

THE ROPE, TWINE AND NET TRADES.

Contents.

	Page.
INTRODUCTORY	231
Qualifications affecting comparisons	231
Value of output and cost of materials	232
PRODUCTION	232
Yarns: Total output	232
Yarns sold or added to stock	233
Cordage and manufactures thereof	233
Other products	235
Work done for the trade	235
Value of output free from duplication	235
Cost of materials and work given out	235
Net output	236
Exports and imports	236
WAGES IN 1924	237
EMPLOYMENT	238
MECHANICAL POWER	238
MACHINERY EQUIPMENT	239
TABLES	240

THE ROPE, TWINE AND NET TRADES.

Introductory.*

The Tables on pages 240 to 243 are based on Returns received from firms in Great Britain and Northern Ireland whose business in 1924 consisted wholly or mainly in the manufacture, from textile materials, of ropes, cordage, twines, and nets. The number of such separate Returns was 306. About 80 firms to which schedules were sent did not furnish Returns, but these firms for the most part had very small establishments 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 250 persons and that their net output probably lay between £30,000 and £40,000.

The following table shows the main results of the Censuses of 1924, 1912 and 1907, comparisons between the results for the three years being subject to the qualifications mentioned in the next paragraph:—

Particulars.	Unit.	1924.	1912.	1907.
Value of goods made and work done (Gross output)	£'000	8,556	4,398	3,961
Cost of materials used	"	5,845	3,056	2,881
Paid for work given out to other firms	"	19	8	8
Net output	"	2,692	1,334	1,072
Average number of persons employed (excluding outworkers)	No.	16,712	16,403	14,259
Net output per person employed (excluding outworkers)	£	161	81	75
Mechanical power available:—				
Prime movers	H.P.	21,486	18,661	15,314
Electric motors driven by purchased electricity	"	10,715	2,429	(not recorded)

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

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

(2) The Censuses of 1907 and 1912 covered the whole of Great Britain and Ireland, but that of 1924 applied only to Great Britain and Northern Ireland. The absence of the Irish Free State in 1924 does not, however, seriously affect the comparability

* See also the Notes on pp. vi-xiv.

of the figures, since the scale on which the Rope, Twine and Net Trades were carried on in the Irish Free State in 1926 did not justify the preparation of a separate Report on those trades by the Free State Census Office.

(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 average number of persons employed in the establishments thus excluded was 802 or somewhat under 5 per cent. of the number employed by the remaining firms, as shown in the above table.

Value of output and cost of materials.—The figures in the above table representing the value of goods made and work done 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 over-state the value of the output of the Rope, Twine and Net Trades considered as a whole. The matter is discussed on page 235, where it is estimated that the value, free from duplication, of the output of these trades in 1924 lay between £8,107,000 and £8,556,000. The figures in the table representing the cost of materials used may likewise over-state the cost of the materials purchased from sources outside the Rope, Twine and Net Trades and worked up into their products. When the necessary deduction on this account has been made, the cost of such materials used in 1924 may be reduced to a figure of about £5,400,000.

Production.

The detailed information relating to production in 1924 is summarised in Tables IIA and IIB on page 241.

In addition to the goods dealt with in this Report, rope, twine and cordage valued (on a "cost" basis) at £81,000 were produced in 1924 by Government Dockyards, Prisons, and Railway Companies.*

Yarns: Total output.—The bulk of the *hemp yarn* produced in the United Kingdom is spun by manufacturers of ropes and cordage, for use in their own works, and it is, therefore, convenient to deal in this Report with the hemp spinning trade as a whole.

The following statement shows the total quantity of hemp yarn produced in 1924 and 1912, distinguishing the output returned on schedules for the Rope, Twine and Net Trades from that returned on schedules for other trades. The figures are inclusive of all yarn used by the spinners in their own works as well as yarn sold, or added to

* The Report on the work done by Public Utility Services (including Government Departments, Railway, Gas and Electricity Companies, etc.) forms part of a separate volume.

stock, as such. In the Census of 1907, firms were not required to furnish a statement of their total make of yarns, and comparable figures are consequently not available for that year.

Year.	Total make of hemp yarn.		
	Returned on schedules for the Rope, Twine and Net Trades.	Returned on schedules for other trades.	Total.
	Tons.	Tons.	Tons.
1924	58,960	7,950	66,910
1912	47,130	31,740	78,870

The aggregate returned for 1924 (66,910 tons) was composed of 15,260 tons of hemp line yarn and 51,650 tons of hemp tow yarn. Separate particulars for line and tow yarns were not obtained in the Census of 1912.

