

THE CLOTHING TRADES

GENERAL REPORT

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THE CLOTHING TRADES

The following General Report deals with the trades related to the manufacture of clothing and of accessories to the same, and of the laundry, cleaning and drying trades. The largest branch of the group is the Clothing Trade, comprising sewing, dressmaking, making and repairing "outer" garments, and the manufacture of shirts, blouses, coats and other garments, which accounted in 1924 for 20,817 persons employed, or 52 per cent of the group total of 39,851 persons. The other major trades in the group were Hosiery and Shirts, and Laundry, Cleaning and Drying, with 12,143 and 12,122 persons employed, or 31 and 31 per cent respectively of the group total.

Each of the trades included in the group forms the subject of a separate Report, in which the detailed results of the 1924 Census of Manufactures are set out, and each report is, so far as possible, with the results of the Censuses for 1913 and 1917. The object of the present General Report is to bring together the principal results for the whole group of trades and, in addition,

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Introductory.

The following General Report deals with the trades engaged in the manufacture of clothing and of accessories to clothing, and in the laundry, cleaning and dyeing trades. The largest member of the group is the Clothing Trade, comprising tailoring, dressmaking, mantle and costume making, millinery, and the manufacture of skirts, blouses, corsets and other garments, which accounted in 1924 for 355,847 persons employed, or 52 per cent. of the group total of 680,541 persons. The other major trades in the group were: Boot and Shoe, and Laundry, Cleaning and Dyeing, with 148,145 and 120,322 persons employed or 22 and 18 per cent. respectively of the group total.

Each of the trades included in the group forms the subject of a separate Report, in which the detailed results of the 1924 Census of Production are set out, and such comparisons as are possible with the results of the Censuses for 1912 and 1907 are made. The object of the present General Report is to bring together the principal results for the whole group of trades, and, in addition,

to set out certain particulars (e.g. as to fuel consumption) which are more conveniently dealt with here than in the separate trade Reports.

Principal results for 1924.

The number of separate Returns received from firms engaged in the clothing trades group in 1924 was 38,471. About 23,075 firms to which schedules were sent did not furnish Returns but the great majority of these firms had very small establishments, and they included a number which were no longer carrying on business at the end of the censal year. On the basis of the information available, it is estimated that they did not employ more than about 72,000 persons in all and that their aggregate net output was probably not in excess of £4,500,000. These figures represent an omission of, at most, about 9.6 per cent. and 4.2 per cent. respectively of the total figures for the group; and the absence of Returns from the firms in question does not materially affect the uses made of the figures in this General Report.

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

Clothing output in 1924.*

Trade.	Gross output (selling value of goods made and value of work done). (1)	Cost of materials used and amount paid to other firms for work given out. (2)	Net output (excess of col. (1) over col. (2)). (3)	Persons employed (except out-workers). (4)	Net output per person employed as shown in col. (4). (5)
	£'000.	£'000.	£'000.	Number.	£
Clothing	126,192	72,568	53,624	355,847	151
Boot and Shoe	55,637	30,511	25,126	148,145	170
Hat, Bonnet and Cap..	13,801	8,410	5,391	31,210	173
Glove	2,313	1,267	1,046	5,757	182
Umbrella and Walking Stick	2,793	1,730	1,063	5,578	191
Fur	6,565	4,261	2,304	9,084	254
Artificial Flower and Ornamental Feather	1,114	527	587	4,598	128
Laundry, Cleaning and Dyeing	21,050	4,717	16,333	120,322	136
TOTAL FOR UNITED KINGDOM	229,465	123,991	105,474	680,541	155
England and Wales* ..	213,152	116,010	97,142	617,578	157
Scotland	13,058	6,152	6,906	50,379	137
Northern Ireland ..	3,255	1,829	1,426	12,584	113

* In order to avoid the disclosure of information relating to a particular firm, the details relating to the Glove Trade for Scotland have been included with those for England and Wales.

* Not including the output of, nor the persons employed in, Army clothing factories, Army and Royal Air Force laundries, H.M. Prisons, etc.: particulars relating to these establishments are dealt with in the Report on Public Utility Services which forms part of a separate volume. The value of the clothing produced by such establishments is stated in the individual trade reports concerned (see pages 251, 271, 301 and 341 of this volume).

Comparability of results with those for 1912 and 1907.

The scope of the Census was not quite the same in the three censal years, and the comparability of the totals for 1924 is affected by the changes referred to in the following paragraphs:—

(1) The Censuses of 1907 and 1924 extended to all firms, however small, but in 1912 firms employing not more than five persons (excluding proprietors) were merely required to state the average number of persons employed by them in the year. The exemption of the small firms in 1912 resulted in the exclusion of a relatively large proportion of the clothing group of trades and the information available for that year, for the group as a whole, is not sufficiently complete to warrant its use for comparisons; moreover, the laundry trade was not included in the Census of 1912. For these reasons the 1907 figures only are, in general, taken for comparison with those for 1924 in the trade Reports and, except in respect of power equipment, in this General Report.

(2) The Census of 1907 covered Great Britain and the whole of Ireland, but that of 1924 applied only to Great Britain and Northern Ireland. According to the Census of Production carried out by the Government of the Irish Free State in respect of the year 1926, the clothing trades carried on in that country employed about 10,600 persons with a gross output of about £2,600,000, that is to say about 1.5 per cent. of the total number of persons employed and about 1.2 per cent. of the gross output, as returned for the clothing group of trades in the United Kingdom in 1924.

(3) In any comparison of figures representing money values, the changes in the level of prices which occurred in the period between the first and third Censuses should be kept in mind.

Production.

