

THE FINISHED BRASS TRADES.

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Introductory.*

The tables on pages 413 to 416 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 finished articles of brass. The number of such separate returns was 953. 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 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 250 persons in all, and that their total net output probably did not exceed £25,000.

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-xv.

Particulars.	Unit.	1924.	1912.	1907.
Value of goods made and work done (gross output)	£'000	10,486	6,887	6,797
Cost of materials used	"	4,461	3,261	3,314
Paid for work given out to other firms ..	"	88	24	29
Net output	"	5,937	3,602	3,454
Average number of persons employed ..	No.	33,436	38,429	38,916
Net output per person employed ..	£	178	94	89
Mechanical power available :—				
Prime movers	H.P.	10,548	12,693	12,865
Electric motors driven by purchased electricity	"	16,305	3,589	(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 Great Britain and the whole of Ireland, but that of 1924 applied only to Great Britain and Northern Ireland. The exclusion of Southern Ireland in 1924 does not seriously affect the comparability of the figures since, according to the Census of Production taken by the Government of the Irish Free State in respect of the year 1926, the production of brass goods was shown as part of a very comprehensive heading, covering a total output valued at only £171,000.

(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 694, or 1·8 per cent. of the number employed by the remaining firms, as shown in the above table. Moreover, correspondence on defective returns for 1912 had not been completed when the war compelled suspension of this work. In these circumstances detailed information for 1912 is not given in the remainder of this report. The resulting defects in the aggregate figures given above are probably not important.

(4) There are certain differences of classification which affect comparisons between the results for the three years, the articles concerned being gas meters, close-joint tubes and cased tubes. In 1907 and 1912 the output of gas meters was returned on the schedule for the Finished Brass Trades, whereas in 1924 it was returned mainly on the schedule for the Light

Castings Trade.* In 1907 close-joint tubes and cased tubes were treated as products of the Finished Brass Trades; in 1912, a separate schedule was issued for the Close-joint Tube and Cased Tube Trades, but the information supplied has, for convenience, been incorporated with the results for the Finished Brass Trades; in 1924, however, the output of close-joint tubes and cased tubes was returned on the schedule for the Wrought Iron and Steel Tube Trade.†

Value of output and cost of materials.—The figures in the above table representing the value of goods made and work done, and the cost of materials used, are the aggregates of the figures recorded by the firms that made returns, and, for the reasons explained in paragraphs (i) and (ii) on pages xii and xiii, they may over-state the value of the output of, and the cost of materials used by, the Finished Brass Trades considered as a whole. The matter is discussed on page 409, where it is estimated that the value, free from duplication, of the output of these trades in 1924 lay between £9,900,000 and £10,400,000, and the cost of the materials purchased from sources outside the trade and worked up into its products lay between £4,000,000 and £4,450,000.

Production.

The detailed information relating to the output in 1924 of firms that made their returns on schedules for the Finished Brass Trades is summarised in Table II on page 414.

Finished brass goods.—The table given below shows, for 1924 and 1907, the aggregate net selling value of the different classes of finished brass goods recorded and, with the exception of the last two headings, includes the value of similar goods, so far as they can be identified, returned on schedules for other trades. The amounts so included are £534,000 for 1924 and £867,000 for 1907.

Brass is used extensively in engineering and other metal-working establishments outside the Finished Brass Trades, and a large proportion of the finished brass goods produced in these establishments has escaped record as such, either through being returned with other goods without distinction as to the kind of metal used in their manufacture or through forming part of larger units such as lamps and lighting sets for motor-cars, complete motor-cars, heating, lighting, water and sanitary appliances, etc., all of which goods were returned on schedules for other trades. It is probable also that the output recorded in the Non-ferrous Metals (Smelting, Rolling and Casting) Trades ‡ contains certain quantities of finished brass goods but the lack of any means of identifying such goods has led to their omission from the following table. For these reasons, this table should not be considered as furnishing a complete summary of the

* See p. 79.

† See p. 95.

