
 THE CARDBOARD BOX TRADE.

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Introductory.*

The tables on pages 355 to 358 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 cartons and boxes of cardboard. The number of such separate returns was 517. About 45 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 170 persons in all and that their total net output probably did not exceed £20,000.

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

* See also the Notes on pages vii to xv.

Particulars.	Unit.	1924.	1912.	1907.
Value of goods made and work done (Gross output)	£'000	5,620	2,380	2,129
Cost of materials used	"	2,557	1,139	1,002
Paid for work given out to other firms ..	"	26	15	13
Net output	"	3,037	1,226	1,114
Average number of persons employed (excluding outworkers)	No.	20,259	20,035	21,368
Net output per person employed (excluding outworkers)	£	150	61	52
Mechanical power available :—				
Prime movers	H.P.	2,478	3,041	2,288
Electric motors driven by purchased electricity	"	5,119	1,225	(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, 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 Censuses of 1907 and 1912 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, in 1907, the total number of persons employed in the whole of Ireland in the Cardboard Box Trade was 941 only, with a gross output valued at £75,000; further, according to the Census of Production taken by the Government of the Irish Free State in respect of the year 1926, the total output of the boxes and cartons of paper and cardboard made in that year was returned as only 1,315 tons valued at £61,000.

(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 average number of persons employed in the establishments thus excluded was 302, or 1½ per cent. of the number employed by the remaining firms, as shown in the above table.

Production.

Detailed information relating to the output of the Cardboard Box Trade in 1924 will be found in Table II on page 355.

Cardboard boxes and cartons.—The total value of cardboard boxes and cartons recorded for 1924 was £9,036,000, as compared with £2,931,000 in 1912 and £2,276,000 (including £11,000 for boxes of cardboard and wood) in 1907, the figures for each year being inclusive of the output of similar products returned on schedules

for other trades. The amount so included for 1924 is £3,547,000, as compared with £652,000 for 1912 and £198,000 for 1907.

The total value of the output of cardboard boxes and cartons recorded for each year does not cover the whole output of boxes in that year, for where manufacturing firms maintained departments to make cardboard boxes solely for the purpose of packing their own products they were not, as a rule, required to make separate returns in respect of such work, but were allowed to include the value of the containers in the value of the finished products as packed for sale. In some important cases, however, where the manufacture of containers for this purpose was carried on in separate establishments on a considerable scale and separate records were available, the firms concerned made separate returns in respect of their output of boxes and cartons, treating them as if sold to the manufacturing departments of the main business.

Over 39 per cent. of the total recorded output of cardboard boxes in 1924 was made by printers, paper makers, manufacturing stationers, etc., that made their returns on schedules for other trades. In 1907 only about 10 per cent. of the value of the output of cardboard boxes was returned on schedules for trades other than the Cardboard Box Trade, so that since that year there appears to have been a considerable development of cardboard box making as a subsidiary business of firms mainly engaged in printing, paper making and other trades.

No particulars of quantities were required to be given in 1907 or 1912. In 1924, firms were required to state the weight of boxes made, but only firms with an output valued at £4,008,000, or about 44·4 per cent. of the value of all boxes returned, could state the quantity of their output, the aggregate weight so returned being 109,000 tons. The different classes of boxes and cartons made vary so much in price that it would be unsafe to estimate the total weight on the basis of so moderate a sample.

Other products and work done.—In addition to the output of cardboard boxes and cartons enumerated above, firms that made their returns on the schedules for the Cardboard Box Trade recorded an output of other goods which, being of kinds mainly produced in other trades, are dealt with in the reports on those trades. The following statement shows the value of such goods in the three censal years :—

Kind of goods.	1924.	1912.	1907.
	Selling value.	Selling value.	Selling value.
Other manufactures of cardboard and paper, including printing	£'000 47	£'000 76	£'000 39
Waste products	19	10	} 12
Other goods made and work done	65	16	
TOTAL VALUE	131	102	51

The total output of the trade may be accepted as free from material duplication.

Cost of materials and work given out.—The cost of materials used by firms that made their returns on schedules for the Cardboard Box Trade was returned as £2,557,000 in 1924, £1,139,000 in 1912, and £1,002,000 in 1907.

The amount paid to other firms for work given out to them was returned as £26,000 in 1924, £15,000 in 1912, and £13,000 in 1907.

Net output.—The net output in 1924 of the firms that made their returns on schedules for the Cardboard Box Trade (whose gross output was valued at £5,620,000) was £3,037,000, that sum representing 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 (excluding outworkers) in the censal year 1924 was £150, as compared with £61 in 1912 and £52 in 1907.