It is difficult to find a satisfactory basis on which to compare production in the several trades in the same year, or in any trade or trades in different years. Obviously, no comparisons between trades could be based on the aggregate quantities of goods produced owing to their varied character, even if the necessary information were available for this purpose. The gross output values recorded in the Census of Production, whether for different trades in the same year or for the same trade in different years, are affected in varying degrees by the duplication of goods or processes which they involve, and hence they do not form a practicable basis for comparisons. Some of the difficulties can be avoided by basing comparisons on net output, which, being arrived at by deducting, from the value of the gross output, the total cost of materials used and the amount paid to other firms for work given out to them, represents completely and without duplication the value added to the materials in the course of manufacture. The net output thus constitutes for any industry the fund from which wages, salaries, rent, royalties, rates, taxes, depreciation, advertisement and sales expenses, and

all other similar charges have to be provided, as well as profits; and if the net output for any trade is divided by the number of persons employed by firms in that trade, the resulting figure of net output per head furnishes a basis of comparison between the positions of different trades in the same year (or the same trade in different years) which takes account of differences in the numbers of persons employed and the continuity of their work. The use of net output per head as a basis of comparison was discussed at length in the Final Report on the first Census of Production (1907), where it was pointed out that "as the net output is the fund out of which all charges on industry, except the cost of materials as delivered at the works, are met, it will naturally vary with the amount of those charges" (page 12 of Cd. 6320). The conclusion reached was that "the average net output per head gives a somewhat fictitious representation of the condition of a trade" and that it constitutes only a rough measure on which to base comparisons (pages 14, 15). Hence, while it remains true that the net output for a trade represents a fact, i.e., the value added to materials by capital and labour, and constitutes the best available basis for the comparisons in view, the qualifications to which its use for this purpose is subject must be kept in mind.

Net output per head in 1924 and 1907.—The following table shows, for each of the trades included in the clothing group, the net output per head of persons employed in 1924 and 1907, together with the percentage increase in the net output per head in 1924 over that in 1907.

Net output per head of persons employed (excluding outworkers).*

Trade.	1924.	1907.	Percentage increase in 1924.
	£	£	Per cent.
Clothing	151	62	144
Boot and Shoe	170	71	139
Hat, Bonnet and Cap	173	66	162
Glove	182	91	100
Umbrella and Walking Stick	191	81	136
Fur	254	112	127
Artificial Flower and Ornamental Feather	128	64	100
Laundry, Cleaning and Dyeing	136	55	147
GROUP AVERAGE	155	63	146

* It has been ascertained from the Census records that the exclusion of particulars relating to Southern Ireland from the 1907 figures would not materially affect the calculations.

In 1924 the average net output per head for the group was nearly $2\frac{1}{2}$ times the 1907 average. In no trade was the net output per head in 1924 less than double the 1907 figure. The division of this increase between that part of it which is associated with changes, between 1907 and 1924, in money values of products and of materials, and that part which may be due to other causes, such as changes in the grades of goods made, improved organisation, increased use of mechanical power, etc., would require information

not available from the Census records, and so far as relevant information is otherwise available it cannot readily be correlated with the particulars recorded in the Returns.

Employment.

Employment in 1924.

Classification of persons employed in a specified week.—The following table classifies by sex, age and character of employment the number of persons (excluding outworkers) who were recorded as employed in the various trades in the clothing group in the week ended 18th October, 1924:—

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

Trade.	Operative staff.				Administrative, technical and clerical staff.			
	Males.		Females.		Males.		Females.	
	Under 18.	Total.	Under 18.	Total.	Under 18.	Total.	Under 18.	Total.
	In thousands.				No.	No.	No.	No.
Clothing	6.3	56.3	59.5	257.2	1,180	29,309	1,911	17,990
Boot and Shoe	12.1	83.4	11.9	48.5	396	13,606	803	3,292
Hat, Bonnet and Cap	1.4	10.1	3.6	18.0	165	2,084	143	842
Glove	0.2	2.2	0.9	3.3	12	269	23	112
Umbrella and Walking Stick	0.6	2.4	0.7	2.6	56	689	48	266
Fur	0.8	3.6	0.9	4.3	62	1,213	72	550
Artificial Flower and Ornamental Feather	—	0.6	1.1	3.8	11	200	17	154
Laundry, Cleaning and Dyeing	5.1	20.7	20.1	90.0	103	3,989	866	6,564
TOTAL	26.5	179.3	98.7	427.7	1,985	51,359	3,883	29,770

Monthly fluctuations in employment.—In order to ascertain what fluctuations in employment there might be in the course of the census year, firms were also required to state the average numbers of the operative staff employed in one week in each month. The figures for each trade are shown in the respective Reports, and the following table gives the monthly aggregates for all the clothing trades together:—

Operative staff (excluding outworkers) in Clothing Trades in 1924.

Week ended.	Males.	Females.	Total.
12th January	171,321	402,555	573,876
16th February	173,917	412,200	586,117
15th March	175,465	419,310	594,775
12th April	177,877	427,311	605,188
17th May	179,826	434,582	614,408
21st June	180,120	432,868	612,988
19th July	179,492	426,567	606,059
16th August	177,035	412,889	589,924
13th September	178,246	422,918	601,164
18th October	179,235	427,726	606,961
15th November	178,516	423,884	602,400
13th December	177,667	421,417	599,084
AVERAGE FOR THE 12 MONTHS	177,393	422,019	599,412

The final figure for the year is approximately the same as the average of the 12 monthly figures, while the initial figure is more than 4 per cent. below that average. The number of persons employed increased month by month up to May (for males to June), when employment reached its maximum, and a subsidiary maximum is shown in October. The average number of persons employed in the first half of the year was 597,892 compared with 600,932 in the second half. The average numbers were divided between males and females in the proportion of about 3 to 7.

Employment in 1924 and 1907.

The following table shows the average numbers of male and female operatives (wage-earners), and administrative, technical and clerical staff (salaried persons), in each of the clothing group of trades in the two censal years. The table does not include outworkers. The average numbers shown in this table and the table on page 237 have been determined in the manner explained in Note (18) on page xi.