‡ See p. 398.

production of finished brass goods, and the report as a whole, including the tables on pages 413 to 416, should be regarded as relating only to those firms that were wholly or mainly engaged in the manufacture of such goods.

Finished brass goods.	1924.	1907.
	Selling value.	
	£'000	£'000
Engineers', mechanics' and plumbers' goods ..	2,675	1,942
Builders' and cabinet-makers' goods (including house, shop, ship, office, hearth and church furniture) ..	2,559	1,833
Electric lighting accessories ..	493	1,706
Lamps and fittings for lighting (not electric) purposes ..	438	
Carriage and harness goods ..	40	98
Fittings for motor cars and motor chassis ..	447	—
Railway and tramway carriage fittings ..	54	—
Coffin furniture ..	192	156
Other and unspecified finished brass goods ..	1,206	142
Scrap, dust and other waste ..	154	99
TOTAL—FINISHED BRASS GOODS ..	8,258	5,976

In addition to the above, the sum of £223,000 was returned as received for repair work in 1924, the corresponding figure for 1907 being £44,000. Of the total output of finished brass goods shown in the table (except scrap, etc.) and valued at £8,104,000, engineers', mechanics', and plumbers' goods formed 33 per cent., builders' and cabinet makers' goods, 31·5 per cent., and lighting accessories, 11·5 per cent., as compared with 28·2, 26·5, and 24·8 per cent. respectively in 1907.

It is not possible to make accurate comparisons of the magnitude of production in the two years, since the quantities of goods made were not recorded in the Census returns. Apart from the changes which occurred in the level of prices, the incompleteness of the recorded output in each year makes any comparison extremely hazardous. It is probable, however, that manufacturers were, to a greater extent in 1924 than in 1907, producing their own brass goods for assembling in other units of output rather than purchasing them from manufacturers of brass goods, and that, consequently, as explained above, the recorded output is even less complete in 1924 than in 1907. It may also be noted that the price of copper, which is the preponderating metal in the composition of brass, was considerably lower in 1924 than in 1907.

Other products.—The following table shows, for 1924 and 1907, the value of the other goods produced by firms that made their returns on schedules for the Finished Brass Trades. These goods, being of kinds mainly produced in other trades, are dealt with in the reports on those trades. It should be borne in mind, however, that, in 1907, the main output of *gas meters, cased tubes and iron and steel tubes (including close-joint tubes)*, was recorded on the schedules for the Finished Brass Trades.

Kind of goods.	1924.	1907.
	Selling value.	
	£'000	£'000
Bedsteads and parts, of brass ..	78	—
Brass nails and rivets ..	25	—
Other manufactures of brass (castings, ingots, etc.) ..	492	167*
Finished goods of copper ..	391	
" " " iron and steel ..	432	41
" " " other and unspecified metals ..	1,013	162
Gas meters ..	13	916
Cased tubes ..	—	168
Iron and steel tubes (including close-joint tubes) ..	—	110
Other goods made ..	13	22
TOTAL ..	2,457	1,586

* Including some copper alloys (other than brass), cast.

Work done for the trade.—Firms that made their returns on schedules for the Finished Brass Trades stated that they received £82,000 for work done for the trade in 1924, but as the amount paid to other firms in 1924 for work given out to them was recorded as £88,000, the former amount may be wholly or partly duplicated in the value of the goods made by the firms that paid this £88,000. The amount returned as received for work done in 1907 was £58,000.

Value of output free from duplication.—The only items in the gross output of £10,486,000 in which duplication may be involved are ingot brass (£14,000), rough brass castings (£388,000), rough brass forgings (£90,000), and work done for the trade (£82,000). The small quantity of ingot brass probably represents makers' additions to stocks, but the castings and forgings may have been sold either to firms that made returns on schedules for the Finished Brass Trades or to firms outside those trades, or they may have been added to stock. Including the possible duplication represented by the £82,000 returned as received for work done for the trade, the amount of duplication may have been as great as £560,000, but it was probably somewhat less. The value, free from duplication, of the output in 1924 of the Finished Brass Trades may thus be estimated as lying between £9,900,000 and £10,400,000 in 1924. The corresponding figure for 1907 was estimated at about £6,758,000.