It appears from the above statement that the total output of hemp yarn in 1924 was less by about 15 per cent. than in 1912, though the quantity spun by manufacturers of ropes and cordage was greater by about 25 per cent. Hemp spinners who were not primarily manufacturers of ropes and cordage produced in 1924 only about one-fourth of the quantity returned by similar firms in 1912. The output of these firms is dealt with in the Report on the Linen and Hemp Trades (pages 151–2).

Exports of hemp yarn in 1924 amounted to 670 tons and net imports to 4,330 tons, the quantity available for use in the United Kingdom in that year thus being 70,570 tons. Of this latter amount, British-spun yarns formed about 94 per cent. Exports and imports of hemp yarn were not separately recorded in 1912 or 1907.

Manufacturers of ropes and cordage also produced *other yarns* (mainly cotton) aggregating 650 tons in 1924 and 1,420 tons in 1912.

Yarns sold or added to stock.—Of the total quantity of 59,610 tons of yarns produced in 1924 by manufacturers of ropes and cordage (58,960 tons of hemp yarn and 650 tons of other yarns) the amount sold or added to stock by these firms was returned as 1,840 tons, valued at £191,000. In 1912, 1,880 tons, valued at £148,000, were sold, or added to stock, as such, the total quantity spun in that year being 48,550 tons. Thus about 97 per cent. of all yarns produced by manufacturers of ropes and cordage was used in their own works in 1924 and about 96 per cent. in 1912. The value of the yarns sold, or added to stock, as such in 1907 was £71,000, but the quantity was not recorded.

Cordage and manufactures thereof.—The output of the principal classes of cordage and manufactures of cordage in 1924, 1912 and 1907 was as shown in the following table. The figures relate to output sold or added to stock and include the amounts returned both on

schedules for the Rope, Twine and Net Trades and on schedules for other trades.*

Kind of goods.	1924.		1912.		1907.				
	Quantity.	Value	Quantity.	Value.	Quantity.	Value.			
	Th. cwts.	£'000.	Th. cwts.	£'000.	Th. cwts.	£'000.			
Cordage, cables, rope and twine :									
Under $\frac{1}{4}$ inch diameter :—									
Of hemp—									
Binder and reaper twine	358	983	225	360					
Other sorts	375	1,693	} 683	1,911	} 2,113	4,826			
Of other materials ..	208	1,401							
Of $\frac{1}{4}$ inch diameter and over —									
Of cotton	78	657	} 1,299	2,483					
Of hemp	769	2,211							
Of other materials ..	209	550							
TOTAL — CORDAGE, ETC.	1,997	7,495	2,207	4,754	2,113	4,826			
Nets	71	1,031	..	524	..	445			
Other manufactures of cordage	15	72	—	—	—	—			
TOTAL—CORDAGE AND MANUFACTURES THEREOF	2,083	8,598	..	5,278	..	5,271			

In addition, the sum of £24,000, of which £22,000 was returned on schedules for the Rope, Twine and Net Trades, was received in 1924 for the work of fixing and splicing driving ropes. For similar work in 1912 and 1907, sums of £11,000 and £9,000 respectively were recorded.

From the figures given above, it will be seen that between 1912 and 1924 there was an increase of about 59 per cent. in the output of binder and reaper twine, and a decrease of nearly 19 per cent. in the output for sale of cordage of $\frac{1}{4}$ inch diameter and over. The decrease in the make of heavy cordage is probably connected with an increased use of wire ropes and cables.

As regards cordage under $\frac{1}{4}$ inch diameter, any comparison based on output for sale is of doubtful value, since the figures do not take account of the changes which may have occurred in the quantity of cordage made by certain firms and used by them in the manufacture of nets, etc., such cordage being returned by them not as cordage but in its finished form. Information as to the quantities of cordage so used in 1912 and 1924 is not available, but having regard to the fact that the weight of the nets and other manufactures of cordage returned in 1924 was 86,000 cwts., of which, as indicated below, a considerable portion appears to have been made from cordage forming part of the 583,000 cwts. returned in the same year as made for sale, it may be inferred that the total make of cordage under $\frac{1}{4}$ inch diameter was smaller in 1924 than in 1912. It is not

* Including the Canvas Goods and Sack Trades, the Report on which forms part of a separate volume.

possible to ascertain the change in the output of nets and other manufactures of cordage, since in 1907 and 1912 manufacturers were not required to state the quantities made.