Average numbers (excluding outworkers) employed in 1924 and 1907 in the several Clothing Trades.

Trade.		Operatives (wage-earners).		Administrative, technical and clerical staff (salaried persons).		Total.
		Males.	Females.	Males.	Females.	
Clothing	1924	55,647	252,901	29,309	17,990	355,847
	1907	72,112	319,972	25,190	24,801	442,075
Boot and Shoe	1924	83,003	48,244	13,606	3,292	148,145
	1907	82,993	34,572	8,165	1,096	126,826
Hat, Bonnet and Cap	1924	10,002	18,282	2,084	842	31,210
	1907	12,151	18,258	2,035	691	33,135
Glove	1924	2,151	3,225	269	112	5,757
	1907	2,180	2,352	193	103	4,828
Umbrella and Walking Stick	1924	2,256	2,367	689	266	5,578
	1907	3,419	3,173	770	201	7,563
Fur	1924	3,383	3,938	1,213	550	9,084
	1907	2,216	2,197	609	217	5,239
Artificial Flower and Ornamental Feather	1924	555	3,689	200	154	4,598
	1907	258	3,101	138	109	3,606
Laundry, Cleaning and Dyeing	1924	20,396	89,373	3,989	6,564	120,322
	1907	19,178	101,506	3,629	7,208	131,521
All Clothing Trades	1924	177,393	422,019	51,359	29,770	
	1907	194,507	485,131	40,729	34,426	
TOTALS	1924	599,412		81,129		680,541
	1907	679,638		75,155		754,793

Classification of average numbers employed.—The following table shows the distribution, according to sex, age and character of employment, of the average number of persons (excluding outworkers) employed in the clothing group of trades in 1924 and 1907.

Average numbers (excluding outworkers) employed in all Clothing Trades in the two censal years.

Sex and age.	1924.		1907.	
	Operative staff.	Total staff.	Wage earners.	Total staff.
<i>Males :—</i>				
Under 18	26,004	27,989	30,750	34,397
Over 18	151,389	200,763	163,757	200,839
TOTAL	177,393	228,752	194,507	235,236
<i>Females :—</i>				
Under 18	97,326	101,209	111,969	115,654
Over 18	324,693	350,580	373,162	403,903
TOTAL	422,019	451,789	485,131	519,557
<i>Males and females :—</i>				
Under 18	123,330	129,198	142,719	150,051
Over 18	476,082	551,343	536,919	604,742
TOTAL	599,412	680,541	679,638	754,793

The only sections of the staffs which did not decrease, comparing 1924 with 1907, were the male staff over 18 years of age and the female staff under 18 years of age, both engaged in administrative, clerical or technical work. The relatively largest decrease was in the males under 18 years of age engaged in work of the same description. The next largest relative decrease was in the female staff over 18 engaged in work of this description. Male operative staff as a whole decreased by 9 per cent. while female operative staff decreased by 13 per cent.

In the aggregate the proportion of males in the total was higher in 1924 than in 1907. In the Clothing Trade, the Artificial Flower and Ornamental Feather Trades, and the Laundry, Cleaning and Dyeing Trades, the male proportion increased while in the other trades in the group it decreased. In the former trades the total number employed decreased from 577,202 to 480,767 and the proportion of males increased from 20·9 per cent. to 22·9 per cent., while in the other trades the total number employed increased from 177,591 to 199,774 and the proportion of males decreased from 64·6 per cent. to 58·9 per cent. The actual number of males employed decreased in the former trades by 8·6 per cent. and increased in the latter by 2·5 per cent.

Sex and age distribution of operatives.—In the clothing group of trades, with the exception of the Boot and Shoe Trade where 63 per cent. of the operative staff in 1924 consisted of males, female labour predominated. In the Clothing Trade, the Hat, Bonnet and Cap, Artificial Flower and Ornamental Feather and Laundry, Cleaning and Dyeing Trades, taken together, over 80 per cent. of the operative staff employed, both in 1907 and 1924, were females. The numbers of both male and female operatives decreased substantially

in the interval, the former by 16·5 per cent., the latter by 17·7 per cent. In the Glove-making, Umbrella and Walking Stick and Fur Trades, the numbers of male and of female operatives were not widely different in 1907—namely, 7,815 and 7,722 in the three trades together—but while the number of males was practically unchanged in 1924, the number of females had increased to 9,530 or 55 per cent. of the total of 17,320 operatives. In the Boot and Shoe Trade, with its predominantly male operative staff, a similar contrast in the changes affecting the two sexes is shown. The number of males was practically unchanged—83,003 against 82,993—while the number of female operatives increased by 39·5 per cent.

In the clothing group as a whole, the proportion of the operatives who were under 18 years of age decreased between 1907 and 1924. The decrease was very slight in the case of female operatives, about 23·1 per cent. being under 18 at both dates: for male operatives there was a decrease from 15·8 per cent. in 1907 to 14·7 per cent. in 1924 in the proportion under the age of 18.

Administrative, technical and clerical staff.—There was a noteworthy increase of the administrative, technical and clerical staff (described in 1907 as salaried persons) both absolutely and relatively to the operative staff (wage-earners). In 1907 this staff in the clothing group of trades numbered 75,155, or nearly 10 per cent. of the total number of persons employed, and in 1924 the total was 81,129 or nearly 12 per cent. of the total number of persons employed. The increase in the actual numbers returned amounts to nearly 8 per cent., while in operative staff there was a decline of nearly 12 per cent. The number of males increased by 10,630 or about 26 per cent., while the number of females decreased by 4,656 or 13½ per cent. The proportion of males to the total thus increased from 54 per cent. in 1907 to 63 per cent. in 1924.

