

THE CARDBOARD BOX TRADE

Note.—For information regarding the scope of the Census, instructions given to firms for making returns, and definitions of the terms used in this report, reference should be made to the Introductory Notes on pages v to xviii.

Introductory

This trade comprises firms that were engaged wholly or mainly in the manufacture of boxes and cartons of paper and cardboard and fibre board packing cases.

In addition to firms that manufacture cardboard boxes and cartons for direct sale, these goods are made by many firms for the purpose of packing their own products. At both Censuses separate returns were obtained from the latter firms in respect of their box-making departments so far as possible, and a somewhat larger number was received for 1930 than for the earlier year. These additional returns for 1930 represented in gross output value a sum of about £400,000 and in employment about 1,400 persons. Comparison between the figures for the two years is affected to this extent. It should also be borne in mind that a substantial proportion of the total output of cardboard boxes and cartons (amounting to 20 per cent. in 1930) is produced by printers, manufacturing stationers, etc., whose returns were made on schedules for other trades.

In order to obtain closer comparability between the results for the two years, certain returns that were classified in the Final Report on the Third Census of Production as in the Printing and Bookbinding Trades have been included in the present report in the totals for the Cardboard Box Trade. The necessary adjustments have involved considerable amendments to previous aggregates for 1924 and the figures contained in this report should be regarded as substituting those given in the report on the Third Census.

The following table shows the main results of the Censuses of 1930 and 1924 in respect of firms in Great Britain that employed an average of more than ten persons :—

Particulars	Unit	1930	1924
Value of goods made and work done (Gross output)	£'000	10,608	7,048
Cost of materials used	"	5,185	3,174
Paid for work given out to other firms	"	24	23
Net output	"	5,399	3,851
Average number of persons employed (excluding outworkers)... ..	No.	33,087	22,761
Net output per person employed (excluding outworkers)... ..	£	163	170
Power available :—			
Prime movers	H.P.	3,044	2,707
Electric motors driven by purchased electricity	"	15,265	6,893
Number of returns	No.	465	386
Number of establishments	"	486	*

* Not available.

Deficiencies in 1930 aggregates.—The aggregate number of persons employed in 1930 by firms that stated that they employed not more than ten persons on the average was 1,618, the corresponding figure for 1924 being 659. The value of the gross output of the small firms in 1924 was £149,000, of which £146,000 was in respect of boxes and cartons of paper and cardboard.

In addition, 50 firms to which schedules were sent at the 1930 Census and 45 at that of 1924 furnished no information; these firms either had small businesses or had ceased productive operations before the end of the censal year.

Size of firms.—In the following table the main particulars recorded at the Census of 1930 are grouped according to the average numbers of persons shown in the returns :—

Size of firm (average numbers employed)	Number of returns	Gross output	Net output	Average number of persons employed (excluding outworkers)	Net output per person employed
11-24	No. 154	£'000 683	£'000 351	No. 2,592	£ 135
25-49	141	1,152	592	4,903	121
50-99	101	1,909	974	7,112	137
100-199	44	2,041	1,007	6,211	162
200-299	15	1,203	604	3,744	161
300-399	3	279	171	964	177
400-499	4	806	358	1,798	199
500 and over	3	2,535	1,342	5,763	233
TOTAL	465	10,608	5,399	33,087	163

Regional distribution.—In the following table the results recorded at the Censuses of 1930 and 1924 are grouped according to the principal areas* of Great Britain in which firms in this trade are situated :—

Area	Number of returns	Gross output	Net output	Average number of persons employed (excluding outworkers)	Net output per person employed
	No.	£'000	£'000	No.	£
1	1930 168	3,499	1,910	11,908	160
	1924 149	2,070	1,192	7,741	154
2	1930 61	1,537	747	4,629	161
	1924 41	1,005	499	3,138	159
3	1930 18	345	176	1,504	117
	1924 17	314	163	1,023	159
5	1930 54	573	310	2,167	143
	1924 46	344	197	1,408	140
6	1930 128	4,117	2,007	10,809	186
	1924 95	3,000	1,630	8,129	201
9	1930 18	228	115	933	123
	1924 25	191	101	824	123
10	1930 15	273	117	929	126
	1924 9	98	55	362	152
Other areas	1930 3	36	17	208	82
	1924 4	26	14	136	103
TOTAL	1930 465	10,608	5,399	33,087	163
	1924 386	7,048	3,851	22,761	170

Northern Ireland.—The following table summarises the particulars recorded at the Census of Production taken by the Government of Northern Ireland for 1930, together with those furnished at the 1924 Census. The 1930 figures relate to firms that employed an average of more than five persons, while those for 1924 relate to firms irrespective of the number of their employees. Over 40 per cent. of the output at the 1930 Census was recorded by firms that made no return at the 1924 Census and the figures for that year are accordingly seriously deficient.

