.7	\$	—
Lace ...	1930	6,177	45.9	6,157	44.9
	1924	8,854	56.2	\$	—
Rope, Twine and Net ...	1930	6,690	50.8	6,811	50.0
	1924*	10,898	88.4	\$	—
Canvas Goods and Sack	1930	3,391	53.2	3,481	53.6
	1924	4,837	62.1	\$	—
Asbestos Goods and Engine and Boiler Packing ...	1930	3,598	57.4	3,491	57.7
	1924	3,993	73.1	\$	—
Flock and Rag ...	1930	1,847	37.8	1,820	36.6
	1924	3,725	62.6	\$	—
Elastic Webbing ...	1930	3,571	66.2	3,545	65.9
	1924	3,634	69.4	\$	—
Coir Fibre, Horse-hair and Feather ...	1930	1,875	53.9	1,903	55.5
	1924	2,416	58.7	\$	—
Roofing Felts ...	1930	455	64.4	445	64.5
Packing ...	1930	2,211	49.5	2,134	48.5
	1924	4,881	73.0	\$	—
TOTAL ...	1930	625,672	68.5	628,932	67.4
	1924	807,445	71.5	\$	—

\* In order to avoid disclosure of information relating to individual firms, these particulars relate to the United Kingdom as a whole.

† Separate particulars in respect of the Jute and the Linen and Hemp Trades, respectively, are not available for the year 1924.

Trade.	returns of wages.				
	Gross output.	Net output.		Wages paid.	
		Amount.	Proportion of trade.	Amount.	Proportion of net output.
	(5)	(6)	(7)	(8)	(9)
Cotton (Spinning and Weaving).	£'000.	£'000.	Per cent.	£'000.	Per cent.
	101,467	27,870	64.3	19,680	70.6
Woollen and Worsted.	\$	60,894	72.8	33,168	54.5
	85,537	28,286	75.5	14,709	52.0
Silk and Artificial Silk.	\$	41,673	78.5	20,891	50.1
	17,859	7,785†	84.6	4,453	57.2
Linen and Hemp.	\$	8,084	79.6	2,538	31.4
	2,421	804	46.2	509	63.3
Jute.	7,798	2,059	77.9	1,754	85.2
	10,219	2,863	65.4	2,263	79.0
Jute, Linen and Hemp.	\$	6,159	81.5	3,564	57.9
	27,745	11,644	71.1	5,760	49.5
Hosiery.	\$	9,222	60.5	4,854	52.6
	22,657	14,496	78.9	7,972	55.0
Textile Finishing.	\$	17,390	64.2	8,179	47.0
	3,526	1,341	48.9	634	47.3
Lace.	\$	1,610	54.6	796	49.4
	3,108	1,081	52.4	497	46.0
Rope, Twine and Net.	\$	1,946	83.0	824	42.3
	2,986	713	54.7	333	46.7
Canvas Goods and Sack.	\$	1,143	65.0	401	35.1
	2,481	1,275	67.9	434	34.0
Asbestos Goods and Engine and Boiler Packing.	\$	1,591	77.8	473	29.7
	1,418	407	48.0	167	41.0
Flock and Rag.	\$	936	68.9	346	37.0
	1,109	571	63.3	293	51.3
Elastic Webbing.	\$	598	69.6	323	54.0
	1,050	435	60.0	164	37.7
Coir Fibre, Horse-hair and Feather.	\$	545	62.3	195	35.8
	665	277	76.5	71	25.6
Roofing Felts.	\$	454	54.3	324	71.4
	800	1,239	77.1	607	49.0
Packing.	\$	454	54.3	324	71.4
	800	1,239	77.1	607	49.0
TOTAL.	282,627	99,498	70.7	57,754	58.0
	\$	153,030	72.7	77,159	50.4

§ Details not available.

† Excluding Excise duty.