The following table shows the proportions of the administrative, technical and clerical staff in 1924, and of the salaried staff in 1907, to the total staffs in those years in each of the clothing trades.

Trade.	Proportion of total staff represented by	
	Administrative, technical and clerical in 1924.	Salaried persons in 1907.
Clothing	13·3	11·3
Boot and Shoe	11·4	7·3
Hat, Bonnet and Cap	9·4	8·2
Glove	6·6	6·1
Umbrella and Walking Stick	17·1	12·8
Fur	19·4	15·8
Artificial Flower and Ornamental Feather	7·7	6·8
Laundry, Cleaning and Dyeing	8·8	8·2
ALL TRADES	11·9	10·0

Outworkers.—In addition to the persons employed in or about clothing factories and workshops, employment was also given to outworkers, i.e., persons who worked in their own homes on materials given out to them by their employers. There were recorded as

employed an average of 31,983 in 1924 and 74,554 in 1907; of these 69·3 per cent. in 1924 and 72·1 per cent. in 1907 were females. The number of males thus decreased by nearly 53 per cent. while that of females decreased by nearly 59 per cent. These figures do not include such of the members of their families as may have assisted the registered outworkers in executing the work given out to them. Although it is possible that firms which did not furnish Returns may have employed a considerable number of outworkers, it would appear that there was a marked decline in this class of employment. There is, however, some reason for believing that the number of outworkers recorded both for 1924 and for 1907 occasionally included small contractors. The trades which recorded the largest number of outworkers were the Clothing Trade with 20,035 in 1924 and 49,090 in 1907; Glove-making with 5,355 in 1924 and 7,882 in 1907; Boot and Shoe-making with 3,608 in 1924 and 13,736 in 1907; and Hat, Bonnet and Cap-making with 1,952 in 1924 and 2,766 in 1907.

Wages in 1924.

The following table summarises the information contained in the Reports on the separate trades as to the amount of wages paid by firms in those trades in 1924. The particulars of wages shown in column (5) of the table are those ascertained by the Ministry of Labour as a result of the voluntary enquiry undertaken by that Department into wages and hours of labour in the United Kingdom in 1924. The numbers of operatives shown in column (1) are those returned to the Census of Production as employed by the firms concerned in the week ended 18th October, 1924. The proportion of each trade represented by the firms that furnished particulars of their wage-bills is shown in columns (2) and (4) on the basis of numbers of operatives employed and of net output respectively.

Trade.	Firms furnishing returns of wages.					
	Operatives employed.		Net output.		Wages paid.	
	Number. (1)	Proportion of trade total. (2)	Amount. (3)	Proportion of trade total. (4)	Amount. (5)	Proportion of net output. (6)
		Percent.	£'000.	Percent.	£'000.	Percent.
Clothing	173,240	55·3	26,982	50·3	13,946	51·7
Boot and Shoe	89,283	67·7	16,216	64·5	10,097	62·3
Hat, Bonnet and Cap	18,953	67·5	3,563	66·1	1,916	53·8
Glove	3,987	71·9	713	68·1	367	51·5
Umbrella and Walking Stick	2,276	45·7	532	50·0	230	43·2
Fur	3,854	48·5	1,295	56·2	514	39·7
Artificial Flower and Ornamental Feather	3,444	79·5	472	80·4	267	56·6
Laundry, Cleaning and Dyeing	62,832	56·8	8,933	54·7	4,904	54·9
TOTAL	357,869	59·0	58,706	55·7	32,241	54·9

It will be noted that the lowest proportion of wages to net output is shown in the Fur Trade, where the average of wages paid per operative was highest, while the lowest average wages per operative are shown in the last two trades in the table, the proportion of wages to net output in which was only exceeded in the Boot and Shoe Trade.

Mechanical Power.

The power equipment of factories consists in the first instance of the prime movers installed in the works, part being used to apply power mechanically and part to actuate generators for the production of electric energy. Only a portion of that electric energy is used for power, i.e., to drive electric motors, the remainder being used for lighting, heating and other purposes. In addition, many factories derive part or all of their power from electricity purchased and used for driving electric motors.

Power equipment of the various trades in 1924, 1912 and 1907.—The particulars furnished at the three Censuses regarding prime movers and electric generators in factories in the clothing group of trades are shown in the following table. Particulars of electric motors were not obtained in 1907, and particulars relating to 1924 and 1912 only can be given.

The summary figures of power equipment secured at the 1912 Census are included in this and the following paragraphs, though they are omitted from most of the individual trade Reports. The exclusion in that year of firms employing not more than five persons and the incompleteness of many of the Returns rendered the results secured ineffective for the most part for purposes of comparison. The figures relating to power equipment are, however, likely to have been affected in a less degree than other aggregates by the omission of the small enterprises. The main interest of the figures given for 1912 lies in the indication which they afford of the increase that has occurred since that year in the use of electricity, particularly purchased electricity, as a source of power. The omission of small firms in 1912 may have been of particular importance in reference to this feature.

In connexion with the omission of the Irish Free State from the 1924 Census (see page 233) it may be mentioned that, according to the Census of Production conducted by the Free State Government in respect of the year 1926, the total capacity of prime movers in Clothing and Boot and Shoe factories and in Laundries in that year was 2,205 horse-power, which is about 2 per cent. of the total recorded for the United Kingdom in 1924; and the capacity of the electric motors driven by purchased electricity was 877 horse-power or under 1 per cent. of the United Kingdom figure for 1924. It follows that the absence of the Irish Free State from the 1924 Census does not appreciably affect the comparability of the general results for that year with those for 1907 and 1912.

Power equipment of the several Clothing Trades.

