THE GRAIN MILLING TRADE.

Contents.

Introductory.*

The Tables on pages 42 to 46 are based on Returns received from firms in Great Britain and Northern Ireland whose business in 1924 consisted wholly or mainly in the manufacture of flour and meal from cereals. The number of such separate Returns was 2,913. About 530 firms to which schedules were sent did not furnish Returns, but these firms for the most part had very small establishments, associated in some cases with a merchanting business, and they included a number which ceased operations in the course of the censal year. On the basis of the information available it is estimated that they did not employ more than 1,000 persons in manufacturing operations and that their total net output was probably about £160,000.

* See also the Notes on pp. vii–xiv.

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. Particulars relating to the Census of 1912 have been omitted for the reasons stated in that paragraph.

Particulars.	Unit.	1924.	1907.
Value of products and work done (Gross output)	£'000	106,365	65,322
Cost of materials used	,,	94,285	58,867
Paid for work given out to other firms	,,	—	2
Net output	,,	12,080	6,453
Average number of persons employed	No.	35,959	36,177
Net output per person employed	£	336	178
Mechanical power available :—			
Prime movers	H.P.	148,168*	177,451
Electric motors driven by purchased electricity	,,	57,415	(not recorded)

* Exclusive of 548 water-wheels and 83 windmills whose capacity was not stated.

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

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

(2) The Census of 1907 covered the whole of Great Britain and Ireland, but that of 1924 applied only to Great Britain and Northern Ireland. According to the Census of Production taken in respect of the year 1926, the total value of the goods made and work done in the Grain Milling Industry of the Irish Free State in that year was returned as £7,243,000, and the average number of persons employed as 3,000 ; these figures refer to 105 of the larger mills, the output of the remaining 342 mills being valued at only £183,000.

(3) The Censuses of 1907 and 1924 extended to all firms, however small, but in 1912 firms employing not more than five persons (excluding the proprietors) were merely required to state the average number of persons employed by them in the year. According to the information so furnished the number of persons employed in the establishments thus excluded was 9,561 or 30 per cent. of the number employed by the remaining firms. The proportion of output excluded in this way was much smaller, but it is sufficient to invalidate comparisons, and, consequently, the relative information obtained for 1912, except that relating to the quantities of flour and by-products, is not dealt with in this Report.

Value of output and cost of materials.—The figures in the above table representing the value of the products and work done and the cost of materials used are the aggregates of the figures recorded by the firms making Returns, and owing to the duplication involved (see the Notes on pages xi-xiii), they may overstate the value of the output of, and the cost of the materials used by, the Grain Milling Trade considered as a whole. When this duplication (the amount of which is discussed on page 38) is eliminated, the value of the products of the Grain Milling Trade as a whole in 1924 is found to be between £105,865,000 and £106,365,000, and the cost of the materials purchased from outside that trade and worked up into its products is found to be between £93,785,000 and £94,285,000.

Production.

The detailed information relating to production in 1924 is summarised in Table II on page 42.

In addition to the output dealt with in this Report, chopped hay and straw valued, on a cost basis, at £373,000 in 1924 and £234,000 in 1907 was returned by Railway Companies.*

Principal products.

The following table affords a comparison between the outputs of the principal products of the Grain Milling Trade in 1924 and 1907, the figures for each year being inclusive of such production as was recorded on schedules for other trades, viz., production valued at £873,000 in 1924 and £135,000 in 1907.

Kind of output.	1924.		1907.	
	Quantity.	Value.	Quantity.	Value.
	Th. tons.	£'000.	Th. tons.	£'000.
Milled products of :—				
Wheat	6,002	84,133	5,871	51,712
Oats	166	2,285	137	1,347
Barley	345	4,073	308	2,234
Maize	666	7,524	925	6,131
Rice	54	893	91	895
Beans	36	427	62	473
Peas	35	463	15	146
Other grains and pulses	..	865	97	712
Other manufactured cereals, dry	..	265	19	178
Crushed oats and other animal and poultry feeding stuffs	..	5,021	159	1,080
TOTAL VALUE OF MILLED PRODUCTS	..	105,949	..	64,908
Other goods, not milled products :—				
Hay and straw, chopped	..	541	..	77
Peat and moss litter, etc.	..	79	—	—
GRAND TOTAL	..	106,569	..	64,985

