

THE PAINTS, COLOURS AND VARNISH TRADES.

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Introductory.*

The tables on pages 138 to 141 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 paints, colours and varnish.

The number of such separate returns was 536. About 40 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 100 persons in all and that their total net output did not exceed £30,000.

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 pp. vii to xv.

Particulars.	Unit.	1924.	1912.	1907.
Value of goods made and work done (Gross output)	£'000	17,950	9,623	8,562
Cost of materials used	"	9,872	6,423	5,818
Net output	"	8,078	3,200	2,744
Average number of persons employed ..	No.	19,822	14,955	13,840
Net output per person employed	£	408	214	198
Mechanical power available :—				
Prime movers	H.P.	15,028	14,739	14,575
Electric motors driven by purchased electricity	"	24,758	7,554	(not recorded)

Qualifications affecting comparisons.—In considering the above table and the other tables in this report which show figures for 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, however, 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 total value of paints, colours, varnishes and putty made in that year was given in the report on the Chemical, Drug and Paint Industry as £55,000.

(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 708, or 4·7 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 defects in the aggregate figures given above are, however, not important.

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 page xiii, they probably over-state the value of the output of, and the cost of materials used by, the Paints, Colours and Varnish Trades considered as a whole. The matter is discussed on page 134, where it is estimated that the value, free from duplication, of the output of these trades in 1924 lay between £16,000,000 and

£17,500,000, and the cost of materials purchased from sources outside the trade and worked up into its products lay between £7,900,000 and £9,400,000.

Production.

Detailed information relating to the output of the Paints, Colours and Varnish Trades in 1924 is given in Table IIA and IIB on pages 138 and 139.

In addition to the output dealt with in this report, paints, colours and varnish valued, on a cost basis, at £19,000, were produced in 1924 by Railway Companies.*

Principal products.—The following table shows for the years 1924 and 1907, the value and (where recorded) the quantity of the principal products of the Paints, Colours and Varnish Trades, the aggregate figures for each year being inclusive of the output of similar products returned on schedules for other trades.

Kind of goods.	1924.				1907.
	Returned on schedules for				Total.
	The Paints, Colours and Varnish Trades.		All trades.		
	Quantity.	Selling value.	Quantity.	Selling value.	Selling value.
Paints and colours :—	Th. tons.	£'000.	Th. tons.	£'000.	£'000.
Ochre, oxides and earth colours, burnt, ground or levigated ..	23·4	403	23·4	403	} 1,336
Chemical colours (pure or reduced) including lakes and dry distemper	22·2	1,154	25·4	1,270	
Vegetable, lamp and bone blacks	2·6	106	3·2	127	
Potters' colours .. .. .	..	127	..	127	
Paints, in paste or mixed for use, including dryers, enamels, water paint and ships' composition	182·5	9,128	195·5	9,705	4,046
TOTAL : Paints and colours ..	..	10,918	..	11,632	5,382
Whiting and Paris white	25·0	51	25·0	51	(not shown separately).
Varnish, oil or spirit†	Th. galls.	4,384	Th. galls.	4,502	1,808
Paint and varnish makers' materials, unspecified .. .. .	..	189	..	248	50
Putty .. .. .	..	200	..	210	46
TOTAL VALUE .. .. .	..	15,742	..	16,643	7,286

† Including stains, lacquers, liquid dryers, brunswick and other black varnishes, litho and letterpress varnishes.

In 1907 firms were not required to state the quantities of paints, varnishes, etc., made by them and, consequently, it is not possible

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

to measure directly the position of the trade in 1924 compared with that in the earlier year. Considering, however that the number of operatives returned in 1924 for Great Britain and Northern Ireland was 28 per cent. greater than the number returned for Great Britain and all Ireland in 1907 and that the mechanical power returned as ordinarily in use in 1924 exceeded by more than 50 per cent, the aggregate horse-power available in 1912, it may be concluded that there was a substantial increase in output in 1924.

Other products.—In addition to the principal products shown in the preceding table, firms that made their returns on schedules for the Paints, Colours and Varnish Trades recorded for 1924 and 1907 an output of other goods as set out below. These goods, being of kinds mainly produced in other trades, are dealt with in the reports on those trades.

Kind of goods.	1924.		1907.
	Quantity.	Selling value.	Selling value.
	Th. tons.	£'000.	£'000.
Linseed oil, boiled or refined, for sale	12·7	554	523
White lead, basic carbonate, dry	9·1	391	765
Lubricating oils and greases	20·4	380	73
Printers' ink	1·1	215	57
Other goods .. .. .	..	463	347
TOTAL .. .. .	..	2,003	1,765

Painting and other work done.—Firms that made their returns on schedules for the Paints, Colours and Varnish Trades stated that, in 1924, they received £205,000 for painting and other work done by them, of which £83,000 was for coating ships' hulls with paint or composition (exclusive of the value of the paints and compositions made by them and used in the work), and £122,000 for other work. The corresponding total figure for 1907 was £76,000.