Exports and imports.—Exports of cardboard boxes and cartons in 1924 were 58,116 cwts., valued at £216,521 f.o.b., and retained imports in the same year were 11,670 cwts., valued at £61,225 c.i.f. Particulars of overseas trade in those articles were not separately distinguished in 1907, but in 1912 exports were 45,962 cwts., and retained imports were 8,046 cwts. If the exports (24,769 cwts.) to the Irish Free State in 1924 be deducted, exports were lower by 27.4 per cent. in 1924 than 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 Cardboard Box Trade 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, 13,292 operatives, or 69 per cent. of the total of 19,161 operatives for the trade as a whole, and their net output totalled £2,122,000, or 70 per cent. of the aggregate net output of £3,037,000 for the trade as a whole. The total wage-bill of these firms, as returned to the Ministry of Labour, was £1,063,000, representing about 50 per cent. of their aggregate net output.

Employment.

The detailed information relating to employment in 1924 is summarised in Table III on pages 356 and 357. 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 proportions 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	746	3,816	4,300	14,779	5,046	18,595
Administrative, etc. ..	74	1,048	105	616	179	1,664
TOTAL	820	4,864	4,405	15,395	5,225	20,259
1912.						
Wage earners	875	3,699	4,881	14,841	5,756	18,540
Salaried	83	1,002	95	493	178	1,495
TOTAL	958	4,701	4,976	15,334	5,934	20,035
1907.						
Wage earners	936	3,815	4,988	16,029	5,924	19,844
Salaried	118	1,018	145	506	263	1,524
TOTAL	1,054	4,833	5,133	16,535	6,187	21,368
Average number of outworkers :—						
1924	6		870		876	
1912	12		1,436		1,448	
1907	3		1,405		1,408	

The numbers of operatives recorded month by month in 1924 ranged from 936 above the average in, December, to 657 below the average, in April (*see* Table IIIB, page 357). The numbers fluctuated but little during the first nine months, but a marked increase in activity in the last quarter of the year is shown, the average for these three months being greater by about 1,000 than that for the remainder of the year. It will be observed that there was little difference at the three Censuses in the proportion of male to female operatives.

Mechanical Power.

The detailed information relating to mechanical power in 1924 is summarised in Table IV on page 358. 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	738	345	1,083	898	480
Gas engines	1,157	217	1,374	2,097	} 1,795
Petrol and light oil engines..	—	—	—	46	
Heavy oil engines	21	—	21	—	
Water power	—	—	—	—	7
Other (not steam turbines) ..	—	—	—	—	6
TOTAL	1,916	562	2,478	3,041	2,288
ELECTRIC GENERATORS :—	Kw.	Kw.	Kw.	Kw.	Kw.
Driven by—					
Reciprocating steam engines	541	170	711	148	158
Gas engines	67	86	153	440*	334*
TOTAL	608	256	864	588	492

*Returned as driven by "other prime movers."

The capacity of *electric motors* recorded 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 ..	819	77	896	513
Purchased electricity	4,836	283	5,119	1,225

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 543,000.

TABLES.

I.—Summary of results.

Particulars.	Unit.	England and Wales.	Scotland.	Great Britain.	Northern Ireland.
Value of goods made and work done (Gross output)	£'000	5,217	296	5,513	107
Cost of materials used	"	2,379	135	2,514	43
Paid for work given out to other firms	"	24	1	25	1
Net output	"	2,814	160	2,974	63
Average number of persons employed (excluding outworkers)	No.	18,512	1,221	19,733	526
Net output per person employed (excluding outworkers)	£	152	131	151	120
Mechanical power available :—					
Prime movers	H.P.	2,437*	41	2,478*	*
Electric motors driven by purchased electricity	"	4,743*	376	5,119*	*

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

II.—Production.

Goods sold or added to stock and work done.	England and Wales.	Scotland.	Great Britain.	Northern Ireland.
	Selling value.	Selling value.	Selling value.	Selling value.
	£'000.	£'000.	£'000.	£'000.
Boxes and cartons of paper and cardboard (including folding boxes) :—				
Quantity stated	3,051	207	3,258	23
(Th. cwt.)	(1,646)	(103)	(1,749)	(7)
Quantity not stated	2,040	84	2,124	84
TOTAL	5,091	291	5,382	107
Other manufactures of cardboard and paper, including printing ..	44	3	47	—
Waste products	18	1	19	—
Other goods made and work done ..	64	1	65	—
TOTAL VALUE OF GOODS MADE AND WORK DONE (GROSS OUTPUT)	5,217	296	5,513	107

III.—Employment.

A.—NUMBERS EMPLOYED IN WEEK ENDED 18TH OCTOBER, 1924
(EXCLUDING OUTWORKERS).

Kind of staff.	Males.		Females.		Males and females.	
	Under 18.	All ages.	Under 18.	All ages.	Under 18.	All ages.
<i>England and Wales</i> :—						
Operatives	712	3,662	4,046	13,782	4,758	17,444
Administrative, etc.* ..	72	969	99	562	171	1,531
TOTAL	784	4,631	4,145	14,344	4,929	18,975
<i>Scotland</i> :—						
Operatives	22	152	323	1,047	345	1,199
Administrative, etc.* ..	1	54	4	34	5	88
TOTAL	23	206	327	1,081	350	1,287
<i>Great Britain</i> :—						
Operatives	734	3,814	4,369	14,829	5,103	18,643
Administrative, etc.* ..	73	1,023	103	596	176	1,619
TOTAL	807	4,837	4,472	15,425	5,279	20,262
<i>Northern Ireland</i> :—						
Operatives	30	94	70	424	100	518
Administrative, etc.* ..	1	25	2	20	3	45
TOTAL	31	119	72	444	103	563
<i>United Kingdom</i> :—						
TOTAL	838	4,956	4,544	15,869	5,382	20,825

* Administrative, technical, and clerical staff.