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

More detailed particulars of the output in 1924 are given below :—

Kind of output.	Returned on schedules for			
	The Grain Milling Trade.		All trades.*	
	Quantity.	Value.	Quantity.	Value.
	Th. tons.	£'000.	Th. tons.	£'000.
Wheat products :—				
Meal and flour, milled or blended	4,191		4,193	
Bran and pollard..	818	84,094	818	84,133
Sharps and middlings	991		991	
TOTAL—WHEAT PRODUCTS ..	6,000	84,094	6,002	84,133
Oat products (including offals) ..	163	2,260	166	2,285
Barley meal and flour (including pearled barley)	338	4,002	345	4,073
Maize flour, meal and other milled products of maize	622	6,973	666	7,524
Rice products :—				
Flour, meal and dust (including rice ground and granulated) ..	28	426	30	443
Rice, cleaned, broken and mixed	24	450	24	450
TOTAL—RICE PRODUCTS ..	52	876	54	893
Bean meal and flour	35	421	36	427
Pea products :—				
Meal and flour	16	180	16†	183
Split peas	12	177	12	177
Other peas, dried, etc.	7	103	7	103
TOTAL—PEA PRODUCTS ..	35	460	35	463
Other meals and flours and mixed meals, not included above ..	44	602	55	755
Crushed oats and other animal and poultry feeding stuffs	..	5,019	..	5,021
Other manufactured cereals, not included above, dry	..	262	..	265
Other offals and by-products ..	..	110	..	110
TOTAL VALUE OF MILLED PRODUCTS	..	105,079	..	105,949
Other goods, not milled products :—				
Hay and straw, chopped ..	..	539	..	541
Peat and moss litter, etc. ..	..	78	..	79
GRAND TOTAL	..	105,696	..	106,569

* Including the Starch, Blue, Polishes and Sponge Trades, the Fertiliser, Glue, Sheep Dip and Disinfectant Trades, and the Chemical Trades, the Reports on which form part of a separate volume.

† The quantity returned on other schedules was less than 500 tons.

It is understood that it is the practice of some grain millers to mix their screenings with wheat offals and it is possible, therefore, that the figures for bran and pollard are inclusive of some mixed output of this kind ; where screenings were sold without mixing (and were not specified separately as such), it is possible that their

value has, in some cases, been included with *crushed oats and other animal and poultry feeding stuffs ;* a further possibility is that some grain milling firms have omitted them altogether. So far as recorded in the Census Returns, the output of wheat screenings in 1924 amounted to £76,000, to which should be added the value, included in the gross figure for wheat products shown in the above table, of 17,000 tons of screenings.

In the case of wheat products, millers, while entering the quantities of the different kinds separately, were allowed to state the value of flour and meal and of by-products in one sum, as it was understood that they would, in most cases, have serious difficulty in stating the value of flour separately. From the market reports for 1924 it appears that the value of British-made flour, following that of imported wheat, rose sharply about the middle of the year, and that the by-products advanced in less proportion than flour.* The value of a ton of flour appears to have been slightly greater than that of two tons of by-products in the early part of 1924 and to have approached that of two and a half tons towards the end of the year. Estimated on this basis, the average value of the flour would be about £16 15*s.* 0*d.* to £17 per ton, equivalent to an aggregate value of about £70,000,000 to £71,000,000.

The aggregate of 4,193,000 tons of wheat meal and flour returned to the 1924 Census includes some flour purchased by millers and used for blending with their own flour. In response to a request for information on this point, firms with an output of 3,347,000 tons of wheat meal and flour (or about 80 per cent. of the total) stated whether they did or did not buy flour for blending, and from their replies it was ascertained that they used, in all, 15,200 tons for that purpose. If the practice prevailed to the same extent among the firms that did not furnish information on this point, the total quantity of flour used by millers for blending in 1924 was about 19,000 tons, which compares with 70,000 tons used in 1907. The total quantity of wheat meal and flour milled in Great Britain and Northern Ireland in 1924 is thus estimated at about 4,174,000 tons. Some addition to this quantity may be necessary in respect of wheat milled by grist millers (see p. 38) who returned only the amounts paid to them for the work done, and not the quantity and value of their products ; the quantities of wheat used and flour made by such millers cannot, however, have been large, and the excess of imports over exports of flour in 1924 was 212,000 tons. Thus the available supply, apart from variations in stocks, was about 4,400,000 tons. The Royal Commission on Food Prices accepted, for the purposes of its Report, the figure of 5,000,000 tons as expressing the annual requirements of the population of the British Isles. It would appear from the Census data that their

* Cf. also Appendices to First Report of the Royal Commission on Food Prices, 1925 ; Vol. III, pp. 41–3.

figure somewhat overstates the requirements of 1924, as the requirements of the Irish Free State may be estimated at not more than 400,000 tons. The particulars furnished for 1912 showed a production of 4,273,000 tons of wheat meal and flour, and of 1,849,000 tons of by-products, by firms in Great Britain and Ireland employing more than five persons on the average in that year. The flour purchased for blending is estimated, on the basis of the partial information received, at 53,000 tons in 1912, making the total flour and meal ground 4,220,000 tons. If, as appears probable, the output of the small firms omitted in 1912 offsets approximately the exclusion of the Irish Free State from the field of enquiry in 1924, the particulars furnished indicate that no important increase in production, if any, took place between 1912 and 1924 in Great Britain and Northern Ireland.