Trade.	Prime movers.			Electric generators.		
	1924.	1912.	1907.	1924.	1912.	1907.
	Thousand H.P.			Thousand Kw.		
Clothing	11.8	16.8	17.8	3.5	†	4.1
Boot and Shoe .. .	31.3	21.3	20.2	5.6	3.0	2.5
Hat, Bonnet and Cap ..	3.4	5.9	5.5	0.5	0.6	0.3
Glove	2.0	0.9	0.5	0.4	§	§
Umbrella and Walking Stick	1.0	0.8	1.0	0.4	0.2	§
Fur	0.2	0.5	0.4	—	§	—
Artificial Flower and Ornamental Feather ..	0.1	*	—	—	—	—
Laundry, Cleaning and Dyeing	45.9	10.1†	39.3	5.5	2.9†	3.1
TOTAL	95.7	56.3	84.7	15.9	6.7	10.0

Trade.	Electric motors driven by electricity generated in same works.		Electric motors driven by purchased electricity.		All electric motors.	
	1924.	1912.	1924.	1912.	1924.	1912.
	Thousand H.P.		Thousand H.P.		Thousand H.P.	
Clothing	2.2	†	28.7	12.3	30.9	12.3
Boot and Shoe .. .	3.4	1.4	32.7	6.9	36.1	8.3
Hat, Bonnet and Cap ..	0.7	0.4	9.0	2.5	9.7	2.9
Glove	0.2	*	0.5	0.1	0.7	0.1
Umbrella and Walking Stick	0.6	0.1	1.3	0.2	1.9	0.3
Fur	—	*	1.6	0.3	1.6	0.3
Artificial Flower and Ornamental Feather ..	—	*	0.2	0.1	0.2	0.1
Laundry, Cleaning and Dyeing	3.8	1.7†	18.1	1.3†	21.9	3.0†
TOTAL	10.9	3.6	92.1	23.7	103.0	27.3

* Less than 50 h.p.

† Cleaning and dyeing only; laundry work was excluded from the scope of the 1912 Census.

‡ The absence of any records in respect of the ready-made clothing factories in 1912 is due to the incompleteness of the Returns made.

§ Less than 50 kw.

The distribution of the power equipment recorded in 1924 among the three geographical areas covered by the Census was as follows:—

Area.	Prime movers.	Electric generators.	Electric motors driven by	
			Electricity generated in same works.	Purchased electricity.
	Th. H.P.	Th. Kw.	Th. H.P.	Th. H.P.
England and Wales ..	85.2	13.4	9.3	85.3
Scotland	7.9	1.9	1.0	5.8
Northern Ireland ..	2.6	0.6	0.6	1.0
TOTAL	95.7	15.9	10.9	92.1

Classification of power equipment of clothing group.—The next table, which relates to the power equipment of all the clothing trades taken together, classifies the prime movers according to kinds, the electric generators according to the description of prime movers by which they were driven, and the electric motors according as they were actuated by purchased electricity or by electricity generated in the same factory or works.

Power equipment.	1924.	1912.	1907.
	Th. H.P.	Th. H.P.	Th. H.P.
PRIME MOVERS :—			
Reciprocating steam engines ..	45.6	26.6	46.3
Steam turbines	3.8	0.9	1.7
Gas and oil engines	45.7	28.3	35.3
Water power	0.6	0.2	1.0
Other power	—	0.3	0.4
TOTAL	95.7	56.3	84.7
	Th. Kw.	Th. Kw.	Th. Kw.
ELECTRIC GENERATORS :—			
Driven by—			
Reciprocating steam engines	7.6	3.7	5.7
Steam turbines	2.5	0.7	1.1
Gas and oil engines	5.8	2.3	3.2
Water power	*		
TOTAL	15.9	6.7	10.0
	Th. H.P.	Th. H.P.	Th. H.P.
ELECTRIC MOTORS :—			
Driven by—			
Electricity generated in same works	10.9	3.6	(not ascertained)†
Purchased electricity	92.1	23.7	
TOTAL	103.0	27.3	—

* Less than 50 kw.

† The total electric energy purchased for all purposes in 1907 by firms in this group of trades amounted to over 11,000,000 Board of Trade units (kilowatt hours) and the quantity returned as generated by dynamos of 7,366 kw. capacity was 5,605,000 Board of Trade units.

The prime movers in the clothing trades in all years were mainly steam engines and gas and oil engines. There was a slight decrease in the total horse-power of reciprocating steam engines recorded in 1924 compared with 1907, while the total horse-power of gas and oil engines recorded showed an increase of nearly 30 per cent. The capacity of electric generators increased by 59 per cent. between 1907 and 1924.

Power equipment in use and not in use in 1924.—The firms that made Returns to the Census for 1924 were required to distinguish between the prime movers, electric generators, and electric motors ordinarily in use in the course of the year and those that were in reserve or idle. The proportion not in use should not be taken as a direct measure of the inactivity of trade during the year. While some of the engines, generators, and motors were not in use on account of lack of orders for goods, some were idle because they were normally in reserve against a breakdown or sudden

rush of trade and others may have been in various stages of obsolescence, awaiting the time for being dismantled. The particulars recorded as to power ordinarily in use and not in use in 1924 are given in the following table :—

Power ordinarily in use and not in use in the Clothing Trades in 1924.