Cost of materials and work given out.—The cost of materials used by firms that made their returns on schedules for the Finished Brass Trades was returned as £4,461,000 for 1924, a sum which, by the exclusion of purchases of the products of other firms in the same trades, may be reduced to a figure lying between £4,000,000 and £4,450,000. The corresponding figure for 1907 was £3,304,000.

The amount returned as paid to other firms for work given out to them was £88,000 for 1924 and £58,000 for 1907.

Net output.—The net output in 1924 of the firms that made their returns on schedules for the Finished Brass Trades (whose gross

output was valued as £10,486,000) was £5,937,000, that sum representing, without duplication, the total amount by which the value, as delivered, of the aggregate output exceeded the cost, as purchased, of the materials used and the amount paid to other firms for work given out to them.

The net output per head of persons employed in the censal year 1924 was £178, as compared with £89 in 1907.

Kinds of materials used.—In response to a request for voluntary information regarding the quantities of certain materials used by manufacturers during 1924, firms that recorded a gross output of £3,238,000, or 30·9 per cent. of the gross output of the Finished Brass Trades as a whole, stated that they used the following materials in 1924:—

	Tons.
Copper	30,500
Nickel	1,100
Tin	3,600
Zinc	12,600

The output of the firms that gave this information was as follows:—

Goods made for sale or for stock and work done.	Value of output of firms giving information.	Proportion of total output of trade.
	£'000	Per cent.
Finished brass goods:—		
Engineers', mechanics' and plumbers' goods	994	40·1
Builders' and cabinet-makers' goods	514	22·7
Other and unspecified finished-brass goods ..	920	31·6
Other manufactures of brass (castings, ingots, etc.)	145	29·5
Scrap, dust and other waste	46	29·9
Other goods made	547	29·0
Repair work	59*	26·5
Work done for the trade	13*	15·9
TOTAL	3,238	30·9

* Amount received for work done.

The sample is too small to permit general conclusions to be drawn from it.

Exports and imports.—Exports of *manufactures of brass and alloys of copper, not elsewhere specified* (i.e., excluding sheets, strip, wire, rods, and tubes) were 5,955 tons, valued at £1,469,800, f.o.b., in 1924, and retained imports were 2,394 tons, valued at £376,000, c.i.f. Comparable figures for 1907 are not available, as sheets, strip, wire, rods, and tubes were in that year included with *other manufactures*.

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 Finished Brass 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, 16,172 operatives, or 54 per cent. of the total of 29,911 operatives for the trades as a whole, and their net output totalled £3,172,000, or 53 per cent. of the aggregate net output of £5,937,000 for the trades as a whole. The total wage-bill of these firms, as returned to the Ministry of Labour, was £1,712,000, representing about 54 per cent. of their aggregate net output.

Employment.

The detailed information relating to employment in 1924 is summarised in Table III on page 415. The following table sets out certain particulars for that year, together with those relating to 1907. For the purpose of this comparison, the average numbers of operatives of each sex returned for 1924 have been divided between the two age-groups in the proportions shown by the data relating to the week ended 18th October.

Average number.	Males.		Females.		Males and females.	
	Under 18.	All ages.	Under 18.	All ages.	Under 18.	All ages.
<i>1924.</i>						
Operatives	4,065	20,300	2,578	8,958	6,643	29,258
Administrative, etc. ..	227	2,807	309	1,371	536	4,178
Total	4,292	23,107	2,887	10,329	7,179	33,436
<i>1907.</i>						
Wage earners	5,066	27,575	1,710	7,301	6,776	34,876
Salaried	349	3,200	227	840	576	4,040
Total	5,415	30,775	1,937	8,141	7,352	38,916

The numbers of operatives recorded month by month in 1924 ranged from 1,173 below the average, in January, to 1,200 above the average, in December, and advanced from month to month except during July and August (see Table III B., page 415).