B.—OPERATIVES EMPLOYED IN ONE WEEK IN EACH MONTH OF 1924
(EXCLUDING OUTWORKERS).*England and Wales.* (Annual average : Males, 3,578 ; Females, 13,403 ; Total, 16,981.)

Week ended.	Males.	Females.	Total.	Week ended.	Males.	Females.	Total.
Jan. 12th ..	3,588	13,084	16,672	July 19th ..	3,537	13,308	16,845
Feb. 16th ..	3,544	13,219	16,763	Aug. 16th ..	3,535	13,289	16,824
Mar. 15th ..	3,544	13,190	16,734	Sept. 13th ..	3,580	13,487	17,067
April 12th ..	3,490	12,934	16,424	Oct. 18th ..	3,662	13,782	17,444
May 17th ..	3,531	13,206	16,737	Nov. 15th ..	3,697	13,976	17,673
June 21st ..	3,546	13,340	16,886	Dec. 13th ..	3,684	14,025	17,709

Scotland. (Annual average : Males, 148 ; Females, 985 ; Total, 1,133.)

Jan. 12th ..	145	946	1,091	July 19th ..	152	948	1,100
Feb. 16th ..	144	957	1,101	Aug. 16th ..	148	957	1,105
March 15th ..	141	935	1,076	Sept. 13th ..	151	977	1,128
April 12th ..	145	918	1,063	Oct. 18th ..	152	1,047	1,199
May 17th ..	144	926	1,070	Nov. 15th ..	155	1,138	1,293
June 21st ..	145	924	1,069	Dec. 13th ..	156	1,145	1,301

Great Britain. (Annual average : Males, 3,726 ; Females, 14,388 ; Total, 18,114.)

Jan. 12th ..	3,733	14,030	17,763	July, 19th ..	3,689	14,256	17,945
Feb. 16th ..	3,688	14,176	17,864	Aug. 16th ..	3,683	14,246	17,929
March 15th ..	3,685	14,125	17,810	Sept. 13th ..	3,731	14,464	18,195
April 12th ..	3,635	13,852	17,487	Oct. 18th ..	3,814	14,829	18,643
May 17th ..	3,675	14,132	17,807	Nov. 15th ..	3,852	15,114	18,966
June, 21st ..	3,691	14,264	17,955	Dec. 13th ..	3,840	15,170	19,010

Northern Ireland. (Annual average : Males, 90 ; Females, 391 ; Total, 481.)

Jan. 12th ..	87	364	451	July, 19th ..	87	374	461
Feb. 16th ..	87	355	442	Aug. 16th ..	90	400	490
March 15th ..	88	358	446	Sept. 13th ..	93	419	512
April 12th ..	85	366	451	Oct. 18th ..	94	424	518
May 17th ..	88	387	475	Nov. 15th ..	94	429	523
June 21st ..	89	395	484	Dec. 13th ..	94	427	521

C.—NUMBER OF OUTWORKERS AT TWO SPECIFIED PERIODS IN 1924.

Country.	January.			July.		
	Males.	Females.	Total.	Males.	Females.	Total.
<i>England and Wales and Northern Ireland*</i> ..	4	853	857	8	887	895

* 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. No outworkers were returned for Scotland.

IV.—Mechanical Power.

PARTICULARS OF PRIME MOVERS, ELECTRIC GENERATORS AND ELECTRIC MOTORS.

Power equipment.	England and Wales and N. Ireland.*		Scotland.		United Kingdom.	
	Ordinarily in use.	In reserve or idle.	Ordinarily in use.	In reserve or idle.	Ordinarily in use.	In reserve or idle.
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
PRIME MOVERS :—						
Reciprocating steam engines	738	345	—	—	738	345
Gas engines	1,120	213	37	4	1,157	217
Heavy oil engines ..	21	—	—	—	21	—
TOTAL	1,879	558	37	4	1,916	562
TOTAL OF PRIME MOVERS INSTALLED	2,437		41		2,478	
	Kw.	Kw.	Kw.	Kw.	Kw.	Kw.
ELECTRIC GENERATORS :						
Driven by—						
Reciprocating steam engines	541	170	—	—	541	170
Gas engines	67	86	—	—	67	86
TOTAL	608	256	—	—	608	256
TOTAL OF ELECTRIC GENERATORS INSTALLED	864				864	
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
ELECTRIC MOTORS :—						
Driven by—						
Electricity generated in own works ..	819	77	—	—	819	77
Purchased electricity	4,466	277	370	6	4,836	283

* See footnote to Table I.