Trade.	Prime movers.		Electric generators.		Electric motors.	
	(a) Ordinarily in use.	Percentage not in use.†	(a) Ordinarily in use.	Percentage not in use.†	(a) Ordinarily in use.	Percentage not in use.†
	(b) Not in use.		(b) Not in use.		(b) Not in use.	
	Th. H.P.		Th. Kw.		Th. H.P.	
Clothing	{ (a) 9.3 (b) 2.5 }	20.8	{ 2.7 0.8 }	23.1	{ 27.5 3.4 }	11.0
Boot and Shoe	{ (a) 27.3 (b) 4.0 }		{ 12.8 1.5 }		{ 26.0 1.5 }	
Hat, Bonnet and Cap	{ (a) 3.2 (b) 0.3 }	9.0	{ 0.4 0.1 }	17.6	{ 8.9 0.8 }	8.4
Glove	{ (a) 1.6 (b) 0.4 }		{ 21.5 0.4 }		{ 0.3 0.1 }	
Umbrella and Walk- ing Stick	{ (a) 0.9 (b) * }	4.5	{ 0.4 † }	2.6	{ 1.8 0.1 }	7.4
Fur	{ (a) 0.1 (b) 0.1 }		{ 39.1 — }		{ — — }	
Artificial Flower and Ornamental Feather	{ (a) 0.1 (b) * }	1.8	{ — — }	—	{ 0.2 * }	3.2
Laundry, Cleaning and Dyeing	{ (a) 39.6 (b) 6.3 }		{ 13.7 — }		{ 3.8 1.6 }	
TOTAL	{ (a) 82.1 (b) 13.6 }	14.2	{ 11.8 4.1 }	25.6	{ 94.0 9.0 }	8.8

* Less than 50 H.P.

† Less than 50 kw.

‡ Based in each case upon the actual figures returned, not upon the round figures shown in this table.

Power available for mechanical and electrical application in 1924.—In order to ascertain the actual amount of power available in the several trades, and the proportion of that power applied electrically, the capacity of the prime movers used to actuate electric generators must be replaced by the capacity of the electric motors driven by the electricity so produced. How far it may be legitimate to add together the capacity of engines applying, or intended to apply, power mechanically and the capacity of the electric motors, so as to obtain the power capacity of a factory using both forms of energy, will depend on the organisation of the factory. The information supplied furnishes no guidance as to the effective capacity of the power equipment, for on the one hand actual working capacity is not necessarily identical with the indicated horse-power nor with that which an engine was originally built to develop, data which served largely as the basis of Returns; and on the other hand it does not follow that an engine could run uniformly at its peak load, and some engine-power is generally provided as a reserve against break-downs and not for regular use. In particular, a series of motors (whose aggregate capacity would be returned to the Census) may be installed to run on successive processes, some of which are carried on intermittently as the materials to be treated

become available, so that the series always includes some units not actually in operation. In such cases the aggregate horse-power of the motors, being greater than the power called for at any moment, may be greater than the horse-power of the prime movers required to actuate the generators from which the series of motors is driven. Since, however, the mechanical power available per operative employed is regarded as significant of the efficiency of an organisation an attempt has been made to provide such a measure, though the result can only be regarded as a rough indication claiming no high degree of precision.

In calculating this measure, the power allocated for driving electric generators has to be deducted from the total capacity of prime movers; for this purpose, 746 kilowatts of electrical energy are taken as the equivalent of 1,000 horse-power of mechanical energy, and an average loss of 10 per cent. is allowed in the conversion of mechanical into electric energy, except in the case of steam turbines, which are usually bolted direct to the shafting of the generator. The power available to be applied mechanically is thus ascertained; and the electrical power available is the sum of the capacities of motors driven by purchased electricity and of those driven by electricity generated in the same works. Comparison with power available in 1907 is not possible, since the capacity of electric motors was not ascertained in that year.

The calculation relating to power available has been made on the basis of the power equipment installed and not on that recorded as being in use. For reasons already given, it must be recognised that the figures representing power available per operative employed are, to some extent which cannot be determined, in excess of the average power utilisable.

The following table sets out the result of the calculation:—

Power available in the several clothing trades in 1924.

Trade.	Power for mechanical application.	Power for electrical application.	Total power.	Per head of average number of operatives employed.
	Th. H.P.	Th. H.P.	Th. H.P.	H.P.
Clothing	6.5	30.9	37.4	0.1
Boot and Shoe	23.0	36.1	59.1	0.5
Hat, Bonnet and Cap	2.7	9.7	12.4	0.4
Glove	1.5	0.7	2.2	0.4
Umbrella and Walking Stick	0.4	1.9	2.3	0.5
Fur	0.2	1.6	1.8	0.2
Artificial Flower and Ornamental Feather	0.1	0.2	0.3	0.1
Laundry, Cleaning and Dyeing	38.0	21.9	59.9	0.5
TOTAL	72.4	103.0	175.4	0.3

It will be observed that, except in the Glove Trade and in the Laundry, Cleaning and Dyeing Trades, the major part of the power was for electrical application.

Fuel and Electricity in 1924.

All firms that received schedules were asked to furnish voluntarily particulars of their consumption of fuel (of specified kinds) and electricity (distinguishing that purchased from that generated in the works) under two headings, namely (i) for power (driving engines), and (ii) for heating or lighting the premises, transport, etc. Firms whose aggregate net output was 51.7 per cent. of the net output of all firms in the clothing trades in 1924 furnished information in response to this request, though, as will appear later, many of them were unable to divide their particulars into the two categories indicated. Moreover, the information returned was not equally representative of fuel consumption, of production of electricity, and of consumption of purchased electricity, as the data supplied under these three headings respectively covered 66.2 per cent. of the capacity of all the prime movers (not hydraulic) in use in the clothing group of trades, 43.5 per cent. of the capacity of the electric generators, and 57.2 per cent. of that of the electric motors driven by purchased electricity. The proportion of the trade for which particulars were furnished also varied greatly between one trade and another, as will be seen from the tables given below.

Fuel consumption.

In 1907, when firms were only asked to state their consumption of coal and coke without specification of purpose, the firms that furnished particulars had 45.3 per cent. of the net output of the clothing trades as a whole, and they recorded a consumption of 520,067 tons of coal and 154,641 tons of coke. The consumption recorded in 1924 by firms representing 51.7 per cent. of the net output of the clothing group, included 649,687 tons of coal and 155,672 tons of coke. For the four leading trades the proportion of firms making returns was, in terms of net output: Clothing Trade, 1907, 32.3 per cent., 1924, 43.5 per cent.; Boot and Shoe Trade, 1907, 58.2 per cent., 1924, 59.0 per cent.; Hat, Bonnet and Cap Trade, 1907, 61.7 per cent., 1924, 51.7 per cent.; Laundry, Cleaning and Dyeing Trade, 1907, 74.7 per cent., 1924, 66.7 per cent.