Other products.—In addition to the yarns, cordage and manufactures thereof, firms that made their Returns on schedules for the Rope, Twine and Net Trades reported that they made other goods to the value of £742,000, the largest class among them consisting of wire cables and rope, of which 12,000 tons, valued at £647,000, were made. These goods are dealt with in the Reports on the trades in which they were chiefly made.

Work done for the trade.—Firms making their Returns on schedules for the Rope, Twine and Net Trades reported that they received £8,000 for work done for the trade, but, as the amount paid to other firms for work given out to them was £19,000, the former amount may be partly or wholly duplicated in the value returned for the goods made. The amount returned as received for work done in 1912 was £7,000 but no such work was recorded for 1907.

Value of output free from duplication.—The total value of the output returned on schedules for the Rope, Twine and Net Trades in 1924 was £8,556,000. This total may involve duplication (1) in respect of yarns sold by spinners to other firms in the trade for use in the production of ropes or other goods made from yarn, and (2) in respect of cordage sold by the makers thereof to firms in the trade that produced nets and other goods made from cordage. The maximum amount of duplication under the first heading is £191,000, that being the value of the yarn returned by firms in the Rope, Twine and Net Trades as sold or added to stock. Examination of the individual Returns shows that firms making nets and other goods of cordage, but not themselves making rope or twine, returned an output of £433,000. The cost of the cord or twine used in the manufacture of such goods may be put at £250,000, a figure which measures approximately the maximum amount of duplication included in the output value of the trade in this connection. In addition, the value of the work done for the trade (£8,000) may be partly or wholly duplicated in the value returned for goods made. Allowing for these items, the value of the output in 1924 may therefore be estimated as lying between £8,107,000 and £8,556,000 free from duplication. For 1907 the value of the output returned on schedules for the Rope, Twine and Net Trades was estimated as lying between £3,916,000 and £3,961,000, free from duplication.

Cost of materials and work given out.—The cost of materials used by firms making their Returns on schedules for the Rope, Twine and Net Trades was returned as £5,845,000 in 1924, a sum which, by the exclusion of purchases of the products of other firms in the same trades, may be reduced by as much as £441,000 to £5,404,000; the corresponding net figure for 1907 lay between £2,836,000 and £2,881,000.

The amount paid to other firms for work given out to them was returned as £19,000 in 1924, £8,000 in 1912 and £8,000 in 1907.

Net output.—The net output in 1924 of the firms making their Returns on schedules for the Rope, Twine and Net Trades (whose gross output was valued at £8,556,000) was £2,692,000, that sum representing, without duplication, the total amount by which the value (at factory) of the aggregate output exceeded the cost (at factory) 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 (excluding out-workers) in the censal year 1924 was £161, as compared with £81 in 1912 and £75 in 1907.

Exports and imports.—The following table, relating to the years 1924 and 1912, shows the production of certain of the main classes of cordage, cables, etc., and manufactures thereof, in relation to the exports and imports of similarly described goods, and allows of a limited degree of comparison between the particulars for the two years. The figures of exports shown for 1924 are exclusive of exports to the Irish Free State; these were 6,000 cwts. of binder and reaper twine, 12,000 cwts. of other cordage under $\frac{1}{4}$ inch diameter, and 14,000 cwts. of cordage of $\frac{1}{4}$ inch diameter and over. There were practically no imports from the Irish Free State in that year.

