

## THE OIL AND TALLOW TRADES.

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## Introductory.\*

The tables on pages 86 to 90 are based on returns received from firms in Great Britain and Northern Ireland whose business in 1924 consisted wholly or mainly in the distilling, refining or blending of petroleum or fish oils and in the melting or refining of lard, tallow and animal fats. The number of such separate returns was 497. About 40 firms to which schedules were sent did not furnish returns, but these firms for the most part had very small establishments and they included some which had ceased operations before the end of the censal year. On the basis of the information available it is estimated that they did not employ more than 200 persons in all and that their total net output probably did not exceed £50,000.

*Summary of results.*—The following table shows the main results of the Censuses of 1924 and 1907, comparisons between the figures for the two years being subject to the qualifications mentioned in the next paragraph. The information received in connexion with the Census of 1912, when details of output were not required from firms employing five persons or less, was not sufficiently complete to warrant its use for purposes of comparison.

\* See also the Notes on pages vii to xv.

Particulars.	Units.	1924.	1907.
Value of products and work done (Gross output) ..	£'000	27,745	8,974
Cost of materials used .. .. .	"	21,437	7,084
Paid for work given out to other firms .. .. .	"	6	
Net output .. .. .	"	6,302	1,890
Average number of persons employed .. .. .	No.	14,550	9,278
Net output per person employed .. .. .	£	433	204
Mechanical power available:—			
Prime movers .. .. .	H.P.	49,522	18,024
Electric motors driven by purchased electricity ..	"	9,527	(not recorded)

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

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

(2) The Census of 1907 covered Great Britain and the whole of Ireland, but that of 1924 applied only to Great Britain and Northern Ireland. The exclusion of Southern Ireland in 1924 does not seriously affect the comparability of the figures since, according to the Census of Production taken by the Government of the Irish Free State in respect of the year 1926, the total value of the output of oils and tallow in that year, recorded in the report on the Chemical, Drug and Paint Industry, was £21,000.

*Value of output and cost of materials.*—The figures in the above table representing the value of products and work done and the cost of materials used are the aggregates of the figures recorded by the firms that made returns, and, for the reasons explained in paragraphs (i) and (ii) on page xiii, they overstate the value of the output of, and the cost of materials used by, the Oil and Tallow Trades considered as a whole. The matter is discussed on page 83, where it is estimated that the value, free from duplication, of the output of the Oil and Tallow Trades in 1924 was about £26,235,000, and the cost of the materials purchased from sources outside the trade and worked up into its products, was about £19,935,000.

### Production.

Detailed information relating to the production of the Oil and Tallow Trades in 1924 is given in Table II on pages 87 and 88.

In addition to the output dealt with in this report, lubricating oils and greases valued, on a cost basis, at £215,000 were produced in 1924 by Railway Companies and Local Authorities.\* The corresponding figure for 1907 was £135,000.

*Principal products.*—The following table shows, for the years 1924 and 1907, the value and, where recorded, the quantity of the

\* Such production falls within the scope of the report on Public Utility Services, which forms part of a separate volume.

principal classes of output, including not only the output recorded by firms that made their returns on schedules for the Oil and Tallow Trades, but also the output of similar products (£4,304,000 in 1924) returned by firms (other than Railway Companies and Local Authorities) that made their returns on schedules for other trades.

Kind of output.	1924.		1907.	
	Quantity.	Selling value.	Quantity.	Selling value.
Petroleum, refined .. .. .	Mill. galls. 518.1	£'000. 12,002	Mill. galls. 40.2	£'000. 793
Petroleum, crude (including scrubber naphtha) .. .. .	51.4	1,007	39.4	357
Paraffin wax .. .. .	Th. cwts. 383	421	Th. cwts. 500	601*
Other petroleum products .. .. .	9.7	20	—	—
Fish and marine animal oils, manufactured directly .. .. .	Th. tons. 20.9	665	..	438
Animal fats and greases .. .. .	..	5,784	Th. tons. 94.0	2,458
Lubricating oils and greases, mixed .. .. .	..	5,959	..	2,041
Industrial and unclassified oils .. .. .	..	1,281	..	2,873
<b>TOTAL VALUE OF PRINCIPAL PRODUCTS .. .. .</b>	..	27,139	..	9,581

\* Including candles made at shale oil works.

*Petroleum products.*—The following table shows the more detailed particulars furnished in respect of the output for sale of petroleum products in 1924.