Particulars	Unit	1930	1924
Value of goods made (Gross output)	£'000	144	107
Cost of materials used	"	71	43
Paid for work given out to other firms	"	—	1
Net output	"	73	63
Average number of persons employed	No.	581	526
Net output per person employed	£	126	120
Power available :—			
Prime movers	H.P.	70	†
Electric motors driven by purchased electricity	"	142	†

* For particulars see page xviii.

† Not available.

Of the gross output values shown above, the whole amount (£107,000) in 1924 and £138,000 in 1930 related to cardboard boxes and cartons.

Production

Principal products.—The following table shows the value and, where available, the quantity of boxes and cartons, etc., made in 1930 and 1924 :—

Kind of goods	1930						1924	
	Returned on schedules for						Total	
	The Cardboard Box Trade			All trades				
	Quantity	Value	Entries	Quantity	Value	Entries	Quantity	Value
	Th. cwts.	£'000	No.	Th. cwts.	£'000	No.	Th. cwts.	£'000
Boxes and cartons of paper or cardboard ...	3,190	6,549	275	3,872	7,983	356	3,157	6,425
Fibre-board packing cases (solid or corrugated) ...	343	338	16	1,011	1,006	18		
	*	2,414	189	*	2,844	252		2,299
	*	195	4	*	195	4		
TOTAL ...	...	9,496	...	...	12,028	...	...	8,724

* Quantity not stated.

Prices.—The average selling value of boxes and cartons of paper and cardboard (including fibre-board packing cases), as calculated from the Census returns, was 37·2 shillings per cwt. in 1930 and 40·7 shillings per cwt. in 1924. It should be borne in mind that this comparison does not take account of any changes that may have occurred since the earlier year in the quality or type of the goods included under this description.

Volume of production in 1930 and 1924.—On the basis of the average selling values recorded for the two years, the total output of boxes and cartons of paper and cardboard in 1924 (£8,724,000) would represent a sum of about £7,974,000 if re-valued in terms of prices in 1930. The volume of production was thus about 51 per cent. greater in 1930 than in 1924.

Production, exports and imports.—The following table shows the quantity and value of boxes and cartons of paper and cardboard exported from the United Kingdom in 1930 and 1924, together with particulars of similar goods imported and retained.

Boxes and cartons of paper and cardboard	1930		1924	
	Quantity	Value	Quantity	Value
Exports ...	Th. cwts. 77·7	£'000 234*	Th. cwts. 58·1	£'000 217*
Retained imports ...	69·2	214†	11·7	61†

* f.o.b.

† c.i.f.

Owing to the large proportion of the total output of boxes and cartons for which particulars of value only were given, it is not possible to make a satisfactory comparison between production and overseas trade in terms of quantity. In 1924 the value of imported boxes and cartons represented less than one per cent. and in 1930 less than 2 per cent. of the total value of such goods available for use in this country.

Other products and work done.—In addition to the output shown in the table of principal products on page 508, the following goods were produced in 1930 and 1924 by firms that were classified as in the Cardboard Box Trade. About 85 per cent. of this output in 1924 was returned by the firms transferred to this trade from the Printing, Bookbinding, etc., Trades (see page 505). These goods are dealt with in the reports on those trades in which the principal output was recorded.

Kind of goods	1930	1924
	Value	Value
	£'000	£'000
Paper bags ...	89	793
Corrugated paper ...	44	
Manufactured stationery ...	257	
Other manufactures of paper or cardboard ...	158	
Printing, engraving, etc. ...	535†	82
Other goods made... ..	19*	
TOTAL ...	1,102	875

† Amount received.

* Including £1,000 in respect of work done for the trade.

Waste products sold.—The value of waste products sold by firms in the Cardboard Box Trade in 1930 and 1924 was recorded as £10,000 and £23,000 respectively.