Except in respect of Silk and Artificial Silk, Hosiery, and Textile Finishing, the proportion of the total trade covered by the firms that furnished particulars of wages was less, and in many cases substantially less, in 1930 than in 1924. For the Textile Trades as a whole, the proportion declined from 71.5 per cent. to 68.5 per cent. as measured by operatives employed, and from 72.7 per cent. to 70.7 per cent. as measured by net output. In each year, therefore, the net output per person employed by the firms that furnished returns of wages was greater than in the case of firms that failed to give such information, and the disparity between these two sets of firms was greater in 1930 than in 1924. This applies to most of the individual trades as well as to the group as a whole, but an important exception in 1930 is the Jute Trade, and in the Cotton Trade the proportion of the trade was about 64.4 per cent. according to either method of measurement. It would thus appear that in general the returns of wages were made by firms having a greater margin than the average to cover wages and other expenses, but it does not necessarily follow that wages in such firms represented a smaller part of the net output than the average for the trade as a whole.

In only three trades—Hosiery, Lace and Elastic Webbing—did wages form a smaller proportion of net output in 1930 than in 1924. In most trades they formed a much greater proportion in the later year, and for the Textile Trades as a whole the proportion of net output represented by wages increased from 50.4 per cent. in 1924 to 58.0 per cent. in 1930. The highest proportion recorded in 1930 was 85.2 per cent. for the Jute Trade, leaving a margin which would appear to be inadequate to cover other overhead expenses. The next largest proportions were recorded for the Packing Trade (71.4 per cent.), the Cotton Trade (70.6 per cent.), and the Linen and Hemp trade (63.3 per cent.). In no other trade did the recorded proportion of wages to net output in 1930 exceed the average figure of 58 per cent. and in 1924 the proportion was below this figure in every trade.

#### Mechanical Power.

The particulars recorded at the Censuses of 1930 and 1924 in respect of power installed and employed in the textile group of trades are shown in the following table.

#### Power ordinarily in use and not in use in the Textile Trades in 1930 and 1924.

Type.	Capacity ordinarily in use.		Capacity in reserve or idle.		Proportion in reserve or idle.	
	1930.	1924.	1930.	1924.	1930.	1924.
<b>PRIME MOVERS.</b>	Th. H.P.	Th. H.P.	Th. H.P.	Th. H.P.	Per cent.	Per cent.
Reciprocating steam engines ... ..	1,709.7	1,900.9	106.7	198.9	5.9	9.5
Steam turbines ... ..	198.7	125.6	41.0	26.8	17.1	17.6
Internal combustion engines:—						
Gas engines ... ..	30.7	48.1	7.2	8.1	19.0	14.4
Petrol, kerosene or other light oil engines ... ..	2.5	0.8	1.3	0.7	35.6	47.0
Heavy oil engines ... ..	14.2	5.5	0.9	0.9	6.1	13.8
Water engines ... ..	31.3	28.6	2.3	2.3	6.9	7.5
Other ... ..	2.6	—	0.1	—	3.4	—
<b>TOTAL—Prime movers</b>	<b>1,989.7</b>	<b>2,109.5</b>	<b>159.5</b>	<b>237.7</b>	<b>7.4</b>	<b>10.1</b>
<b>ELECTRIC GENERATORS.</b>	Th. Kw.	Th. Kw.	Th. Kw.	Th. Kw.		
Driven by						
Reciprocating steam engines ... ..	186.7	145.0	31.0	29.4	14.2	16.9
Steam turbines ... ..	131.7	76.8	34.3	16.0	20.6	17.3
Internal combustion engines:—						
Gas engines ... ..	7.1	8.4	2.2	1.5	24.0	15.0
Petrol, kerosene or other light oil engines ... ..	0.4	0.1	0.5	0.3	54.1	68.6
Heavy oil engines ... ..	4.1	2.0	0.4	0.5	8.4	18.6
Water engines ... ..	8.4	7.7	0.7	0.1	7.5	2.2
Other prime movers... ..	0.1	—	*	—	10.8	—
<b>TOTAL—Electric generators ... ..</b>	<b>338.5</b>	<b>240.0</b>	<b>69.1</b>	<b>47.8</b>	<b>16.9</b>	<b>9.7</b>
<b>ELECTRIC MOTORS.</b>	Th. H.P.	Th. H.P.	Th. H.P.	Th. H.P.		
Driven by						
Electricity generated in same works ... ..	372.0	267.2	38.9	24.0	9.5	8.2
Electricity generated in other works under same ownership ... ..	5.5	—	0.1	—	2.7	—
Purchased electricity... ..	560.3	364.5	62.9	39.5	10.1	9.8
<b>TOTAL—Electric motors ... ..</b>	<b>937.8</b>	<b>631.7</b>	<b>101.9</b>	<b>63.5</b>	<b>9.8</b>	<b>9.1</b>