The table on page 246 summarises the information which was received from firms regarding the quantities of different kinds of fuel which they consumed in 1924. These quantities are divided into (a) the amounts used for power purposes, i.e., driving engines, and (b) the amounts used for the lighting or heating of premises, transport, etc., so far as the particulars furnished enable the classification to be made. It appears from the Returns, however, that the basis of classification adopted by the various firms which furnished information was by no means uniform; and apart from this, considerable quantities were reported for which no particulars of purpose could be assigned. These quantities are shown under heading (c) in the table.

In certain clothing trades fuel is used for manufacturing purposes other than the production of power. Such fuel was intended to be included under heading (b), but in the case of the Laundry, Cleaning and Dyeing Trade, where such special consumption of fuel is of particular importance, information was invited as to the quantities used for washing purposes. Information in response to this request was received from some of the firms in the laundry trade, but as it has not been found possible to utilise the data for the proposed purpose in the present Report, the quantities of fuel of various kinds which were so returned have been included in the table with the fuel used, in the Laundry, etc., Trade, for lighting or heating premises, transport, etc., i.e., under heading (b) in the table.

Consumption of fuel (so far as reported) in the several Clothing Trades in 1924.

NOTES.—1. The figures in italics below the name of the trade represent respectively (1) the percentage of the total net output of the trade represented by the firms giving information, and (2) the percentage of the total capacity of prime movers (not hydraulic) in use in the trade represented by the firms giving information.

2. The fuel consumed is, in each case, classified according to the purpose for which it was used, as follows:—(a) for power (driving engines); (b) for heating and lighting premises and for transport, etc.; (c) for purposes not separately distinguished.

Trade.		Coal and slack.	Coke and breeze.	Heavy oils.	Light oils.	Gas* purchased.
		Th. tons.	Th. tons.	Th. gallons.	Th. gallons.	Th. therms.
Clothing	(a)	8.1	0.3	3.0	5.7	202.2
	(b)	23.8	16.6	1.7	106.5	2,375.8
	(c)	6.4	0.4	0.3	2.1	144.2
Boot and Shoe	(a)	20.0	0.1	43.0	11.8	874.9
	(b)	173.5	9.6	19.6	48.8	1,006.4
	(c)	5.8	0.2	3.1	8.9	240.1
Hat, Bonnet and Cap	(a)	2.2	0.1	†	—	11.4
	(b)	15.5	5.9	409.7	13.4	231.4
	(c)	28.6	0.5	0.3	0.9	7.6
Glove	(a)	1.0	†	2.8	5.5	11.5
	(b)	2.0	0.3	†	2.9	14.1
	(c)	2.1	†	—	0.3	2.1
Umbrella and Walking Stick	(a)	2.0	—	0.4	1.4	25.6
	(b)	0.8	0.4	31.2	8.1	159.3
	(c)	0.7	—	—	—	6.7
Fur	(a)	0.2	—	—	—	3.2
	(b)	0.9	0.4	—	5.2	98.9
	(c)	0.6	1.5	—	—	0.3
Artificial Flower and Ornamental Feather	(a)	—	—	—	—	3.7
	(b)	0.5	0.5	—	2.2	66.1
	(c)	—	—	—	—	—
Laundry, Cleaning and Dyeing	(a)	22.5	2.3	67.9	10.3	412.6
	(b)	117.6	64.6	84.2	1,309.1	2,330.3
	(c)	214.9	52.0	700.3	15.0	369.0
ALL CLOTHING TRADES	(a)	56.0	2.8	117.1	34.7	1,545.1
	(b)	334.6	98.3	546.4	1,496.2	6,282.3
	(c)	259.1	54.6	704.0	27.2	770.0
GRAND TOTAL (ALL PURPOSES)		649.7	155.7	1,367.5	1,558.1	8,597.4

* The amount of gas purchased was in some cases returned in terms of cubic feet. In such cases 200 cubic feet have been taken as equivalent to 1 therm.

† Less than 50.

The difficulty of drawing conclusions and making generalisations on the basis of the figures shown in the preceding table is due primarily to the large percentages of fuel consumption for which no particulars of purpose could be specified by firms that furnished information. The following table shows these percentages for the four largest trades in the clothing group (which accounted for 98 per cent. of the total consumption of coal reported) and for the group as a whole.

Proportion of fuel consumption for purposes not defined.

Trade.	Coal and slack.	Coke and breeze.	Heavy oils.	Light oils.	Gas purchased.
	Percent.	Percent.	Percent.	Percent.	Percent.
Clothing	16.8	2.3	5.4	1.9	5.3
Boot and Shoe	2.9	1.6	4.7	12.8	11.3
Hat, Bonnet and Cap	61.7	6.2	0.1	6.7	3.0
Laundry, Cleaning and Dyeing	60.5	43.7	82.1	1.1	11.9
ALL CLOTHING TRADES	39.9	35.1	51.5	1.7	9.0

Where the quantities of fuel consumed for purposes not distinguished form only small percentages of the total quantities reported, it may involve no great error to distribute them, e.g., in the proportions recorded for the purposes for which consumption was specified; but where the undistributed portion is large in proportion to the total consumption such a process would not be justified. It may not, however, be unreasonable to conclude that the fuel used in the clothing group of trades was mainly for purposes other than power. Probably not more than one-fifth of the coal, coke and gas consumed was used for power.

Production and consumption of electricity.