Quantity of wheat milled.

The total weight of the products of wheat milling in 1924, represented by 4,174,000 tons of meal and flour and 1,809,000 tons of by-products, amounted to 5,983,000 tons, of which 4,764,000 tons were produced by firms that stated, in reply to a supplementary and voluntary question, the quantity of wheat milled by them, the total of that wheat being 4,682,000 tons. It will be observed that the aggregate weight of the products exceeded the weight of the wheat milled by nearly 1·8 per cent., presumably due to a slightly higher moisture content of the flour, at the stage at which its weight was ascertained, when compared with that of the wheat used. If the average proportion of wheat used to products reported was the same for the mills whose wheat consumption was not reported as for those furnishing this information, the total of the wheat used by grain millers in the United Kingdom in the censal year 1924 would amount to 5,880,000 tons. The total of wheat used will be estimated as 5,901,000 tons, if the wheat used by firms not furnishing a statement of its amount be taken at the sum of the flour and by-products returned by those firms without any allowance for absorption of moisture, but allowing for blending as estimated above.

The net imports of wheat in the calendar year 1924 amounted to 5,835,000 tons. The home crop was estimated at 1,592,000 tons in 1923 and 1,416,000 tons in 1924. Taking as applicable to the year 1924, in the absence of more precise information, the estimate of the Ministry of Agriculture and Fisheries that 65 per cent. of the crop is, on the average, used for milling, and assuming, further, that one-fourth is used in the year of growth and the remainder in the following year, the amount of home-grown wheat milled in 1924 would be 1,006,000 tons. It was stated in evidence before the Royal Commission on Food Prices* that, owing to the proportion of damaged grain, and to the increased uses for poultry feeding

* Cf. Appendices to the First Report of the Commission, 1925; Vol. III, p. 45.

in any case, an important reduction was likely in the proportion of the 1924 crop used for milling. This reduction will, however, affect the total used in the year 1924 in only a minor degree. The stocks at the principal ports were greater at the end of 1924 than at the beginning of that year by 215,000 tons*, but there is not available information as to the variations of stocks elsewhere than at these ports. It would appear that those other stocks also must have increased, and, further, it is necessary to make allowance for an interval of time between the record of wheat as imported and its use by flour millers. The imports were, in fact, heavy towards the end of 1924 as compared with a year earlier. After taking these considerations into account, however, the total quantity of grain available in the censal year, as derived from the records of imports and crops, was in excess of the 5,900,000 tons which appears to represent the approximate amount milled. Deductions from the import weights in respect of dirt and poultry corn, and increases in stocks other than those in port warehouses are probably capable of accounting for the differences between the computed supply and the consumption estimated from the Returns of the millers of four-fifths of the flour made.

Distribution of milling capacity.

The proportion of the weight of the flour milled in the United Kingdom in 1924 to the total weight of the flour and by-products was 69·8 per cent.† This measure of the yield may be compared with that similarly calculated for 1907 and 1912 for Great Britain and Ireland, namely, 67·3 per cent. and 69·5 per cent. respectively. For the output of the mills for which the weight of the grain used was stated, the proportion of the flour yield (3,332,000 tons) to the grain used (4,682,000 tons) was 71·2 per cent. The distribution of this output in different areas is shown in the following statement :—

Location of mills.	Output of mills reporting wheat used.			Total flour produced in mills employing more than ten persons.
	Wheat milled.	Flour produced.	Average yield.	
	Th. tons.	Th. tons.	Per cent.	Th. tons.
Ports	3,494	2,495	71·4	2,901
Large inland centres ..	559	396	70·8	483
Country areas	629	441	70·1	747
All mills	4,682	3,332	71·2	4,131

* Broomhall's " Corn Trade Year-Book."

† Reference to Table II on page 42 shows that the proportion was notably higher in Scotland (72·5 per cent.) and in Northern Ireland (71·8 per cent.) than in England and Wales (69·7 per cent.). These proportions would be modified by the exclusion of blended flour from the totals shown in Table II, but the contrasts would not be lost.