Total make of white lead and boiled or refined linseed oil.—All firms that made their returns on schedules for the Paints, Colours and Varnish Trades were required to state their total output of dry white lead and boiled or refined linseed oil in 1924, whether these products were used in their own works or were sold. The total quantities made, as shown by these returns, were :—

	Tons.
White lead, basic carbonate, dry	13,390
Linseed oil, boiled or refined	15,720

From the information furnished in connexion with the 1907 Census it was estimated that about 35,000 tons of white lead were made by paint manufacturers in that year, the total make by firms in all trades being about 50,000 tons in 1907 as compared with 41,600 tons in 1924.* The total quantity of boiled or refined linseed

* See page 375 of the volume containing the report on the Non-ferrous Metal Trades.

oil produced by the oil producing and paint manufacturing trades for sale or for their own use in 1924 was about 47,500 tons.* The firms that made returns on schedules for the Paints, Colours and Varnish Trades in 1924 used in their own works 4,290 tons of white lead and 3,020 tons of boiled or refined linseed oil, made by themselves, while 9,100 tons of white lead and 12,700 tons of boiled or refined linseed oil were sold by them or added to stock.

Value of output free from duplication.—The gross value of the output in 1924 returned on schedules for the Paints, Colours and Varnish Trades was £17,950,000. Duplication may occur in respect of some part of the amounts shown for dry colours (£1,790,000), white lead (£391,000), and unspecified materials for the manufacture of paints and varnish (£189,000). Excluding potters' colours (£127,000) and making allowance for exports of colours (£304,000 f.o.b., equivalent to about £275,000 at factory), the maximum limit of duplication is reduced to about £2,000,000. From an examination of the individual returns, however, it appears that the duplication was considerably smaller than the above figure and may have been as low as £500,000.

The value, free from duplication, of the output of the Paints, Colours and Varnish Trades in 1924 may therefore be estimated as lying between £16,000,000 and £17,500,000. In 1907 the corresponding net figure was estimated to be a sum lying between £7,250,000 and £8,500,000.

Cost of materials.—The cost of materials used by firms making their returns on schedules for the Paints, Colours and Varnish Trades was returned as £9,872,000 in 1924, a sum which, by the exclusion of purchases from other firms in the same trades, is reduced to a sum lying between £7,900,000 and £9,400,000. The corresponding net figure for 1907 was estimated as lying between £4,500,000 and £5,750,000.

Net output.—The net output in 1924 of the firms that made their returns on schedules for the Paints, Colours and Varnish Trades (whose gross output was valued at £17,950,000) was £8,078,000, 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.

The net output per head of persons employed in the censal year 1924 was £408 as compared with £198 in 1907.

Kind of materials used.—Firms whose output was valued at £9,811,000, or nearly 55 per cent. of the total output returned on schedules for the Paints, Colours and Varnish Trades stated that

* See report on the Seed-Crushing Trade, page 68.

they used 12,500 tons of white lead, 10,200 tons of zinc oxide, and 6,400 tons of lithopone. Their output for sale was as follows:—

Products.	Output of firms giving particulars of materials used.	Proportion of total output (for sale) of the trade.
	Th. tons.	Per cent.
White lead	2.5	27.7
Dry paints	13.2	29.0
Paints in paste or mixed	99.4	54.5
Linseed oil, boiled and refined	7.8	61.6
	Th. galls.	
Varnishes	4,466.2	44.2
Putty	£125,000	62.6
Other goods made and work done	£975,000	56.2

Exports and imports.—The classification of exports and imports is not precisely the same as that adopted for the purpose of the Census of Production, but the comparison made in the following table may be taken as substantially correct.

Kind of paints.	Production.	Exports.	Net Imports.	Available for use in United Kingdom.	Share of home market held by British made goods.
	Th. tons.	Th. tons.	Th. tons.	Th. tons.	Per cent.
Ochre and earth colours	23.4	9.6	19.1	32.9	41.9
Colour lakes	0.1	0.1	—	—	—
Prussian and other blues	25.4	0.3	0.5	26.1	95.4
Metallic pigments	0.1	0.1	0.7	—	—
Carbon blacks	3.2	0.4	7.3	10.1	27.7
Paints in paste or mixed	195.5	36.6	1.3	159.9	99.2

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 Paints, Colours and Varnish Trades 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, 6,868 operatives, or 51 per cent. of the total of 13,551 operatives for the trades as a whole, and their net output totalled £3,982,000, or 49 per cent. of the aggregate net output of £8,078,000 for the trades as a whole. The total wage-bill of these firms, as returned to the Ministry of Labour, was £942,000, representing about 24 per cent. of their aggregate net output.