For 1907 the Census Returns showed that about 5,605,000 units of electricity were generated in establishments with dynamos of 7,366 kilowatt capacity, equivalent to 73.3 per cent. of the total capacity of 10,051 kilowatts in the clothing trades as a whole. In 1924, firms with generators of 5,140 kilowatt capacity (43.5 per cent. of the group total) recorded an aggregate of 6,817,000 units of electricity generated and consumed in their works. As regards purchased electricity, a return was obtained from all firms at the 1907 Census, and this showed a total of over 11,000,000 units purchased for all purposes. In 1924 the information received showed that about 50,207,000 units were purchased by firms owning 57.2 per cent. of the electric motors driven by purchased electricity. While the figures form only a slender basis for generalisation, the indications which they yield harmonise with the information available from other sources as to the increase in the use of electricity in the clothing trades between 1907 and 1924, and possibly also with the conclusion indicated on page 240 as to the

increased tendency to rely on electricity purchased from public supply undertakings rather than on the installation of generating plant in the works themselves.

The table on page 249 summarises the detailed information received from firms in the clothing group of trades as to the generation and consumption of electricity in 1924. The figures, must, however, be regarded as subject to qualifications similar to those which apply to the particulars given on page 246 respecting consumption of fuel; and for the same reason they cannot be appropriately used as the basis of generalised deductions. The percentages of the reported consumption of electricity for which no particulars of purpose could be given were as follows in the four largest trades in the group (which accounted for 95 per cent. of the total reported consumption) and in the group as a whole:—

Proportion of consumption of electricity for purposes not defined.

Trade.	Electricity.	
	Purchased.	Generated in own works.
	Per cent.	Per cent.
Clothing	15.8	61.9
Boot and Shoe	10.2	59.6
Hat, Bonnet and Cap	28.4	—
Laundry, Cleaning and Dyeing	29.3	91.5
ALL CLOTHING TRADES	18.7	65.4

Reference to the table on page 249 will show that the percentage of the electric generators in use in the trade that was represented by the information furnished regarding electricity generated, was generally considerably smaller than the percentage of the electric motors driven by purchased electricity that was represented by the information furnished regarding electricity purchased. This may be due in part to the predominance, among the firms replying to the voluntary question, of firms drawing the bulk of their electric power from public supply authorities and not from generators installed in their own works; but at the same time it may reflect the fact that, while all firms necessarily know the quantity of electricity they purchase, many do not record the quantity generated in their own works.

The particulars representing the average amount of electricity generated per kilowatt capacity (column (3) of the table) exhibit a wide range of variation. These variations doubtless correspond to some extent with differences in the continuity with which the electric generators were operated in the works of the firms which furnished information. The difficulty of basing general conclusions regarding the several trades as a whole on the data shown in the table applies not less to this particular aspect of the matter than to the others.

Consumption of electricity (so far as reported) in the several Clothing Trades.

NOTES.—1. The figures in italics below the name of the trade represent respectively (1) the percentage of the total capacity of electric generators in use in the trade represented by the firms which stated the quantity of electricity generated in their works; and (2) the percentage of the total capacity of electric motors, driven by purchased electricity, in use in the trade represented by the firms which stated the quantity of electricity purchased by them.

2. The electricity generated and the electricity purchased are, in each case, classified according to the purpose for which they were used, as follows:—(a) For power (driving engines), (b) for heating and lighting premises and for transport, etc., (c) for purposes not separately distinguished.

Trade.	Electricity generated in works of firms giving information.				Electricity purchased by firms giving information.	
	Capacity of electric generators (in use). (1)	Quantity of electricity generated. (2)	Average per kilowatt capacity of generators. (3)	Capacity of electric motors (in use) driven thereby. (4)	Quantity of electricity purchased. (5)	Capacity of electric motors (in use) driven thereby (6)
	Th. Kw.	Th. B.T. units.	B.T. units.	Th. H.P.	Th. B.T. units.	Th. H.P.
Clothing	1.35	(a) 406 (b) 181 (c) 954 <i>(1) 49.2; (2) 52.1.</i>	1,145	1.28	(a) 10,746 (b) 4,201 (c) 2,804 <i>(a) 13,510</i>	13.34
Boot and Shoe	2.20	(a) 1,320 (b) 250 (c) 2,312 <i>(1) 52.7; (2) 54.3.</i>	1,765	2.86	(b) 1,343 (c) 1,680 (a) 2,346	16.71
Hat, Bonnet and Cap	0.03	(a) — (b) 8 (c) — <i>(1) 7.5; (2) 59.0.</i>	258	0.07	(b) 419 (c) 1,098 (a) 277	4.88
Glove	0.10	(a) 84 (b) 6 (c) 3 <i>(1) 31.3; (2) 95.5.</i>	979	0.13	(b) 14 (c) 7 (a) 313	0.40
Umbrella and Walking Stick	0.28	(a) 1 (b) 13 (c) 266 <i>(1) 74.6; (2) 89.5.</i>	983	0.44	(b) 85 (c) 546 (a) 336	1.19
Fur	—	(a) — (b) — (c) — <i>(1) 0.0; (2) 56.2.</i>	—	—	(b) 232 (c) 398 (a) 45	0.79
Artificial Flower and Ornamental Feather	—	(a) — (b) — (c) — <i>(1) 0.0; (2) 70.3.</i>	—	—	(b) 47 (c) 3 (a) 6,242	0.13
Laundry, Cleaning and Dyeing	1.18	(a) 43 (b) 43 (c) 927 <i>(1) 31.0; (2) 65.8.</i>	856	1.84	(b) 661 (c) 2,854	10.85
ALL CLOTHING TRADES	5.14	(a) 1,854 (b) 501 (c) 4,462 <i>(1) 43.5; (2) 57.2.</i>	1,326	6.62	(a) 33,815 (b) 7,002 (c) 9,390	48.29
		6,817			50,207	