The aggregate weight of the wheat flour and meal returned by mills reporting grain used for conversion amounted to 79·8 per cent. of the total for all mills, to about 86 per cent. of the total ground at port mills, to 82 per cent. of the total ground at large inland mills and to about 59 per cent. of the total ground in country areas. Nearly 70 per cent. of all the flour produced was ground at port mills, about 12 per cent. at large inland mills and the remainder at mills in country areas. The average number of persons employed in 1924 at the mills which produced the 4,131,000 tons of flour shown above was 25,518, of whom 16,473, or between 64 and 65 per cent., were employed at port mills. These proportions, which are based on an examination of all Returns received from firms employing more than ten persons on the average (and reporting 98·6 per cent. of the total of wheat flour returned) indicate a larger proportion of output at port mills than was represented in evidence to the Royal Commission on Food Prices, namely, approximately 50 per cent.* That proportion is, it may be noticed, the same as was stated by another witness† to relate to the proportion of milling capacity at port mills. That witness assigned one-half the capacity to the port mills, one-third to the mills in country areas and one-sixth to mills in large centres of population. He also stated that the average hours worked were probably less than 5,000 per annum " instead of the economically desirable working time of 6,350 hours."

No particulars regarding capacity were obtained in connexion with the Census, but if the average hours worked in the censal year had been 5,000, the flour ground per hour would have been 6,678 sacks, or somewhat in excess of the estimate of the total capacity referred to in the following paragraph (p. 37). The actual production at port mills, shown in the above table, amounted to 23,208,000 sacks, and an hourly capacity of half the total for the country as a whole as thus estimated, or 3,339 sacks, would have required 6,950 hours of working, equivalent to 52 weeks of 133½ hours. Unless the capacity of the port mills was substantially in excess of half the total capacity, or the hours of working in 1924 were considerably less than 5,000 on the average of all the mills, the port mills must, it would appear, have been operated in 1924 for more than 6,350 hours on the average. Taking the hourly capacity of mills at large inland towns at one-sixth of the aggregate for all mills, the average number of hours required to produce the output recorded for such mills in the censal year was about 3,500 and a similar calculation for country mills shows an average working time of about 2,700 hours. It is well known that some of the latter class of mills are worked intermittently. To add an average of 1,350 hours to the working time of all the mills, so as to achieve the " economically desirable working time of 6,350 hours " would have presented some difficulties in the circumstances of 1924. Had

* Cf. Minutes of Evidence, Vol. II, p. 69.

† Cf. Appendices to First Report of the Commission, Vol. III, p. 41.

it been possible, an output of about 42,400,000 sacks, or 5,300,000 tons, would have resulted. The net imports of 1924 would have been exceeded by the output of 640 hours of working.

The particulars furnished to the Royal Commission related to a production of 2,804,000 tons of flour, the wheat milled being shown as 3,956,000 tons (taking 480 lbs. to the quarter), and the average extraction being 70·9 per cent. The figures relate to the year 1923–24, and cannot, therefore, be dealt with as if they formed part of the totals recorded in the Census Returns. The hourly capacity of the mills producing this flour was stated as 4,186 sacks, which was stated to be about two-thirds of the milling capacity of Great Britain and Ireland. The average number of hours worked by these mills would thus appear to have been about 5,360 in the year.

The figures available for the year 1912 indicate that, of the total quantity of wheat meal and flour milled by all firms, between 62 and 63 per cent. was made at port mills. The higher proportion shown by the 1924 results points to an increased concentration of production at port mills in the interval between the two Censuses.

It may be noted that in 1907 particulars furnished voluntarily by millers responsible for 77 per cent. of the flour milled showed that, of the total quantity of flour milled by them, 72 per cent. was produced at mills averaging about 5,800 hours of operation in the censal year and a further 20 per cent. at mills averaging only slightly less than 5,000 hours. The stated hourly capacity of the remaining mills in respect of which these particulars were furnished indicated an average of less than 3,200 hours of working in the year.

The following table compares the quantities of some leading kinds of milling products returned for 1924 and 1907 as made in Great Britain ; a similar comparison cannot be made in respect of milling in Northern Ireland :—

Kind of output.	1924.	1907.	Increase (+) or decrease (−).
	Th. tons.	Th. tons.	Per cent.
Wheat meal and flour	4,130	3,714	+11·2
Bran, pollard, sharps, middlings	1,785	1,775	+ 0·6
Oatmeal and oat offals	146	100	+46·0
Maize meal, etc. (excluding offals)	385	458	−15·9

The value of the products included under the heading *Crushed oats and other animal and poultry feeding stuffs* in 1924 was nearly five times the value shown in 1907. As separate particulars were not asked for under this heading in the 1907 schedule for the Grain Milling Trade, it is probable that the amount actually returned did not completely represent the output in that year. In the 1912 Census, when the production of crushed oats, etc., was required to be stated, the value recorded was £2,063,000. The increase of over 140 per cent. between 1912 and 1924 would be accounted for by the change in the level of prices, the post-war increase in poultry-

farming and the exclusion of small firms in 1912. The same explanation applies to chopped hay and straw in 1907; the value of the output recorded in 1912 was £211,000.