Petroleum products.	Returned on schedules for			
	The Oil and Tallow Trades.		All trades.	
	Quantity.	Selling value.	Quantity.	Selling value.
Refined petroleum oils:—	Th. galls.	£'000.	Th. galls.	£'000.
Lamp .. .. .	82,783	1,811	82,813	1,825
Motor spirit .. .. .	151,100	6,044	151,100	6,044
Other spirit .. .. .	5,084	274	5,084	274
Lubricating .. .. .	9,502	585	9,502	585
Gas .. .. .	18,856	315	18,856	315
Fuel .. .. .	240,518	2,594	240,864	2,598
Other .. .. .	9,722	355	9,874	361
<b>TOTAL .. .. .</b>	517,565	11,978	518,093	12,002
Crude petroleum (including scrubber naphtha) .. .. .	51,356	1,007	51,356	1,007
Paraffin wax .. .. .	Th. cwts. 383	421	Th. cwts. 500	601
Other petroleum products .. .. .	9.7	20	9.7	20
<b>TOTAL VALUE—PETROLEUM PRODUCTS .. .. .</b>	..	13,426	..	13,450

The quantity of oil shale recorded on the Census schedules as mined in 1924, was 2,855,000 tons\*; the total quantity of crude petroleum made therefrom was 58,204,000 gallons. In 1907 the total quantity of oil shale raised was returned as 2,715,000 tons, but the quantity of crude oil extracted was not ascertained; 40,195,000 gallons of refined oils were, however, produced and this was presumably made from the home produced oil, since no crude petroleum was imported into the United Kingdom in 1907. In 1924, retained imports of crude oil amounted to 464,358,000 gallons. Taking into account the production in Scotland, 522,562,000 gallons of crude oil were available for refining in 1924, but, as several of the returns made for refining companies were for twelve-monthly periods ending at various dates in the first six months of 1925, a close comparison cannot be made between the crude oil available and the refined oil made. Except for 62,000 gallons (valued at £3,000) exported, the 51,356,000 gallons of crude oil shown in the above table was sent to other works to be refined; its value (£1,004,000) is, therefore, included in the value of the refined oils produced. The following table compares the exports and net imports of refined petroleum in 1924, with the production reported for the census year:—

Refined petroleum.	Production.		Exports.		Net imports.		Available for use in United Kingdom.	Share of home market held by British-refined oils.
	Th. galls.	Th. galls.	Th. galls.	Th. galls.	Th. galls.	Per cent.		
Lamp oil ..	82,813	18,069	115,276	180,020	36.0			
Motor spirit ..	151,100	24,672	379,206	505,634	25.0			
Other spirit ..	5,084	421	3,034	7,697	60.6			
Lubricating oil ..	9,502	7,600	100,062	101,964	1.9			
Gas oil ..	18,856	750	65,620	83,726	21.6			
Fuel oil ..	240,864	55,890	383,424	568,398	32.5			
Other oils ..	9,874	70	1,268	11,072	88.5			
<b>TOTAL ..</b>	<b>518,093</b>	<b>107,472</b>	<b>1,047,890</b>	<b>1,458,511</b>	<b>28.2</b>			

What amount, if any, of oils imported as refined, may have undergone further refining in this country, and be duplicated in the first and third of the aggregates given above, is not known.

Of the net imports of fuel oil, 251,967,000 gallons, or 65.7 per cent., were shipped in 1924 for the use of steamers engaged in the foreign trade and of fishing vessels. Net imports of refined petroleum were, in 1924, three and a half times the net imports (299,152,000 gallons) in 1907; exports of British refined petroleum were not shown separately in 1907.

*Fish and marine animal oils.*—The following statement shows the quantity and value of this class of oils as returned for 1924 on

\* See the report on Metalliferous Mines and Quarries (including Oil Shale Mines) which forms part of a separate volume.

schedules for the Oil and Tallow Trades, together with 200 tons of "other sorts" of oils, valued at £5,000, returned on schedules for other trades. The exports and net imports are also shown:—

Fish and marine animal oils.	Production.		Exports.	Net imports.
	Quantity.	Selling Value.		
Whale oil .. .. .	Th. tons.	£'000.	Th. tons.	Th. tons.
	9.0	301	4.3	31.3
Cod liver oil .. .. .	0.4	18	2.4	2.8
Other sorts .. .. .	11.5	346	7.6	7.6
<b>TOTAL .. .. .</b>	<b>20.9</b>	<b>665</b>	<b>14.3</b>	<b>41.7</b>

The production shown for cod liver oil is incomplete, since manufacturers of medicinal preparations that made or refined cod liver oil were not required to show it separately from the other medicinal preparations made by them.