Employment.

The detailed information relating to employment in 1924 is summarised in Table III on page 140. The following table sets

out certain particulars for that year together with those relating to 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 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.
1924.						
Operatives	842	11,589	456	1,934	1,298	13,523
Administrative, etc. ..	276	4,743	162	1,556	438	6,299
TOTAL	1,118	16,332	618	3,490	1,736	19,822
1907.						
Wage earners	823	9,602	127	972	950	10,574
Salaried	352	2,992	43	274	395	3,266
TOTAL	1,175	12,594	170	1,246	1,345	13,840

The numbers of operatives recorded month by month in 1924 ranged from 290 above the average, in June, to 339 below the average, in January (see Table IIIB, page 140). The numbers increased during the first half of the year and decreased thereafter.

Mechanical Power.

The detailed information relating to mechanical power in 1924 is summarised in Table IV on page 141. 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 ..	6,311	2,450	8,761	10,485
Gas engines	4,732	598	5,330	} 3,469
Petrol and light oil engines ..	191	104	295	
Heavy oil engines	191	36	227	
Water power	415	—	415	
Other	—	—	—	54
TOTAL	11,840	3,188	15,028	14,575
ELECTRIC GENERATORS :—	Kw.	Kw.	Kw.	Kw.
Driven by—				
Reciprocating steam engines ..	992	1,185	2,177	} 448
Gas engines	499	260	759	
Petrol and light oil engines ..	64	—	64	} 64
Heavy oil engines	17	4	21	
Water power	5	—	5	
Other prime movers	—	—	—	
TOTAL	1,577	1,449	3,026	512

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	1,680	1,179	2,859
Purchased electricity	22,819	1,939	24,758

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 2,215,000.

TABLES.

I.—Summary of results.

Particulars.	Unit.	England and Wales and Northern Ireland.*	Scotland.	United Kingdom.
Value of goods made and work done (Gross output)	£'000	16,500	1,450	17,950
Cost of materials used	"	8,915	957	9,872
Net output	"	7,585	493	8,078
Average number of persons employed ..	No.	18,356	1,466	19,822
Net output per person employed ..	£	413	336	408
Mechanical power available :—				
Prime movers	H.P.	13,956	1,072	15,028
Electric motors driven by purchased electricity	"	22,473	2,285	24,758

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

II.—Production.

A.—TOTAL MAKE OF DRY WHITE LEAD AND LINSEED OIL, AS RETURNED ON SCHEDULES FOR THE PAINTS, COLOURS AND VARNISH TRADES.

Products.	England and Wales.*	Scotland.	Great Britain.*
	Tons.	Tons.	Tons.
White lead, basic carbonate, dry	11,420	1,970	13,390
Boiled and refined linseed oil	13,700	2,020	15,720

* No production was recorded for Northern Ireland.

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

Kind of goods made and work done.	England and Wales and Northern Ireland.†		Scotland.		United Kingdom.	
	Quantity.	Selling value.	Quantity.	Selling value.	Quantity.	Selling value.
	Th. tons.	£'000.	Th. tons.	£'000.	Th. tons.	£'000.
Ochre, oxides and earth colours, burnt, ground or levigated	*	*	*	*	23.4	403
Chemical colours (pure or reduced) including lakes and dry distemper ..	20.8	1,075	1.4	79	22.2	1,154
Vegetable, lamp or bone blacks	2.5	103	0.1	3	2.6	106
Potters' colours .. .. .	..	127	—	—	..	127
Whiting and Paris white	*	*	*	*	25.0	51
Paints, in paste or mixed for use, including dryers, enamels, water paints and ships' composition	164.3	8,326	18.2	802	182.5	9,128
Varnish, oil or spirit (including stains, lacquers, liquid dryers, Brunswick and other black varnishes, litho and letterpress varnishes ..	Th. galls. 9,602.6	4,208	Th. galls. 504.9	176	Th. galls. 10,107.5	4,384
Paint and varnish makers' materials, unspecified	Th. tons. ..	170	Th. tons. ..	19	Th. tons. ..	189
Putty .. .. .	..	153	..	47	..	200
Boiled and refined linseed oil, produced for sale as such	11.3	487	1.4	67	12.7	554
White lead, basic carbonate, dry, produced for sale as such	8.5	363	0.6	28	9.1	391
Turpentine and turpentine substitutes ..	1.0	38	0.5	16	1.5	54
Printers' ink	*	*	*	*	1.1	215
Lubricating oils and greases	15.8	263	4.6	117	20.4	380
Other oils and greases ..	..	31	..	8	..	39
Unenumerated chemicals	..	156	..	2	..	158
Other goods .. .. .	..	191	..	21	..	212
Work done :—						
Coating ships' hulls with paint or composition .. .. .	..	83‡	—	—	..	83‡
Other work .. .. .	..	122‡	—	—	..	122‡
TOTAL VALUE OF GOODS MADE AND WORK DONE (GROSS OUTPUT) ..	..	16,500	..	1,450	..	17,950

* 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.