\* Less than 50 Kw.

The power generated by prime movers is required partly for direct application and partly for driving generators for the production of electrical energy. The electrical energy so produced may be used either for the purpose of driving electric motors or for heating, lighting and process purposes. Particulars of the power applied mechanically (i.e. directly) and electrically are given in the table on p. 25.

Power in the Textile Trades was derived mainly from reciprocating steam engines in both years, but while there was a substantial decline in these between 1924 and 1930, an increase was recorded in respect of steam turbines, the bulk of which were used to drive electric generators. The increased employment of electrical energy will be noted from the capacity figures shown for electric generators and for motors driven by purchased electricity, which, for those ordinarily in use, increased by 41 per cent. and by 54 per cent. respectively.

It will be noted that in spite of the continuous depression in most of the Textile Trades throughout 1930, the proportion of the total capacity of prime movers that was shown as in reserve or idle was less than in 1924, and that of electric motors showed no marked change. At the 1930 Census, firms were definitely informed that obsolete engines should not be recorded in their returns, and as no similar instruction was given at the previous Census, the figures for reserve or idle plant in the two years may not be precisely comparable. In any case, however, the proportion of reserve or idle plant does not furnish a reliable measure of the activity of trade, as all engines that were in operation during the greater part of the period in which production was carried on were recorded as "ordinarily in use," irrespective of intermittent working.

The particulars furnished at the two Censuses by each of the trades included in the textile group in respect of prime movers, electric generators and electric motors *installed*, are shown in the following table.

Mechanical power available in 1930 and 1924.

Trade.	Prime movers.	Electric generators.	Electric motors.			All electric motors.
			Driven by electricity			
			Generated in same works.	Generated in other works under same ownership.	Purchased.	
	Thous. H.P.	Thous. Kw.	Thous. H.P.	Thous. H.P.	Thous. H.P.	Thous. H.P.
Cotton Spinning†	{ 1930 948.4 1924 1,090.3	{ 113.7 78.8	{ 96.9 78.0	{ 1.6 —	{ 198.2 142.9	{ 296.7 220.9
Cotton Weaving†	{ 1930 297.4 1924 328.4	{ 28.7 20.2	{ 20.6 14.5	{ 0.1 —	{ 56.5 37.8	{ 77.2 52.3
Woolen and Worsted.	{ 1930 416.8 1924 447.2	{ 96.8 73.6	{ 93.3 66.6	{ — —	{ 98.4 75.8	{ 191.7 142.4
Silk and Artificial Silk ...	{ 1930 61.5 1924 37.0	{ 37.3 17.0	{ 31.7 14.5	{ 0.5 —	{ 65.6 18.2	{ 97.8 32.7

Mechanical power available in 1930 and 1924—continued.