*Animal fats, greases, etc.*—The output of animal fats, greases, etc., returned in 1924 is set out below.

Kind of products.	Returned on schedules for			
	The Oil and Tallow Trades.		All trades.	
	Quantity.	Selling value.	Quantity.	Selling value.
Tallow and other animal fats:—	Th. tons.	£'000.	Th. tons.	£'000.
Crude .. .. .	8.4	305	36.0	1,246
Refined .. .. .	31.6	1,460	40.7	2,083
Not distinguished .. .. .	..	..	..	699
<b>TOTAL VALUE—ANIMAL FATS .. .. .</b>	<b>..</b>	<b>1,765</b>	<b>..</b>	<b>4,028</b>
Stearine .. .. .	3.5	131	5.7	240
Lard compound .. .. .	15.8	958	25.2	1,516
<b>TOTAL VALUE .. .. .</b>	<b>..</b>	<b>2,854</b>	<b>..</b>	<b>5,784</b>

The output of lard compound shown above represents the total amount recorded as such, under the general heading *other products*, by firms that made returns, and probably falls short of the total make of lard compound. Crude fats are to a large extent produced by firms slaughtering cattle or selling meat, and, consequently, the exports and imports cannot be compared with the output shown above. It is probable that the crude tallow valued at £305,000 represented additions to stock or was exported or otherwise sold out of the trade, and is not duplicated under other headings.

Exports of refined fats (except lard and oleo-margarine) were 647 tons in 1924, and net imports were 2,111 tons; exports of oleo-margarine were 5,409 tons and net imports 27,322 tons. In the same year 4,001 tons of lard compound (or imitation lard) were imported

and retained and 2,206 tons were exported. Exports of stearine were 2,133 tons and net imports 3,115 tons. The animal fats, greases, etc., available for use in the United Kingdom were, thus, mainly of British manufacture.

*Lubricating and industrial oils.*—The following output of these classes of oils was recorded in 1924:—

Kind of oil.	Returned on schedules for			
	The Oil and Tallow Trades.		All trades.	
	Quantity.	Selling value.	Quantity.	Selling value.
Lubricating oils (mixed), including greases .. .. .	Th. galls. 6,640	£'000. 777	Th. galls. 6,680	£'000. 793
	Th. tons. 182	4,308	Th. tons. 219	5,166
TOTAL VALUE—LUBRICATING OILS .. .. .	..	5,085	..	5,959
Soluble and other oils mainly for manufacturing purposes } Weight stated Weight not stated	Th. tons. 26·8	641	Th. tons. 35·9	995
	..	169	..	286
TOTAL VALUE .. .. .	..	5,895	..	7,240

Mixed lubricating oils have, as a basis, lubricating petroleum, to which may be added refined coconut oil, refined cotton-seed oil, rape-seed oil, fish oils, lard oils, animal oils, etc. Lubricating greases also have lubricating petroleum as a basis, to which are added fatty acids (olein), and lime or soda. How far these materials were purchased by the makers of lubricating oils and greases from other firms in the Oil and Tallow Trades and how far from outside sources, cannot be precisely determined. Outputs of refined cotton-seed oil and rape-seed oil were also included in the returns on schedules for the Oil and Tallow Trades to the total of £481,000, but part thereof no doubt represented sales out of the trade or additions to stock of oils refined, mainly for their own use, by lubricating oil firms. On the whole, it would appear that materials to the value of about £500,000 were purchased from other firms in the Oil and Tallow Trades.

Exports of mixed lubricating oils in 1924 were 1,300,000 gallons and retained imports were 608,000 gallons.

*Other products.*—In addition to the principal products dealt with in the preceding paragraphs, there was returned on schedules for the Oil and Tallow Trades in 1924 an output of other goods as set out below. These goods, being of kinds mainly produced by other trades, are dealt with in the reports on those trades.