Mechanical Power.

The detailed information relating to mechanical power in 1924 is summarised in Table IV on page 416. 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.
	H.P.	H.P.	H.P.	H.P.
PRIME MOVERS :—				
Reciprocating steam engines ..	1,076	54	1,130	3,759
Steam turbines	193	96	289	—
Gas engines	7,670	872	8,542	9,093
Petrol and light oil engines ..	5	—	5	
Heavy oil engines	552	—	552	13
Water power	30	—	30	
TOTAL	9,526	1,022	10,548	12,865
ELECTRIC GENERATORS :—				
Driven by—	Kw.	Kw.	Kw.	Kw.
Reciprocating steam engines..	112	34	146	342
Steam turbines	144	72	216	—
Gas engines	391	19	410	307
Petrol and light oil engines ..	—	—	—	
Heavy oil engines	61	—	61	25
Water power	25	—	25	
TOTAL	733	125	858	649

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

Electric motors.	Ordinarily in use.	In reserve or idle.	Total.
	H.P.	H.P.	H.P.
Driven by—			
Electricity generated in own works ..	1,253	309	1,562
Purchased electricity	14,511	1,794	16,305

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 1,164,000.

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	10,067	419	10,486
Cost of materials used	"	4,253	208	4,461
Paid for work given out to other firms ..	"	87	1	88
Net output	"	5,727	210	5,937
Average number of persons employed ..	No.	32,212	1,224	33,436
Net output per person employed ..	£	178	172	178
Mechanical power available :—				
Prime movers	H.P.	10,198	350	10,548
Electric motors driven by purchased electricity	"	15,376	929	16,305

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

II.—Production.

Output sold or added to stock and work done.	England and Wales and N. Ireland.†	Scotland.	United Kingdom.
	Net selling value.		
	£'000.	£'000.	£'000.
Engineers', mechanics' and plumbers' goods:			
Of brass	2,335	141	2,476
Of copper	*	*	136
Of iron and steel	87	‡	87
Of other and unspecified metals	*	*	94
Builders' and cabinet-makers' goods (including house, shop, ship, office, hearth and church furniture):			
Of brass	2,243	20	2,263
Of copper	81	—	81
Of iron and steel	151	—	151
Of other and unspecified metals	*	*	207
Electric lighting accessories, of brass	459	6	465
Lamps and fittings for lighting (not electric) purposes, of brass	438	‡	438
Carriage and harness goods, of brass	40	—	40
Fittings for motor cars and motor chassis, of brass	*	*	447
Railway and tramway carriage fittings, of brass	45	—	45
Coffin furniture:			
Of brass	*	*	190
Of other and unspecified metals	132	—	132
Gas meters	13	—	13
Bedsteads and parts:			
Of brass	78	—	78
Of other and unspecified metals	13	—	13
Brass nails and rivets	25	—	25
Fire extinguishers, sprinklers, etc.:			
Of brass	*	*	88
Of other and unspecified metals	48	—	48
Ingot brass	*	*	14
Brass castings, in the rough	295	93	388
Brass forgings, in the rough, and die castings	90	—	90
Other and unspecified finished goods:			
Of brass	1,098	20	1,118
Of copper	*	*	174
Of iron and steel	*	*	194
Of other and unspecified metals	493	26	519
Scrap, dust and other waste	152	2	154
Other goods made	13	—	13
Repair work	188§	35§	223§
Work done for the trade	81§	1§	82§
TOTAL VALUE OF GOODS MADE AND WORK DONE (GROSS OUTPUT)	10,067	419	10,486

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

† See footnote to Table I.

‡ Less than £500.

§ Amount received for work done.

III.—Employment.