Kind of goods.	Pro- duction for sale.	Exports.	Exports as per- centage of pro- duction for sale.	Net imports.	Avail- able for con- sumption in the United King- dom.	Share of home market held by	
	Quan- tity.	Quan- tity.		Quan- tity.	Quan- tity.	British- made goods.	Im- ported goods.
	Th. cwts.	Th. cwts.	Per cent.	Th. cwts.	Th. cwts.	Per cent.	Per cent.
1924.							
Cordage, cables, ropes and twine, of hemp or like materials:—							
Under $\frac{1}{4}$ inch diameter—							
Binder and reaper twine (of hemp)	358	113	31.6	104	349	70.2	29.8
Other cordage, etc., under $\frac{1}{4}$ inch diameter	583*	115	19.7	65
Of $\frac{1}{4}$ inch diameter and over	1,056	187	17.7	20	889	97.8	2.2
Manufactures of cordage:—							
Nets	71	19	26.8	7	59	88.1	11.9
1912.							
Cordage, cables, ropes and twine, of hemp or like materials:—							
Binder and reaper twine (of hemp)	225	57	25.3	93	261	64.4	35.6
Other cordage, etc., under $\frac{1}{4}$ inch diameter	683*	138	20.2	95
Cordage, etc., of $\frac{1}{4}$ inch diam- eter and over	1,299	287	22.1	25	1,037	97.6	2.4

* Exclusive of cordage used for making nets, etc.

While in the case of binder and reaper twine and (perhaps less certainly) in the case of cordage of $\frac{1}{4}$ inch diameter and over, the figures given in the table may be regarded as adequately representing the position in 1924 and 1912, the figures relating to cordage under $\frac{1}{4}$ inch diameter (other than binder and reaper twine) are, for the reasons already explained, a less reliable foundation for inferences. On the basis of the amounts produced for sale, the quantities of such cordage available for consumption in the United Kingdom were 533,000 cwts. in 1924 and 640,000 cwts. in 1912, of each of which amount must be added the quantity of cordage which was used directly for making nets and other manufactures and was thus not recorded in the output of cordage. In view of what has been stated above as to the probable quantity of cordage so used in 1924, it seems clear that the total amount of this class of cordage available for consumption in 1924 was smaller than the corresponding quantity for 1912, but it is not possible, from the data available, to calculate percentages showing the share of the home market held respectively by British-made and imported cordage of this kind in the two years. The figures indicate, however, that imported cordage represented not more than 12 per cent. of the available supply in 1924 and not more than 15 per cent. in 1912. The consumption of binder and reaper twine in the United Kingdom increased by over 30 per cent. in 1924 as compared with 1912, and British-made goods represented a larger proportion of the consumption. The consumption of cordage of $\frac{1}{4}$ inch diameter and over in Great Britain and Northern Ireland in 1924 showed a decline of over 14 per cent. as compared with the consumption in Great Britain and Ireland in 1912.

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 Rope, Twine and Net Trades 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, 10,898 operatives or 73 per cent. of the total of 14,965 operatives for the trades as a whole, and their net output totalled £1,946,000 or 72 per cent. of the aggregate net output of £2,692,000 for the trades as a whole. The total wage-bill of these firms, as returned to the Ministry of Labour, was £824,000, representing about 42 per cent. of their aggregate net output.

Employment.

The detailed information relating to employment in 1924 is summarised in Table III on pages 242-3. The following table sets out certain particulars for that year, together with those relating to the two previous censal years. 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 (excluding outworkers).	Males.		Females.		Males and females.	
	Under 18.	All ages.	Under 18.	All ages.	Under 18.	All ages.
1924.						
Operatives	1,475	5,501	2,470	9,774	3,945	15,275
Administrative, etc.	78	1,026	63	411	141	1,437
TOTAL	1,553	6,527	2,533	10,185	4,086	16,712
1912.						
Wage earners	2,305	6,592	2,203	8,669	4,508	15,261
Salaried	125	952	47	190	172	1,142
TOTAL	2,430	7,544	2,250	8,859	4,680	16,403
1907.						
Wage earners	2,088	6,171	1,763	7,152	3,851	13,323
Salaried	94	791	39	145	133	936
TOTAL	2,182	6,962	1,802	7,297	3,984	14,259
Average number of outworkers :						
1924	15		961		976	
1912	72		1,393		1,465	
1907	46		714		760	

The numbers of operatives recorded month by month in 1924 ranged from 336 above the average, in March, to 469 below the average, in September (see Table III.B, p. 242.)

Mechanical Power.

The detailed information relating to mechanical power in 1924 is summarised in Table IV, p. 243. The following table sets out the particulars for the three censal years relating to the capacity and kinds of *prime movers* and the capacity of *electric generators* installed.