Kind of goods.	Selling value.
Vegetable oils .. .. .	£'000. 2,886
Fertilisers .. .. .	(Tons) (62,500) 705
Animal feeding stuffs .. .. .	420
Candles .. .. .	62
Bones for manufacturing purposes .. .. .	63
Bones for manure .. .. .	51
Other goods, including waste products .. .. .	515
TOTAL VALUE .. .. .	4,702

The corresponding total for 1907 was £1,275,000, of which £742,000 consisted of fertilisers.

*Work done on commission or for the trade.*—Firms that made their returns on schedules for the Oil and Tallow Trades stated that they received in 1924 the sum of £208,000 for refining and drying oils, etc., for other firms. The corresponding amount for 1907 was £3,000. With the exception of £6,000 paid by firms in the Oil and Tallow Trades for work given out by them, the former sum represents work done in 1924 for merchants and for firms in other trades.

*Value of output free from duplication.*—It has already been stated that there is probable duplication in respect of crude petroleum (including scrubber naphtha), valued at £1,004,000; oils for lubricating to the value of about £500,000; and work done for the trade, £6,000. The value, free from duplication, of the output of the Oil and Tallow Trades in 1924 is, therefore, reduced to a sum of about £26,235,000. The corresponding figure for 1907 is not available.

*Cost of materials and work given out.*—The cost of materials used by firms that made their returns on schedules for the Oil and Tallow Trades was returned as £21,437,000 in 1924, a sum which, by the exclusion of purchases of the products of other firms in the trade, is reduced to about £19,935,000.

The amount paid to other firms for work given out to them was returned as £6,000 in 1924. No payments of this kind were recorded in 1907.

*Net output.*—The net output in 1924 of the firms that made their returns on schedules for the Oil and Tallow Trades (whose gross output was valued at £27,745,000) was £6,302,000, that sum representing, without duplication, the total amount by which the value, as delivered, of the aggregate output exceeded the cost, as purchased, of the materials used and the amount paid to other firms for work given out to them.

The net output per head of persons employed in the censal year 1924 was £433 as compared with £204 in 1907.

## Wages in 1924.

Under the Census of Production Act, 1906, the powers of the Board of Trade to require information do not extend to particulars of the amount of wages paid, and, consequently, no information on this head was secured in connexion with the Census of 1924. As a result, however, of the voluntary enquiry undertaken by the Ministry of Labour into wages and hours in the United Kingdom in 1924, information was obtained as to the total wage-bill of a group of firms in the Oil and Tallow Trades that made returns both to the Ministry of Labour and to the Census of Production Office. According to the Census records this group of firms employed, in the week ended 18th October, 1924, 6,887 operatives, or 60 per cent. of the total of 11,397 operatives for the trades as a whole, and their net output totalled £3,728,000, or 59 per cent. of the aggregate net output of £6,302,000 for the trades as a whole. The total wage-bill of these firms, as returned to the Ministry of Labour, was £1,112,000, representing about 30 per cent. of their aggregate net output.

## Employment.

The detailed information relating to employment in 1924 is summarised in Table III on page 89. The following table sets out certain particulars for that year together with those relating to the 1907 Census. For the purpose of this comparison, the average numbers of operatives of each sex returned for 1924 have been divided between the two age-groups in the proportions shown by the data relating to the week ended 18th October.

Average number.	Males.		Females.		Males and females.	
	Under 18.	All ages.	Under 18.	All ages.	Under 18.	All ages.
	<b>1924.</b>					
Operatives .. .. .	604	10,819	68	357	672	11,176
Administrative, etc. . .	203	2,732	81	642	284	3,374
<b>TOTAL .. . . .</b>	<b>807</b>	<b>13,551</b>	<b>149</b>	<b>999</b>	<b>956</b>	<b>14,550</b>
<b>1907.</b>						
Wage earners .. . . .	451	7,558	7	85	458	7,643
Salaried .. . . .	179	1,536	10	99	189	1,635
<b>TOTAL .. . . .</b>	<b>630</b>	<b>9,094</b>	<b>17</b>	<b>184</b>	<b>647</b>	<b>9,278</b>

The numbers of operatives recorded month by month in 1924 ranged from 684 below the average, in February, to 546 above the average, in August (see Table IIIB, page 89). The numbers rose steadily from February to August and fell off steadily in the later months of the year.

## Mechanical Power.

The detailed information relating to mechanical power in 1924 is summarised in Table IV on page 90. The following table sets out the particulars for 1924 and 1907 relating to the capacity and kinds of *prime movers* and the capacity of *electric generators* installed.