Employment and Wages

Employment.—The following table shows the average numbers of persons employed in 1930 and 1924 :—

Persons employed	Males		Females		Total	
	Under 18	All ages	Under 18	All ages	Under 18	All ages
1930						
Operatives (average for the year)	1,014	7,015	7,312	23,397	8,326	30,412
Administrative, technical and clerical staff (as at 18th October)	107	1,620	184	1,055	291	2,675
TOTAL	1,121	8,635	7,496	24,452	8,617	33,087
1924						
Operatives (average for the year)	779	4,898	4,463	16,140	5,242	21,038
Administrative, technical and clerical staff (as at 18th October)	70	1,108	100	615	170	1,723
TOTAL	849	6,006	4,563	16,755	5,412	22,761
Average number of outworkers :—						
1930	5		535		540	
1924	6		784		790	

Wages.—The available information as to the amount of wages paid in 1930 and 1924 is given on pages 436 and 437.

Power

The following table shows the capacity of prime movers, electric generators and electric motors ordinarily in use and in reserve or idle in 1930 and 1924 :—

Power equipment	1930			1924		
	Ordinarily in use	In reserve or idle	Total	Ordinarily in use	In reserve or idle	Total
PRIME MOVERS						
Reciprocating steam engines	1,204	345	1,549	888	445	1,333
Internal combustion engines :—						
Gas	1,055	256	1,311	1,136	217	1,353
Petrol, kerosene, or other light oils ...	11	2	13	—	—	—
Heavy oils	171	—	171	21	—	21
TOTAL	2,441	603	3,044	2,045	662	2,707

Power equipment	1930			1924		
	Ordinarily in use	In reserve or idle	Total	Ordinarily in use	In reserve or idle	Total
ELECTRIC GENERATORS						
Driven by	Kw.	Kw.	Kw.	Kw.	Kw.	Kw.
Reciprocating steam engines	786	233	1,019	640	236	876
Internal combustion engines :—						
Gas	122	45	167	67	86	153
Heavy oils	127	5	132	—	—	—
TOTAL	1,035	283	1,318	707	322	1,029
ELECTRIC MOTORS						
Driven by	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
Electricity generated in same works ...	1,185	34	1,219	889	151	1,040
Electricity generated in other works under same ownership	315	—	315	—	—	—
Purchased electricity	13,095	2,170	15,265	5,468	1,425	6,893
TOTAL	14,595	2,204	16,799	6,357	1,576	7,933

Consumption of fuel

The following table shows the quantities of coal, coke and electricity recorded as used in 1930 :—

Kind of fuel used	For power (driving engines)	For other purposes (so far as recorded)
Coal	Tons 4,203	Tons 10,716*
Coke	4	3,352*
Electricity used for all purposes :—		B.T.U. (Kw.-hrs.) '000
Generated in same works ... ..	...	1,087
Generated in other works under same ownership... ..	...	133
Purchased ... ..	...	9,490
TOTAL—Electricity ... ..	...	10,710

* These figures were recorded by firms representing 98.4 per cent. of the net output of the whole trade.

TABLES

I. Summary of results

Particulars	Unit	England and Wales	Scotland	Great Britain	
Value of goods made and work done (Gross output)	£'000	10,107	501	10,608	
Cost of materials used	"	4,918	267	5,185	
Paid for work given out to other firms	"	22	2	24	
Net output	"	5,167	232	5,399	
Average number of persons employed (excluding outworkers)	No.	31,225	1,862	33,087	
Net output per person employed (excluding outworkers)	£	166	125	163	
Power available :—					
Prime movers	H.P.	3,020	24	3,044	
Electric motors driven by purchased electricity	"	14,465	800	15,265	

II. Production

Kind of goods made and work done	Unit	England and Wales	Scotland	Great Britain	
Boxes and cartons of paper or cardboard	<i>Th. cwt.</i>	3,005	185	3,190	
	£'000	6,154	395	6,549	
Fibre board packing cases (solid or corrugated) ...	<i>Th. cwt.</i>	*	*	343	
	£'000	*	*	338	
Paper bags	<i>Th. cwt.</i>	36	—	36	
	£'000	89	—	89	
Corrugated paper ...	<i>Th. cwt.</i>	38	—	38	
	£'000	32	—	32	
Manufactured stationery	£'000	254	3	257	
	£'000	*	*	158	
Other manufactures of paper or cardboard	£'000	519†	16†	535†	
Printing, engraving, etc.	£'000	15	3	18	
Other goods made	£'000	9	1	10	
Waste products sold	£'000	1†	—	1†	
Work done for the trade	£'000	1†	—	1†	
TOTAL VALUE OF GOODS MADE AND WORK DONE (GROSS OUTPUT)	£'000	10,107	501	10,608	

* Owing to the possible disclosure of information relating to individual firms, separate particulars for England and Wales and for Scotland cannot be given.