Other products.

In addition to the output shown in the table on page 32, firms that made their Returns on schedules for the Grain Milling Trade recorded the following products which are mainly manufactured by other trades and are dealt with in the Reports on those trades :—

Kind of products.	1924. Selling value.	1907. Selling value.
	£'000.	£'000.
Oil-cake, ground	444	72
Bread, biscuits, cakes, etc.	6	183
Self-raising flour	27	
Other goods	27	7
TOTAL	504	262

Grist milling.

The amount recorded on schedules for the Grain Milling Trade as received by grist millers for milling farmers' grain was £165,000 in 1924 and £210,000 in 1907. In the latter year a further sum of £6,000 for grist milling was recorded on schedules for other trades. The amount received in 1924 was about one-quarter less than the sum received for the same class of work in 1907. The figures for Great Britain alone were £154,000 in 1924 and £175,000 in 1907. As it is probable that the rate of remuneration was higher in 1924 than in 1907, in view of the rise in the cost of living, the decrease in grist milling over the period may have been even greater than is indicated by the amounts received. It is also likely that the 530 firms employing about 1,000 persons from which Returns were not received in 1924 were, in the main, grist millers.

Value of output free from duplication.

The aggregate value of the output returned on Schedules for the Grain Milling Trade in 1924 was £106,365,000. This sum includes flour purchased for blending to the approximate value of £300,000, representing an equivalent amount of duplication if the flour were purchased from British millers, but not if it were imported flour. Some duplication may also be involved in the headings *Crushed oats and other animal and poultry feeding stuffs* and *Other manufactured cereals, dry*, but there is no evidence that in either case it is substantial. It would appear probable that it is quite safe to estimate the aggregate value of the products returned on the schedules for the Grain Milling Trade as lying between £105,865,000 and £106,365,000. For 1907 the corresponding value, calculated on the same basis, lay between £64,560,000 and £65,322,000.

Cost of materials and work given out.

The cost of materials used by firms making their Returns on schedules for the Grain Milling Trade was returned as £94,285,000 in 1924, a sum which, by the exclusion of purchases of the products of other firms in this trade, is reduced to an amount estimated to lie between £93,785,000 and £94,285,000; the corresponding figure for 1907 lay between £58,107,000 and £58,867,000.

No work given out was recorded in 1924, but the sum of £2,000 was returned in 1907 as paid by millers for work given out to other firms.

Net output.

The net output in 1924 of the firms that made their Returns on schedules for the Grain Milling Trade (whose gross output was valued at £106,365,000) was £12,080,000, that sum representing, without duplication, the total amount by which the value (at mill) of the aggregate output exceeded the cost (at mill) of the materials used.

The net output per head of persons employed in the censal year 1924 was £336, as compared with £178 in 1907.

Exports and imports.

The following table, relating to the year 1924, shows the total production of certain of the main classes of milled products in comparison with the exports and imports of similarly described products in that year :—

Kind of products.	Production.	Exports.	Net imports.	Available for use in the United Kingdom.
	Th. tons.	Th. tons.	Th. tons.	Th. tons.
Wheat meal and flour	4,174	319	531	4,386
Bran and pollard	818	63	192	947
Sharps and middlings	991	6	96	1,081
Barley meal and flour and pearled barley	345	1	5	349
Maize meal, flour and other milled products	666	70	85	681

Of the products available for use in the United Kingdom in 1924 about 87·9 per cent. of the wheat meal and flour, about 79·7 per cent. of the bran and pollard, about 91·1 per cent. of the sharps and middlings, about 98·6 per cent. of the barley products, and about 87·5 per cent. of the maize products, were the products of mills within the country. A comparison with the distribution of the same goods in 1907 would not be instructive, for trade with the present Irish Free State was considered domestic trade (and so was not recorded) in the earlier year, and in the later was treated and recorded as external trade; at least half (by value) of the exports of milled products from the United Kingdom in 1924 went to the Irish Free State. Oat products and rice products have not been included in the above table, since feeding stuffs for animals have not been

separated from human food in the production Returns as they have been in the records of imports and exports. For a discussion of the disposal of the above 4,386,000 tons of flour, see the Report on the Bread and Biscuit Trades, pages 52 to 53.