Power equipment.	1924.			1907.
	Ordinarily in use.	In reserve or idle.	Total.	Total.
<b>PRIME MOVERS :—</b>	H.P.	H.P.	H.P.	H.P.
Reciprocating steam engines .. . . .	24,109	6,542	30,651	17,099
Steam turbines .. . . .	7,810	9,550	17,360	—
Gas engines .. . . .	933	266	1,199	—
Petrol and light oil engines .. . . .	68	89	157	786
Heavy oil engines .. . . .	—	90	90	—
Water power .. . . .	40	—	40	30
Other .. . . .	25	—	25	109
<b>TOTAL .. . . .</b>	<b>32,985</b>	<b>16,537</b>	<b>49,522</b>	<b>18,024</b>
<b>ELECTRIC GENERATORS :—</b>	Kw.	Kw.	Kw.	Kw.
Driven by—				
Reciprocating steam engines .. . . .	8,225	3,885	12,110	2,593
Steam turbines .. . . .	5,695	7,020	12,715	—
Gas engines .. . . .	130	35	165	—
Petrol and light oil engines .. . . .	—	4	4	—
Heavy oil engines .. . . .	—	75	75	28
Water power .. . . .	13	—	13	—
Other prime movers .. . . .	—	—	—	—
<b>TOTAL .. . . .</b>	<b>14,063</b>	<b>11,019</b>	<b>25,082</b>	<b>2,621</b>

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

Electric motors.	1924.		
	Ordinarily in use.	In reserve or idle.	Total.
Driven by—	H.P.	H.P.	H.P.
Electricity generated in own works .. . . .	12,808	9,187	21,995
Purchased electricity .. . . .	6,427	3,100	9,527

Corresponding information was not required for 1907. The total number of Board of Trade units of electricity purchased for power and lighting purposes in that year was returned as 156,000.

## TABLES.

## I.—Summary of results.

Particulars.	Unit.	England and Wales and Northern Ireland.*	Scotland.	United Kingdom.
Value of products and work done (Gross output) .. .. .	£'000	21,157	6,588	27,745
Cost of materials used .. .. .	"	16,385	5,052	21,437
Paid for work given out to other firms .. .. .	"	5	1	6
Net output .. .. .	"	4,767	1,535	6,302
Average number of persons employed .. .. .	No.	10,366	4,184	14,550
Net output per person employed .. .. .	£	460	367	433
Mechanical power available :—				
Prime movers .. .. .	H.P.	24,048	25,474	49,522
Electric motors driven by purchased electricity .. .. .	"	8,697	830	9,527

\* In order to avoid the possible disclosure of information relating to individual firms, the figures for Northern Ireland have been combined with those for England and Wales.

## II.—Production.

Output sold or added to stock and work done.	Unit.	England and Wales and N. Ireland.*	Scotland.	United Kingdom.
Crude petroleum (including scrubber naphtha) .. .. .	Th. galls. £'000	—	51,356 1,007	51,356 1,007
Petroleum oils, refined :—				
Lamp .. .. .	Th. galls. £'000	†	†	82,783 1,811
Motor spirit .. .. .	Th. galls. £'000	†	†	151,100 6,044
Other spirit .. .. .	Th. galls. £'000	5,084 274	—	5,084 274
Lubricating .. .. .	Th. galls. £'000	5,470 469	4,032 116	9,502 585
Gas .. .. .	Th. galls. £'000	†	†	18,856 315
Fuel .. .. .	Th. galls. £'000	†	†	240,518 2,594
Other sorts .. .. .	Th. galls. £'000	9,722 355	—	9,722 355
TOTAL—REFINED PETROLEUM OILS	Th. galls. £'000	†	†	517,565 11,978
Paraffin wax .. .. .	Th. cwts. £'000	†	†	383 421
Other petroleum products .. .. .	Th. cwts. £'000	9.7 20	—	9.7 20
Fish and marine animal oils, manufactured directly :—				
Whale oil .. .. .	Th. tons £'000	†	†	9.0 301
Cod liver oil .. .. .	Th. tons £'000	†	†	0.4 18
Other sorts .. .. .	Th. tons £'000	7.9 249	3.4 92	11.3 341
TOTAL—FISH AND MARINE ANIMAL OILS .. .. .	Th. tons £'000	†	†	20.7 660
Tallow and other animal fats :—				
Crude .. .. .	Th. tons £'000	6.0 215	2.4 90	8.4 305
Refined .. .. .	Th. tons £'000	27.3 1,240	4.3 220	31.6 1,460
Lard compound .. .. .	Th. tons £'000	†	†	15.8 958
Stearine .. .. .	Th. tons £'000	3.5 131	—	3.5 131
Lubricating and industrial oils :—				
Lubricating oils (mixed), including greases .. .. .	Th. tons £'000 Th. galls. £'000	173 4,159 5,640	9 149 1,000	182 4,308 6,640
		669	108	777