† Amount received.

III. Employment

A.—NUMBERS EMPLOYED IN WEEK ENDED 18TH OCTOBER, 1930
(EXCLUDING OUTWORKERS)

Persons employed (excluding outworkers)	Males		Females		Males and females	
	Under 18	All ages	Under 18	All ages	Under 18	All ages
<i>England and Wales :—</i>						
Operatives	992	6,794	6,930	22,205	7,922	28,999
Administrative, etc.*	100	1,540	169	986	269	2,526
TOTAL	1,092	8,334	7,099	23,191	8,191	31,525
<i>Scotland :—</i>						
Operatives	33	295	459	1,438	492	1,733
Administrative, etc.*	7	80	15	69	22	149
TOTAL	40	375	474	1,507	514	1,882
<i>Great Britain :—</i>						
Operatives	1,025	7,089	7,389	23,643	8,414	30,732
Administrative, etc.*	107	1,620	184	1,055	291	2,675
TOTAL	1,132	8,709	7,573	24,698	8,705	33,407

* Administrative, technical and clerical staff.

B.—OPERATIVES EMPLOYED IN ONE WEEK IN EACH MONTH OF 1930

Week ended	Males and females			Week ended	Males and females		
	England and Wales	Scotland	Great Britain		England and Wales	Scotland	Great Britain
Jan. 18 ...	28,817	1,721	30,538	July 19 ...	28,375	1,680	30,055
Feb. 15 ...	28,515	1,734	30,249	Aug. 16 ...	28,371	1,702	30,073
Mar. 15 ...	28,328	1,712	30,040	Sept. 13 ...	28,626	1,723	30,349
April 12 ...	28,515	1,681	30,196	Oct. 18 ...	28,999	1,733	30,732
May 17 ...	28,707	1,647	30,354	Nov. 15 ...	29,353	1,770	31,123
June 21 ...	28,570	1,694	30,264	Dec. 13 ...	29,211	1,758	30,969
AVERAGE FOR THE TWELVE MONTHS					28,699	1,713	30,412

C.—NUMBERS OF OUTWORKERS AT TWO SPECIFIED PERIODS IN 1930

Country	January			July		
	Males	Females	Total	Males	Females	Total
<i>England and Wales*</i> ...	5	564	569	6	505	511

* No outworkers were recorded for Scotland.

IV. 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
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
PRIME MOVERS						
Reciprocating steam engines	1,204	345	—	—	1,204	345
Internal combustion engines :—						
Gas	1,031	256	24	—	1,055	256
Petrol, kerosene, or other light oils	11	2	—	—	11	2
Heavy oils	171	—	—	—	171	—
TOTAL ...	2,417	603	24	—	2,441	603
TOTAL OF PRIME MOVERS INSTALLED	3,020		24		3,044	
ELECTRIC GENERATORS	Kw.	Kw.	Kw.	Kw.	Kw.	Kw.
Driven by						
Reciprocating steam engines	786	233	—	—	786	233
Internal combustion engines :—						
Gas	122	45	—	—	122	45
Heavy oils	127	5	—	—	127	5
TOTAL ...	1,035	283	—	—	1,035	283
TOTAL OF ELECTRIC GENERATORS INSTALLED	1,318		—		1,318	
ELECTRIC MOTORS	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
Driven by						
Electricity generated in same works ...	1,185	34	—	—	1,185	34
Electricity generated in other works under same ownership	208	—	107	—	315	—
Purchased electricity	12,321	2,144	774	26	13,095	2,170
TOTAL ...	13,714	2,178	881	26	14,595	2,204
TOTAL OF ELECTRIC MOTORS INSTALLED	15,892		907		16,799	

V. Consumption of fuel

Kind of fuel used	England and Wales	Scotland	Great Britain
	Tons	Tons	Tons
Coal used for power	4,203	—	4,203
Coke used for power	4	—	4
	B.T.U. (Kw.-hrs.) '000	B.T.U. (Kw.-hrs.) '000	B.T.U. (Kw.-hrs.) '000
Electricity used for all purposes :—			
Generated in same works	1,087	—	1,087
Generated in other works under same ownership	107	26	133
Purchased	9,005	485	9,490
TOTAL—Electricity	10,199	511	10,710