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 Grain Milling Trade which 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, 18,851 operatives, or 69 per cent. of the total of 27,311 operatives for the trade as a whole, and their net output totalled £8,646,000, or 72 per cent. of the aggregate net output of £12,080,000 for the trade as a whole. The total wage-bill of these firms, as returned to the Ministry of Labour, was £2,901,000, representing about 33½ per cent. of their aggregate net output.

Employment.

The detailed information relating to employment in 1924 is summarised in Table III on pages 44–45. The following table sets out certain particulars for that year together with those obtained in 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 proportion shown by the data relating to the week ended 18th October :—

Average number.	Males.		Females.		Males and females.	
	Under 18.	All ages.	Under 18.	All ages.	Under 18.	All ages.
1924.						
Operatives	918	25,578	114	1,390	1,032	26,968
Administrative, etc. ..	383	7,794	115	1,197	498	8,991
TOTAL	1,301	33,372	229	2,587	1,530	35,959
1907.						
Wage earners	1,147	28,329	90	783	1,237	29,112
Salaried	448	6,777	39	288	487	7,065
TOTAL	1,595	35,106	129	1,071	1,724	36,177

The numbers of operatives recorded month by month in 1924 ranged from 343 above the average, in October, to 351 below the average, in June (see Table III B, page 45).

Mechanical Power.

The detailed information relating to mechanical power in 1924 is summarised in Table IV on page 46. 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.
PRIME MOVERS :—	H.P.	H.P.	H.P.	H.P.
Reciprocating steam engines ..	87,877	6,275	94,152	115,784
Steam turbines	991	73	1,064	553
Gas engines	25,479	3,079	28,558	} 21,436
Petrol and light oil engines ..	4,476	752	5,228	
Heavy oil engines	4,539	317	4,856	
Water power*	14,180	130	14,310	38,865
Other†	..	..	..	813
TOTAL*†	137,542	10,626	148,168	177,451
ELECTRIC GENERATORS :—	Kw.	Kw.	Kw.	Kw.
Driven by—				
Reciprocating steam engines ..	9,945	1,602	11,547	6,224
Steam turbines	52	—	52	15
Gas engines	718	153	871	} 597
Petrol and light oil engines ..	34	—	34	
Heavy oil engines	391	—	391	
Water power	498	5	503	
TOTAL	11,638	1,760	13,398	6,836

* Not including, in 1924, 548 water-wheels (of which 1 was in reserve or idle) whose horse-power was not stated.

† There were returned, for 1924, 83 windmills (of which 2 were in reserve or idle) whose horse-power was not stated.

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

Electric motors.	1924.		
	Ordinarily in use.	In reserve or idle.	Total.
	H.P.	H.P.	H.P.
Driven by—			
Electricity generated in own works	12,200	909	13,109
Purchased electricity	52,856	4,559	57,415

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 9,799,000.

TABLES.

I.—Summary of results.

Particulars.	Unit.	England and Wales.	Scotland.	Great Britain.	Northern Ireland.
Value of products and work done (Gross output)	£'000	94,414	7,813	102,227	4,138
Cost of materials used	,,	83,715	6,923	90,638	3,647
Net output	,,	10,699	890	11,589	491
Average number of persons employed	No.	31,657	3,168	34,825	1,134
Net output per person employed	£	338	281	333	433
Mechanical power available :—					
Prime movers*	H.P.	125,644	15,092	140,736	7,432
Electric motors driven by purchased electricity	,,	53,119	3,844	56,963	452

* See footnotes to Table IV.

II.—Production.

Output sold or added to stock.	Unit.	England and Wales.	Scotland.	Great Britain.	Northern Ireland.
Wheat products :—					
Meal and flour, milled or blended	*Th. tons.*	*3,887*	*243*	*4,130*	*61*
Bran and pollard ..	,,	*740*	*56*	*796*	*22*
Sharps and middlings	,,	*953*	*36*	*989*	*2*
	£'000	78,149	4,725	82,874	1,220
TOTAL—WHEAT PRODUCTS	*Th. tons.*	*5,580*	*335*	*5,915*	*85*
	£'000	78,149	4,725	82,874	1,220
Oat products (including offals)	*Th. tons.*	*71*	*75*	*146*	*17*
	£'000	884	1,135	2,019	241
Barley meal and flour (including pearled barley)	*Th. tons.*	*325**	*13*	*338**	*
	£'000	3,815*	187	4,002*	*
Maize flour, meal and other milled products of maize	*Th. tons.*	*354*	*31*	*385*	*237*
	£'000	4,096	341	4,437	2,536
Bean meal and flour ..	*Th. tons.*	*11*	*24*	*35*	—
	£'000	133	288	421	—
Other meals and flours (except rice and pea), including mixed meals ..	*Th. tons.*	*39*	*5*	*44*	—
	£'000	512	90	602	—
Pea products :—					
Meal and flour ..	*Th. tons.*	*8*	*8*	*16*	—
	£'000	93	87	180	—
Split peas	*Th. tons.*	*9*	*3*	*12*	—
	£'000	138	39	177	—
Other peas, dried, etc.	*Th. tons.*	*3*	*4*	*7*	—
	£'000	46	57	103	—
TOTAL—PEA PRODUCTS	*Th. tons.*	*20*	*15*	*35*	—
	£'000	277	183	460	—