\* See footnote to Table I.

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

## II.—Production—continued.

Output sold or added to stock and work done.	Unit.	England and Wales and N. Ireland.*	Scotland.	United Kingdom.
Lubricating and industrial oils— <i>contd.</i>				
Soluble and other oils mainly for manufacturing purposes	<i>Weight stated</i> .. } <i>Th. tons</i> } £'000	24.9 585	1.9 56	26.8 641
	<i>Weight not stated</i> .. } £'000	135	34	169
TOTAL VALUE—LUBRICATING AND INDUSTRIAL OILS .. ..	£'000	5,548	347	5,895
Vegetable oils :—				
Cotton seed .. .. .	<i>Th. tons</i> £'000	3.4 163	0.7 32	4.1 195
Linseed, boiled and refined ..	<i>Th. tons</i> £'000	25.8 1,101	—	25.8 1,101
Rape seed .. .. .	<i>Th. tons</i> £'000	† †	† †	6.1 286
Other and unclassified .. ..	<i>Th. tons</i> £'000	24.4 1,205	2.1 99	26.5 1,304
TOTAL—VEGETABLE OILS ..	<i>Th. tons</i> £'000	† †	† †	62.5 2,886
Candles .. .. .	<i>Th. cwts.</i> £'000	29 62	—	29 62
Animal feeding stuffs :—	<i>Th. tons</i>	—	—	18
Fish meal .. .. .	£'000	†	†	303
Other feeding stuffs .. ..	£'000	111	6	117
Fertilisers :—				
Sulphate of ammonia .. ..	<i>Th. tons</i> £'000	— —	51.6 601	51.6 601
Guano .. .. .	<i>Th. tons</i> £'000	2.5 29	5.5 40	8.0 69
Other fertilisers .. .. .	£'000	34	1	35
Bones for manufacturing purposes ..	<i>Th. tons</i> £'000	2.9 36	4.1 27	7.0 63
Bones for manure .. .. .	<i>Th. tons</i> £'000	10.1 45	0.9 6	11.0 51
Paints and colours .. .. .	£'000	25	3	28
Other goods .. .. .	£'000	319	124	443
Waste products .. .. .	£'000	25	19	44
Work done on commission or for the trade .. .. .	£'000	†	†	208§
TOTAL VALUE OF PRODUCTS AND WORK DONE (GROSS OUTPUT)	£'000	21,157	6,588	27,745

\* See footnote to Table I.

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

§ Amount received for work done.

## III.—Employment.

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

Kind of staff.	Males.		Females.		Males and females.	
	Under 18.	All ages.	Under 18.	All ages.	Under 18.	All ages.
<i>England and Wales and Northern Ireland</i> † :—						
Operatives .. .. .	398	7,424	73	320	471	7,744
Administrative, etc.*	180	2,367	69	537	249	2,904
TOTAL .. .. .	578	9,791	142	857	720	10,648
<i>Scotland</i> :—						
Operatives .. .. .	216	3,575	3	78	219	3,653
Administrative, etc.*	23	365	12	105	35	470
TOTAL .. .. .	239	3,940	15	183	254	4,123
<i>United Kingdom</i> :—						
Operatives .. .. .	614	10,999	76	398	690	11,397
Administrative, etc.*	203	2,732	81	642	284	3,374
TOTAL .. .. .	817	13,731	157	1,040	974	14,771

\* Administrative, technical and clerical staff.

† See footnote to Table I.

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

*England and Wales and Northern Ireland.\**  
(Annual average : Males, 7,183 ; Females, 279 ; Total, 7,462.)