Power equipment.	1924.			1912.	1907.
	Ordinarily in use.	In reserve or idle.	Total.	Total.	Total.
PRIME MOVERS :—	H.P.	H.P.	H.P.	H.P.	H.P.
Reciprocating steam engines ..	10,987	1,473	12,460	12,756	11,132
Steam turbines	1,250	—	1,250	—	400
Gas engines	5,853	539	6,392	4,522	} 3,767
Petrol and light oil engines ..	63	—	63	} 1,278	
Heavy oil engines	860	260	1,120		
Water power	161	40	201	105	
TOTAL	19,174	2,312	21,486	18,661	15,314

Power equipment.	1924.			1912.	1907.
	Ordinarily in use.	In reserve or idle.	Total.	Total.	Total.
	Kw.	Kw.	Kw.	Kw.	Kw.
ELECTRIC GENERATORS :—					
Driven by—					
Reciprocating steam engines	679	274	953	440	551
Steam turbines	1,000	—	1,000	—	—
Gas engines	1,240	140	1,380	} 271	} 24
Petrol and light oil engines ..	—	—	—		
Heavy oil engines	34	—	34		
Water power	18	29	47		
TOTAL	2,971	443	3,414	711	575

The capacity of *electric motors* installed in 1924 and in 1912 was as shown below :—

Electric motors.	1924.			1912.
	Ordinarily in use.	In reserve or idle.	Total.	Total.
	H.P.	H.P.	H.P.	H.P.
Driven by—				
Electricity generated in own works ..	3,427	392	3,819	690
Purchased electricity	8,924	1,791	10,715	2,429

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 997,000.

Machinery Equipment.

In response to a request for voluntary information as to the number of spinning and doubling spindles at rope and cordage-making factories, firms which produced 30,500 tons of hemp yarn and 783,000 cwts. of hemp ropes and cordage (about 46 per cent. and 52 per cent. respectively of the total quantities produced in the year by all firms) returned the following particulars relating to the end of the year 1924 :—

	<i>In use.</i>	<i>Idle.</i>	<i>Total.</i>
Spinning spindles for hemp	12,854	4,738	17,592
Doubling spindles for hemp	7,170	2,023	9,193

TABLES.

I.—Summary of results.

Particulars.	Unit.	England and Wales and N. Ireland.*	Scotland.	United Kingdom.
Value of goods made and work done (Gross output)	£'000	7,021	1,535	8,556
Cost of materials used	"	4,825	1,020	5,845
Paid for work given out to other firms	"	16	3	19
Net output	"	2,180	512	2,692
Average number of persons employed (excluding outworkers)	No.	13,557	3,155	16,712
Net output per person employed (excluding outworkers)	£	161	162	161
Mechanical power available :—				
Prime movers	H.P.	15,914	5,572	21,486
Electric motors driven by purchased electricity	"	9,260	1,455	10,715

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

II.—Production.

A.—TOTAL MAKE OF YARNS.

Kind of yarns.	England and Wales and N. Ireland.*	Scotland.	United Kingdom.
	Tons.	Tons.	Tons.
Hemp yarns	48,160	10,800	58,960
Other yarns (mainly cotton)	†	†	650

* See Footnote to Table I.

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

B.—OUTPUT SOLD OR ADDED TO STOCK AND WORK DONE FOR THE TRADE.

Kind of goods made and work done.	Unit.	England and Wales and N. Ireland.†	Scotland.	United Kingdom.
Yarns	Tons £'000	1,350 89	490 102	1,840 191
Cordage, cables, rope and twine, of hemp and like materials :—				
Under ½ inch diameter	Th. cwts. £'000	738 3,135	88 400	826 3,535
Of ½ inch diameter and over	Th. cwts. £'000	732 2,518	277 764	1,009 3,282
TOTAL—CORDAGE, ETC.	Th. cwts. £'000	1,470 5,653	365 1,164	1,835 6,817
Manufactures of cordage :—				
Nets	Th. cwts. £'000	48 483	14 236	62 719
Other	Th. cwts. £'000	* *	* *	13 57
Wire cables and rope	Th. tons £'000	* *	* *	12 647
Made-up canvas goods, bags, etc.	£'000	* 51	* —	33 51
Other textile products	"	11	—	11
Other products	"	22 †	§ †	22 †
Fixing and splicing of driving ropes	"	6 †	2 †	8 †
Other work done	"			
TOTAL VALUE OF GOODS MADE AND WORK DONE (GROSS OUTPUT)	£'000	7,021	1,535	8,556

† See Footnote to Table I.

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

§ Less than £500.

† Amount received for work done.