* In order to avoid the possible disclosure of information relating to individual firms in Northern Ireland, the small Irish output has been included with that for England and Wales and for Great Britain.

II.—Production—*continued.*

Output sold or added to stock.	Unit.	England and Wales.	Scotland.	Great Britain.	Northern Ireland.
Rice products :—					
Flour, meal and dust (including rice ground and granulated	*Th. tons.*	*21*	*7*	*28*	—
	£'000	331	95	426	—
Rice, cleaned, broken and mixed	*Th. tons.*	*24*	—	*24*	—
	£'000	450	—	450	—
TOTAL—RICE PRODUCTS	*Th. tons.*	*45*	*7*	*52*	—
	£'000	781	95	876	—
Crushed oats and other animal and poultry feeding stuffs ..	£'000	4,390	579	4,969	50
Other manufactured cereals, not elsewhere specified, dry	,,	247	15	262	—
Other offals, and by-products					
Weight stated	*Th. tons.*	*5*	*3*	*8*	—
	£'000	40	25	65	—
Weight not stated	£'000	45	—	45	—
Hay and straw, chopped ..	,,	488	51	539	—
Peat and moss litter, dust and fuel	,,	58*	20	78*	*
Oil-cake, ground	,,	340	34	374	70
Bread, biscuits, cakes, etc. ..	,,	6	—	6	—
Self-raising flour	,,	26	1	27	—
Other goods	,,	18	9	27	—
TOTAL VALUE OF PRODUCTS	£'000	94,295	7,778	102,073	4,127
Milling done by grist millers and others on commission ..	,,	119†	35†	154†	11†
TOTAL VALUE OF PRODUCTS AND WORK DONE (GROSS OUTPUT)	£'000	94,414	7,813	102,227	4,138

* In order to avoid the possible disclosure of information relating to individual firms in Northern Ireland, the small Irish output has been included with that for England and Wales and for Great Britain.

† 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.
England and Wales :—						
Operatives	848	22,868	66	1,201	914	24,069
Administrative, etc.* ..	346	6,809	99	1,004	445	7,813
Total	1,194	29,677	165	2,205	1,359	31,882
Scotland :—						
Operatives	58	2,182	40	176	98	2,358
Administrative, etc.* ..	27	762	13	143	40	905
Total	85	2,944	53	319	138	3,263
Great Britain :—						
Operatives	906	25,050	106	1,377	1,012	26,427
Administrative, etc.* ..	373	7,571	112	1,147	485	8,718
Total	1,279	32,621	218	2,524	1,497	35,145
Northern Ireland :—						
Operatives	23	821	13	63	36	884
Administrative, etc.* ..	10	223	3	50	13	273
Total	33	1,044	16	113	49	1,157
United Kingdom :—						
Total	1,312	33,665	234	2,637	1,546	36,302

* Administrative, technical and clerical staff.

B.—Operatives employed in one week in each month of 1924.

England and Wales. (*Annual average : Males, 22,646 ; Females, 1,198 ; Total, 23,844.*)

Week ended.	Males.	Females.	Total.	Week ended.	Males.	Females.	Total.
Jan. 12th ..	22,844	1,223	24,067	July 19th ..	22,363	1,192	23,555
Feb. 16th ..	22,675	1,197	23,872	Aug. 16th ..	22,440	1,180	23,620
March 15th ..	22,699	1,188	23,887	Sept. 13th ..	22,658	1,194	23,852
April 12th ..	22,591	1,198	23,789	Oct. 18th ..	22,868	1,201	24,069
May 17th ..	22,580	1,189	23,769	Nov. 15th ..	22,804	1,219	24,023
June 21st ..	22,457	1,189	23,646	Dec. 13th ..	22,769	1,208	23,977

Scotland. (*Annual average : Males, 2,131 ; Females, 132 ; Total, 2,263.*)