‡ 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 Northern Ireland</i> :—†						
Operatives	808	10,913	429	1,738	1,237	12,651
Administrative, etc.* ..	255	4,329	141	1,400	396	5,729
TOTAL	1,063	15,242	570	3,138	1,633	18,380
<i>Scotland</i> :—						
Operatives	38	736	21	164	59	900
Administrative, etc.* ..	21	414	21	156	42	570
TOTAL	59	1,150	42	320	101	1,470
<i>United Kingdom</i> :—						
Operatives	846	11,649	450	1,902	1,296	13,551
Administrative, etc.* ..	276	4,743	162	1,556	438	6,299
TOTAL	1,122	16,392	612	3,458	1,734	19,850

* 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, 10,859 ; Females, 1,768 ; Total, 12,627.)*

Week ended.	Males.	Females.	Total.	Week ended.	Males.	Females.	Total.
Jan. 12th ..	10,685	1,631	12,316	July 19th ..	11,026	1,838	12,864
Feb. 16th ..	10,650	1,671	12,321	Aug. 16th ..	10,938	1,774	12,712
March 15th ..	10,812	1,768	12,580	Sept. 13th ..	10,911	1,785	12,696
April 12th ..	10,921	1,825	12,746	Oct. 18th ..	10,913	1,738	12,651
May 17th ..	10,984	1,857	12,841	Nov. 15th ..	10,731	1,725	12,456
June 21st ..	11,018	1,878	12,896	Dec. 13th ..	10,722	1,720	12,442

Scotland. (Annual average : Males, 730 ; Females, 166 ; Total, 896.)

Jan. 12th ..	712	156	868	July 19th ..	735	173	908
Feb. 16th ..	719	158	877	Aug. 16th ..	737	171	908
March 15th ..	717	159	876	Sept. 13th ..	740	174	914
April 12th ..	723	170	893	Oct. 18th ..	736	164	900
May 17th ..	731	174	905	Nov. 15th ..	736	159	895
June 21st ..	745	172	917	Dec. 13th ..	731	160	891

United Kingdom. (Annual average : Males, 11,589 ; Females, 1,934 ; Total, 13,523.)

Jan. 12th ..	11,397	1,787	13,184	July 19th ..	11,761	2,011	13,772
Feb. 16th ..	11,369	1,829	13,198	Aug. 16th ..	11,675	1,945	13,620
March 15th ..	11,529	1,927	13,456	Sept. 13th ..	11,651	1,959	13,610
April 12th ..	11,644	1,995	13,639	Oct. 18th ..	11,649	1,902	13,551
May 17th ..	11,715	2,031	13,746	Nov. 15th ..	11,467	1,884	13,351
June 21st ..	11,763	2,050	13,813	Dec. 13th ..	11,453	1,880	13,333

* See footnote to Table I.

IV.—Mechanical 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	5,603	2,439	708	11	6,311	2,450
Gas engines	4,381	596	351	2	4,732	598
Petrol and light oil engines	191	104	—	—	191	104
Heavy oil engines ..	191	36	—	—	191	36
Water power	415	—	—	—	415	—
TOTAL	10,781	3,175	1,059	13	11,840	3,188
TOTAL OF PRIME MOVERS INSTALLED	13,956		1,072		15,028	
	Kw.	Kw.	Kw.	Kw.	Kw.	Kw.
ELECTRIC GENERATORS :—						
Driven by—						
Reciprocating steam engines	959	1,185	33	—	992	1,185
Gas engines	484	260	15	—	499	260
Petrol and light oil engines	64	—	—	—	64	—
Heavy oil engines ..	17	4	—	—	17	4
Water power	5	—	—	—	5	—
TOTAL	1,529	1,449	48	—	1,577	1,449
TOTAL OF ELECTRIC GENERATORS INSTALLED	2,978		48		3,026	
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
ELECTRIC MOTORS :—						
Driven by—						
Electricity generated in own works ..	1,678	1,179	2	—	1,680	1,179
Purchased electricity	20,677	1,796	2,142	143	22,819	1,939

* No mechanical power was recorded for Northern Ireland.