Trade.	Prime movers.	Electric generators.	Electric motors.				All electric motors.
			Driven by electricity			Purchased.	
			Generated in same works.	Generated in other works under same ownership.			
	Thous. H.P.	Thous. Kw.	Thous. H.P.	Thous. H.P.	Thous. H.P.	Thous. H.P.	
Linen and Hemp	{ 1930 97.0 1924 104.3	{ 26.7 18.9	{ 22.5 15.3	{ — —	{ 8.1 6.9	{ 30.6 22.2	
Jute ...	{ 1930 50.0 1924 52.6	{ 9.3 8.8	{ 9.7 7.7	{ 0.2 —	{ 15.8 7.3	{ 25.7 15.0	
Hosiery† ...	{ 1930 14.8 1924 15.7	{ 6.2 3.7	{ 3.5 2.8	{ * —	{ 23.8 13.8	{ 27.3 16.6	
Textile Finishing	{ 1930 216.0 1924 220.7	{ 79.9 56.1	{ 126.3 82.2	{ 3.1 —	{ 99.8 64.5	{ 229.2 146.7	
Lace ...	{ 1930 8.5 1924 10.3	{ 3.4 2.9	{ 2.2 2.0	{ — —	{ 5.7 3.6	{ 7.9 5.6	
Rope, Twine and Net†	{ 1930 15.9 1924 17.1	{ 2.0 3.3	{ 1.7 3.8	{ — —	{ 13.7 10.1	{ 15.4 13.9	
Canvas Goods and Sack ...	{ 1930 2.2 1924 1.7	{ 0.8 0.6	{ 0.5 0.5	{ 0.1 —	{ 4.7 4.2	{ 5.3 4.7	
Asbestos Goods and Engine and Boiler Packing†	{ 1930 1.7 1924 5.4	{ 0.1 2.0	{ * 1.7	{ — —	{ 13.8 7.3	{ 13.8 9.0	
Flock and Rag ...	{ 1930 9.0 1924 7.3	{ 1.2 0.6	{ 1.0 0.6	{ — —	{ 7.9 5.5	{ 8.9 6.1	
Elastic Webbing	{ 1930 0.9 1924 1.1	{ 0.2 0.3	{ * 0.2	{ — —	{ 2.8 1.7	{ 2.8 1.9	
Coir Fibre, Horsehair and Feather.†	{ 1930 2.1 1924 2.4	{ 0.6 0.6	{ 0.6 0.7	{ — —	{ 4.4 1.6	{ 5.0 2.3	
Roofing Felts ...	{ 1930 1.7 1924 1.3	{ 0.3 0.2	{ 0.4 0.1	{ — —	{ 0.9 0.3	{ 1.3 0.4	
Packing ...	{ 1930 0.6 1924 0.3	{ 0.2 0.1	{ * *	{ — —	{ 2.1 2.1	{ 2.1 2.1	
Unclassified textile trades (Northern Ireland)§	{ 1930 4.7 1924 4.1	{ 0.2 0.1	{ * *	{ — —	{ 1.0 0.4	{ 1.0 0.4	
TOTAL—UNITED KINGDOM	{ 1930 2,149.2 1924 2,347.2	{ 407.6 287.8	{ 410.9 291.2	{ 5.6 —	{ 623.2 404.0	{ 1,039.7 695.2	
England and Wales ...	{ 1930 1,892.0 1924 2,072.8	{ 313.0 224.0	{ 311.9 222.3	{ 4.4 —	{ 559.3 360.4	{ 875.6 582.7	
Scotland	{ 1930 157.6 1924 177.4	{ 61.2 43.0	{ 68.5 50.2	{ 1.2 —	{ 59.4 40.9	{ 129.1 91.1	
Northern Ireland	{ 1930 99.6 1924 97.0	{ 33.4 20.8	{ 30.5 18.7	{ — —	{ 4.5 2.7	{ 35.0 21.4	

† Great Britain.

§ Includes Rope, Twine and Net; Hosiery; Asbestos Goods and Engine and Boiler Packing; Cotton Spinning; Cotton Weaving; and Coir Fibre, Horsehair and Feather Trades.

\* Less than 50 H.P.