Jan. 12th ..	2,176	135	2,311	July 19th ..	2,071	121	2,192
Feb. 16th ..	2,170	133	2,303	Aug. 16th ..	2,083	124	2,207
March 15th ..	2,161	132	2,293	Sept. 13th ..	2,111	169	2,280
April 12th ..	2,144	127	2,271	Oct. 18th ..	2,182	176	2,358
May 17th ..	2,143	108	2,251	Nov. 15th ..	2,203	140	2,343
June 21st ..	1,992	103	2,095	Dec. 13th ..	2,138	115	2,253

Great Britain. (*Annual average : Males, 24,777 ; Females, 1,330 ; Total, 26,107.*)

Jan. 12th ..	25,020	1,358	26,378	July 19th ..	24,434	1,313	25,747
Feb. 16th ..	24,845	1,330	26,175	Aug. 16th ..	24,523	1,304	25,827
March 15th ..	24,860	1,320	26,180	Sept. 13th ..	24,769	1,363	26,132
April 12th ..	24,735	1,325	26,060	Oct. 18th ..	25,050	1,377	26,427
May 17th ..	24,723	1,297	26,020	Nov. 15th ..	25,007	1,359	26,366
June 21st ..	24,449	1,292	25,741	Dec. 13th ..	24,907	1,323	26,230

Northern Ireland. (*Annual average : Males, 801 ; Females, 60 ; Total, 861.*)

Jan. 12th ..	784	51	835	July 19th ..	799	73	872
Feb. 16th ..	796	50	846	Aug. 16th ..	797	69	866
March 15th ..	782	52	834	Sept. 13th ..	809	53	862
April 12th ..	786	53	839	Oct. 18th ..	821	63	884
May 17th ..	798	55	853	Nov. 15th ..	828	61	889
June 21st ..	799	77	876	Dec. 13th ..	815	61	876

IV.—Mechanical Power.

Particulars of prime movers, electric generators and electric motors.

(*a*) Ordinarily in use. (*b*) In reserve or idle.		England and Wales.	Scotland.	Great Britain.	Northern Ireland.
PRIME MOVERS :—		H.P.	H.P.	H.P.	H.P.
Reciprocating steam engines	(*a*)	75,612	7,961	83,573	4,304
	(*b*)	*5,687*	*354*	*6,041*	*234*
Steam turbines	(*a*)	677	9	686	305
	(*b*)	*73*	—	*73*	—
Gas engines	(*a*)	21,616	2,892	24,508	971
	(*b*)	*2,637*	*241*	*2,878*	*201*
Petrol and light oil engines	(*a*)	4,132	331	4,463	13
	(*b*)	*552*	*200*	*752*	—
Heavy oil engines	(*a*)	3,721	464	4,185	354
	(*b*)	*297*	*20*	*317*	—
Water power*	(*a*)	10,510	2,620	13,130	1,050
	(*b*)	*130*	—	*130*	—
Other†	(*a*)	..	—	..	—
	(*b*)	..	—	..	—
TOTAL*†	(*a*)	116,268	14,277	130,545	6,997
	(*b*)	*9,376*	*815*	*10,191*	*435*
TOTAL OF PRIME MOVERS INSTALLED*†		125,644	15,092	140,736	7,432
ELECTRIC GENERATORS :—		Kw.	Kw.	Kw.	Kw.
Driven by—					
Reciprocating steam engines	(*a*)	9,110	487	9,597	348
	(*b*)	*1,549*	*44*	*1,593*	*9*
Steam turbines	(*a*)	34	—	34	18
Gas engines	(*a*)	653	17	670	48
	(*b*)	*135*	—	*135*	*18*
Petrol and light oil engines	(*a*)	34	—	34	—
Heavy oil engines	(*a*)	226	165	391	—
Water power	(*a*)	451	12	463	35
	(*b*)	*5*	—	*5*	—
TOTAL	(*a*)	10,508	681	11,189	449
	(*b*)	*1,689*	*44*	*1,733*	*27*
TOTAL OF ELECTRIC GENERATORS INSTALLED		12,197	725	12,922	476
ELECTRIC MOTORS :—		H.P.	H.P.	H.P.	H.P.
Driven by—					
Electricity generated in own works	(*a*)	11,200	611	11,811	389
	(*b*)	*890*	*19*	*909*	—
Purchased electricity	(*a*)	49,027	3,483	52,510	346
	(*b*)	*4,092*	*361*	*4,453*	*106*

* Not including 534 water wheels (of which 1 was in reserve or idle) returned for England and Wales, and 14 for Northern Ireland ; no horse-power was given for these water wheels.

† There were returned for England and Wales, 83 windmills (of which 2 were in reserve or idle) whose horse-power was not stated.