Week ended.	Males.	Females.	Total.	Week ended.	Males.	Females.	Total.
Jan. 12th ..	6,754	279	7,033	July 19th ..	7,437	267	7,704
Feb. 16th ..	6,658	280	6,938	Aug. 16th ..	7,467	273	7,740
March 15th ..	6,823	277	7,100	Sept. 13th ..	7,549	293	7,842
April 12th ..	7,027	258	7,285	Oct. 18th ..	7,424	320	7,744
May 17th ..	7,211	261	7,472	Nov. 15th ..	7,363	290	7,653
June 21st ..	7,127	262	7,389	Dec. 13th ..	7,357	287	7,644

*Scotland. (Annual average : Males, 3,636 ; Females, 78 ; Total, 3,714.)*

Jan. 12th ..	3,489	80	3,569	July 19th ..	3,840	77	3,917
Feb. 16th ..	3,474	80	3,554	Aug. 16th ..	3,904	78	3,982
March 15th ..	3,518	77	3,595	Sept. 13th ..	3,785	77	3,862
April 12th ..	3,617	77	3,694	Oct. 18th ..	3,575	78	3,653
May 17th ..	3,683	76	3,759	Nov. 15th ..	3,487	80	3,567
June 21st ..	3,811	78	3,889	Dec. 13th ..	3,450	82	3,532

*United Kingdom. (Annual average : Males, 10,819 ; Females, 357 ; Total, 11,176.)*

Jan. 12th ..	10,243	359	10,602	July 19th ..	11,277	344	11,621
Feb. 16th ..	10,132	360	10,492	Aug. 16th ..	11,371	351	11,722
March 15th ..	10,341	354	10,695	Sept. 13th ..	11,334	370	11,704
April 12th ..	10,643	335	10,978	Oct. 18th ..	10,999	398	11,397
May 17th ..	10,893	337	11,230	Nov. 15th ..	10,852	370	11,222
June 21st ..	10,938	340	11,278	Dec. 13th ..	10,807	369	11,176

\* See footnote to Table I.

## IV.—Mechanical Power.

## PARTICULARS OF PRIME MOVERS, ELECTRIC GENERATORS AND ELECTRIC MOTORS.

Power equipment.	England and Wales.*		Scotland.		Great Britain.	
	Ordinarily in use.	In reserve or idle.	Ordinarily in use.	In reserve or idle.	Ordinarily in use.	In reserve or idle.
<b>PRIME MOVERS :—</b>	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
Reciprocating steam engines .. ..	10,951	1,232	13,158	5,310	24,109	6,542
Steam turbines .. ..	3,990	6,730	3,820	2,820	7,810	9,550
Gas engines .. ..	747	156	186	110	933	266
Petrol and light oil engines .. ..	68	39	—	50	68	89
Heavy oil engines .. ..	—	90	—	—	—	90
Water power .. ..	20	—	20	—	40	—
Other .. ..	25	—	—	—	25	—
<b>TOTAL .. ..</b>	<b>15,801</b>	<b>8,247</b>	<b>17,184</b>	<b>8,290</b>	<b>32,985</b>	<b>16,537</b>
<b>TOTAL OF PRIME MOVERS INSTALLED .. ..</b>	<b>24,048</b>		<b>25,474</b>		<b>49,522</b>	
<b>ELECTRIC GENERATORS :—</b>	Kw.	Kw.	Kw.	Kw.	Kw.	Kw.
Driven by—						
Reciprocating steam engines .. ..	1,547	395	6,678	3,490	8,225	3,885
Steam turbines .. ..	2,945	5,020	2,750	2,000	5,695	7,020
Gas engines .. ..	35	35	95	—	130	35
Petrol and light oil engines .. ..	—	4	—	—	—	4
Heavy oil engines .. ..	—	75	—	—	—	75
Water power .. ..	5	—	8	—	13	—
<b>TOTAL .. ..</b>	<b>4,532</b>	<b>5,529</b>	<b>9,531</b>	<b>5,490</b>	<b>14,063</b>	<b>11,019</b>
<b>TOTAL OF ELECTRIC GENERATORS INSTALLED</b>	<b>10,061</b>		<b>15,021</b>		<b>25,082</b>	
<b>ELECTRIC MOTORS :—</b>	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
Driven by—						
Electricity generated in own works .. ..	6,575	7,147	6,233	2,040	12,808	9,187
Purchased electricity .. ..	5,661	3,036	766	64	6,427	3,100

\* No mechanical power was recorded for Northern Ireland.