A small number of firms in the Textile Trades rented their power as well as their factories; the particulars of the persons employed by such firms in the two censal years are as follows:—

*Firms in Textile Trades renting power.*

Trade.	1930.		1924.	
	Number of persons employed.	Percentage of total persons employed in the trade.	Number of persons employed.	Percentage of total persons employed in the trade.
Cotton ... ..	21,672	5·6	35,665	6·8
Woollen and Worsted ...	10,767	4·7	19,686	7·2
Silk and Artificial Silk ...	410	0·7	375	0·9
Hosiery ... ..	1,313	1·2	1,093	1·1
Lace ... ..	2,158	13·8	2,505	14·5
Other trades ... ..	230	0·2	179	0·1
<b>TOTAL ... ..</b>	<b>36,550</b>	<b>4·0</b>	<b>59,503</b>	<b>5·0</b>

**Total power in use.**—The figures in the following table represent the estimated amount of power actually employed by each of the Textile Trades in the two years. For the purpose of arriving at the power applied mechanically, the capacity of the prime movers required to drive electric generators has been calculated and deducted from the total capacity of the prime movers; the power applied electrically represents the capacity of electric motors driven by generators at firms' works added to that of motors driven by purchased electricity. As the basis for calculating the amount of the primary power that is converted into electrical energy, 746 kilowatts of electrical energy have been taken as equivalent to 1,000 horse-power of primary power and an average loss of ten per cent. in transmission has been allowed except for steam turbines, in which the loss is negligible. The power capacity recorded as "ordinarily in use" has been taken as the basis of the calculation in all cases.

The horse-power of motors designed to be driven by electricity generated in the same works may be greater than that of the prime movers used (or calculated in this manner to have been necessary) to drive them, since machines required for special processes are frequently equipped with individual motors which will only be in use on those occasions when the need for those processes arises. Further the capacity measurement which firms were instructed to state was the effective horse-power which their engines could develop and this measurement does not necessarily represent the capacity at which the engines were normally operated. For these reasons, the figures given below should not be taken as providing more than a rough indication of the actual amount of power employed by any trade or of the degree of its electrification.

*Power in use in 1930 and 1924.*

Trade.		Power applied mechanically.	Power applied electrically.	Total power.	Per head of average number of operatives employed.
		Th. H.P.	Th. H.P.	Th. H.P.	H.P.
Cotton Spinning* ...	1930	764·7	270·0	1,034·7	5·62
	1924	923·6	209·9	1,133·5	4·62
Cotton Weaving* ...	1930	245·4	70·0	315·4	1·65
	1924	269·4	48·0	317·4	1·19
Woollen and Worsted ...	1930	266·6	176·4	443·0	2·04
	1924	299·2	128·5	427·7	1·64
Silk and Artificial Silk ...	1930	9·1	81·0	90·1	1·64
	1924	11·4	28·0	39·4	1·06
Linen and Hemp ...	1930	55·4	27·9	83·3	1·21
	1924	64·1	17·5	81·6	0·86
Jute ... ..	1930	33·5	21·4	54·9	1·97
	1924	37·5	13·6	51·1	1·52
Hosiery* ... ..	1930	4·7	25·2	29·9	0·31
	1924	8·7	15·3	24·0	0·27
Textile Finishing ...	1930	93·9	208·4	302·3	3·21
	1924	118·5	130·5	249·0	2·39
Lace ... ..	1930	2·8	7·2	10·0	0·73
	1924	4·5	4·9	9·4	0·61
Rope, Twine and Net* ...	1930	12·3	14·3	26·6	1·95
	1924	10·8	11·8	22·6	1·81
Canvas Goods and Sack ...	1930	0·8	4·8	5·6	0·84
	1924	0·6	4·0	4·6	0·59
Asbestos Goods and Engine and Boiler Packing* ...	1930	1·5	11·6	13·1	2·17
	1924	2·2	7·8	10·0	1·90
Flock and Rag ... ..	1930	6·8	8·2	15·0	2·94
	1924	6·0	5·6	11·6	1·95
Elastic Webbing ... ..	1930	0·6	2·5	3·1	0·57
	1924	0·6	1·4	2·0	0·39
Coir Fibre, Horsehair and Feather* ... ..	1930	1·0	4·7	5·7	1·68
	1924	1·2	2·2	3·4	0·83
Roofing Felts ... ..	1930	1·1	1·2	2·3	2·50
	1924	1·0	0·3	1·3	1·46
Packing ... ..	1930	0·4	2·0	2·4	0·51
	1924	0·2	2·0	2·2	0·31
Unclassified textile trades (Northern Ireland)† ...	1930	4·4	1·0	5·4	1·98
	1924	3·9	0·4	4·3	1·46
<b>TOTAL ... ..</b>	1930	<b>1,505·0</b>	<b>937·8</b>	<b>2,442·8</b>	<b>2·45</b>
	1924	<b>1,763·4</b>	<b>631·7</b>	<b>2,395·1</b>	<b>2·00</b>