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

Kind of staff.	Males.		Females.		Males and females.	
	Under 18.	All ages.	Under 18.	All ages.	Under 18.	All ages.
<i>England and Wales and N. Ireland†:—</i>						
Operatives	3,961	19,618	2,661	9,239	6,622	28,857
Administrative, etc.*	213	2,674	294	1,312	507	3,986
TOTAL	4,174	22,292	2,955	10,551	7,129	32,843
<i>Scotland:—</i>						
Operatives	171	1,019	8	35	179	1,054
Administrative, etc.*	14	133	15	59	29	192
TOTAL	185	1,152	23	94	208	1,246
<i>United Kingdom:—</i>						
Operatives	4,132	20,637	2,669	9,274	6,801	29,911
Administrative, etc.*	227	2,807	309	1,371	536	4,178
TOTAL	4,359	23,444	2,978	10,645	7,337	34,089

* Administrative, technical and clerical staff.

† See footnote to Table I.

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

England and Wales and Northern Ireland. (Annual average: Males, 19,303; Females, 8,923; Total, 28,226.)*

Week ended.	Males.	Females.	Total.	Week ended.	Males.	Females.	Total.
Jan. 12th ..	18,640	8,491	27,131	July 19th ..	19,348	8,911	28,259
Feb. 16th ..	18,827	8,559	27,386	Aug. 16th ..	19,082	8,737	27,819
Mar. 15th ..	19,025	8,612	27,637	Sept. 13th ..	19,557	9,023	28,580
April 12th ..	19,122	8,718	27,840	Oct. 18th ..	19,618	9,239	28,857
May 17th ..	19,342	8,902	28,244	Nov. 15th ..	19,820	9,465	29,285
June 21st ..	19,404	8,919	28,323	Dec. 13th ..	19,854	9,499	29,353

Scotland. (Annual average: Males, 997; Females, 35; Total, 1,032.)

Jan. 12th ..	919	35	954	July 19th ..	1,003	34	1,037
Feb. 16th ..	945	34	979	Aug. 16th ..	998	35	1,033
Mar. 15th ..	962	34	996	Sept. 13th ..	1,011	35	1,046
April 12th ..	986	35	1,021	Oct. 18th ..	1,019	35	1,054
May 17th ..	1,003	36	1,039	Nov. 15th ..	1,050	35	1,085
June 21st ..	995	36	1,031	Dec. 13th ..	1,070	35	1,105

United Kingdom. (Annual average: Males, 20,300; Females, 8,958; Total, 29,258.)

Jan. 12th ..	19,559	8,526	28,085	July 19th ..	20,351	8,945	29,296
Feb. 16th ..	19,772	8,593	28,365	Aug. 16th ..	20,080	8,772	28,852
Mar. 15th ..	19,987	8,646	28,633	Sept. 13th ..	20,568	9,058	29,626
April 12th ..	20,108	8,753	28,861	Oct. 18th ..	20,637	9,274	29,911
May 17th ..	20,345	8,938	29,283	Nov. 15th ..	20,870	9,500	30,370
June 21st ..	20,399	8,955	29,354	Dec. 13th ..	20,924	9,534	30,458

* See footnote to Table I.

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	996	48	80	6	1,076	54
Steam turbines	193	96	—	—	193	96
Gas engines	7,450	863	220	9	7,670	872
Petrol and light oil engines	5	—	—	—	5	—
Heavy oil engines	517	—	35	—	552	—
Water power	30	—	—	—	30	—
TOTAL	9,191	1,007	335	15	9,526	1,022
TOTAL OF PRIME MOVERS INSTALLED	10,198		350		10,548	
	Kw.	Kw.	Kw.	Kw.	Kw.	Kw.
ELECTRIC GENERATORS :—						
Driven by—						
Reciprocating steam engines	72	34	40	—	112	34
Steam turbines	144	72	—	—	144	72
Gas engines	386	19	5	—	391	19
Heavy oil engines	48	—	13	—	61	—
Water power	25	—	—	—	25	—
TOTAL	675	125	58	—	733	125
TOTAL OF ELECTRIC GENERATORS INSTALLED	800		58		858	
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
ELECTRIC MOTORS :—						
Driven by—						
Electricity generated in own works	1,208	309	45	—	1,253	309
Purchased electricity	13,673	1,703	838	91	14,511	1,794

* See footnote to Table I.