\* Great Britain.

† Includes Rope, Twine and Net; Asbestos Goods and Engine and Boiler Packing; Cotton Spinning; Cotton Weaving; and Coir Fibre, Horsehair and Feather Trades.

For the purpose of the above calculation of power in use per employee, the number of persons employed in factories renting their power has been excluded.

The table shows an increase in the power in use in every trade included in the textile group, and, apart from the Cotton Trade, in the aggregate power in use per employee. For the group as a whole, the increase per employee amounted to between 22 and 23 per cent. The increase was substantially larger than the average in the Silk and Artificial Silk, Roofing Felts, Coir Fibre, and Flock and Rag Trades, and was relatively small in the case of the Rope, Twine and Net Trade.

#### Consumption of fuel.

**Coal and coke.**—At the 1930 Census, all firms were required to state the total quantity of coal and coke used for generating power (i.e., for driving engines), and were also requested to furnish particulars of the amounts used for other purposes on a voluntary basis, as the provisions of the Census of Production Act do not enable the latter to be obtained compulsorily. In the textile industries, where heat is required for process purposes as well as for power, many firms found difficulty in furnishing a trustworthy figure of the quantities used for these two categories separately, and, as appears from the table below, it was necessary to accept a certain number of inclusive quantity statements without distinction as to purpose. The following particulars relate only to firms in Great Britain.

#### Coal and Coke used.

*Note.*—The figures in italics below the name of the trade indicate respectively (1) the percentage of the total capacity of steam engines in use represented by the firms that furnished separate particulars of coal and coke used for power and (2) the percentage of the total net output represented by the firms that furnished separate particulars of coal and coke used for other purposes.

Trade.	For power.		For other purposes.		Unclassified.	
	Coal.	Coke.	Coal.	Coke.	Coal.	Coke.
Cotton— (1) <i>98.5</i> ; (2) <i>80.5</i>	2,008.9	1.8	426.0	3.1	30.8	*
Woolen and Worsted— (1) <i>96.5</i> ; (2) <i>86.2</i>	906.6	4.3	558.1	15.0	44.3	*
Silk and Artificial Silk— (1) <i>99.1</i> ; (2) <i>96.1</i>	106.6	—	292.9	3.2	2.2	—
Linen and Hemp— (1) <i>100.0</i> ; (2) <i>83.3</i>	52.0	1.1	21.8	0.2	—	—
Jute— (1) <i>98.0</i> ; (2) <i>86.0</i>	98.3	—	24.0	0.2	3.0	—

#### Coal and Coke used—continued.

Trade.	For power.		For other purposes.		Unclassified.	
	Coal.	Coke.	Coal.	Coke.	Coal.	Coke.
Hosiery— (1) <i>95.5</i> ; (2) <i>93.8</i>	Th. Tons. 32.4	Th. Tons. 0.1	Th. Tons. 58.0	Th. Tons. 8.8	Th. Tons. 4.6	Th. Tons. *
Textile Finishing— (1) <i>98.1</i> ; (2) <i>93.7</i>	521.5	2.5	1,252.6	9.9	47.3	*
Lace— (1) <i>97.7</i> ; (2) <i>93.4</i>	36.9	0.1	42.0	0.6	1.4	—
Rope, Twine and Net— (1) <i>100.0</i> ; (2) <i>94.9</i>	26.5	0.4	11.3	1.2	—	—
Canvas Goods and Sack— (1) <i>98.3</i> ; (2) <i>94.6</i>	7.9	*	5.6	0.7	0.8	—
Asbestos Goods and Engine and Boiler Packing— (1) <i>100.0</i> ; (2) <i>95.2</i>	2.9	0.1	17.7	4.3	—	—
Flock and Rag— (1) <i>100.0</i> ; (2) <i>93.6</i>	19.7	0.4	5.5	1.5	—	—
Elastic Webbing— (1) <i>100.0</i> ; (2) <i>89.6</i>	2.9	*	6.3	0.1	—	—
Coir Fibre, Horse-hair and Feather— (1) <i>100.0</i> ; (2) <i>94.8</i>	4.8	0.1	10.7	0.8	—	—
Roofing Felts— (1) <i>100.0</i> ; (2) <i>93.6</i>	5.8	0.4	4.1	1.0	—	—
Packing— (1) <i>100.0</i> ; (2) <i>100.0</i>	1.2	—	2.1	3.8	—	—
TOTAL ... .. (1) <i>98.1</i> ; (2) <i>87.7</i>	3,834.9	11.3	2,738.7	54.4	134.4	0.1

\* Less than 50 tons.

The unclassified amount in no individual trade represented a large proportion of the total quantity recorded. Taking all Textile Trades together, the proportion of the total steam engine capacity for which the fuel consumption was not separately returned was only 1.9 per cent. On the basis of the very large proportion of the steam engine capacity covered by the record, the total quantities consumed in 1930 for power purposes may be calculated at about 3,900,000 tons of coal and about 11,300 tons of coke.

No particulars of oil, gas or other fuel used were ascertained for the year 1930. At the Census of 1924, a voluntary inquiry was made as to the amounts of coal, coke, heavy and light oils, and gas consumed and reference should be made to the Final Report on that Census for particulars of the partial information reported by each of the Textile Trades.

**Electricity.**—Particulars of the quantity of electricity used were required from all firms, electricity produced by their own generating plant being distinguished from that purchased from outside sources. No separate record of the purpose for which the current was used was obtained.

The following table shows for each of the Textile Trades the total quantities of electricity used in 1930 :—

*Electricity used.*

Trade.	Electricity purchased.	Electricity generated		Number of units generated per kilowatt of generators in use.
		In same works.	In other works owned by the firm.	
	B.T.U. (Kw.-hrs.) '000.	B.T.U. (Kw.-hrs.) '000.	B.T.U. (Kw.-hrs.) '000.	B.T.U. per kw.
Cotton ... ..	337,169	148,942	1,033	1,207
Woollen and Worsted ...	79,149	101,217	—	1,221
Silk and Artificial Silk ...	135,304	66,559	504	2,715
Linen and Hemp ... ..	5,966	3,665	—	1,170
Jute ... ..	14,422	10,093	198	1,577
Hosiery... ..	23,933	5,624	*	1,239
Textile Finishing ... ..	60,604	78,241	1,357	1,346
Lace ... ..	4,168	1,643	—	591
Rope, Twine and Net... ..	11,204	1,637	—	927
Canvas Goods and Sack ...	2,170	313	*	751
Asbestos Goods and Engine and Boiler Packing... ..	11,028	18	—	196
Flock and Rag ... ..	4,554	1,088	—	928
Elastic Webbing ... ..	2,039	36	—	254
Coir Fibre, Horsehair and Feather ... ..	3,114	631	—	1,117
Roofing Felts ... ..	466	232	—	1,516
Packing ... ..	1,972	112	—	747
<b>TOTAL</b> ... ..	<b>697,262</b>	<b>420,051</b>	<b>3,092</b>	<b>1,240</b>

\* Not recorded.

The figures shown for current generated represent only the amounts generated *and used*, and fall short of the total output of current in cases where electricity was sold to outside consumers.