

THE SHIPBUILDING TRADE (PRIVATE FIRMS).

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Introductory.*

The tables on pages 301 to 306 are based on returns received from firms in Great Britain and Northern Ireland whose business in 1924 consisted wholly or mainly in the building and repairing of ships and boats. The number of separate returns received was 901. About 75 firms to which schedules were sent did not furnish returns but these 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 300 persons in all and that their total net output probably did not exceed £50,000.

* See also the Notes on pages vii-xv.

The particulars contained in this report do not cover the operations of H.M. Dockyards and Dockyard Workshops, which are dealt with in a separate volume.*

In the Censuses of 1924 and 1912 marine engineering was treated as part of the general engineering industry and those firms that operated both shipbuilding yards and marine engineering works were required to treat each of these departments as a separate concern, and to furnish a return in respect of their shipbuilding yards on the schedule for the Shipbuilding Trade and a further return in respect of their marine engine works on the schedule for the Engineering Trades. Machinery made at their works and fitted into ships in their yards was to be regarded as sold from the engine-works to the yards and its value was consequently included both in the gross output of the Shipbuilding Trade, as part of the value of the vessels into which it was fitted, and also in the gross output of the Engineering Trades (*see* pages 224 to 286).

A different procedure, however, had been adopted for the 1907 Census, when marine engineering was treated as part of the shipbuilding industry, and, as stated in the final report on the Engineering Trades for that year, "the greater part of the output of marine engineering works is included in the tables relating to the shipbuilding and marine engineering industry." Composite returns covering their business as a whole were furnished on schedules for the Shipbuilding Trade by firms that were engaged both in shipbuilding and in marine engineering, and the gross value of the output so returned was thus inclusive not only of the marine machinery made and fitted into ships by the same firms, but of that purchased by other shipbuilders from the firms that constructed the engines.

The aggregates secured for 1907 are thus not comparable with those obtained for 1912 and 1924. The method of return in the years 1924 and 1912 was, however, substantially the same and, as between these two years, at least as regards mass figures, no serious difficulty of comparison arises. Accordingly, in the detailed statements relating to production, cost of materials, persons employed, and mechanical power equipment, which are given in this report, comparison of the results of the Census of 1924 is made only with those obtained for the year 1912.

For convenience of reference, a summary of the particulars of output returned for 1907 is given on page 297.

Summary of results.—The following table shows the main results of the Censuses of 1924, 1912 and 1907, but, in addition to what has been said above, comparison between the figures is subject to the further qualifications set out in the following paragraphs.

* See also page 290.

Particulars.	Unit.	1924.	1912.	1907.
Value of work done and goods made (Gross output)	£'000	54,671	48,325	42,556
Cost of materials used and sub-contract work	"	30,228	27,660	24,022
Net output	"	24,443	20,665	18,534
Average number of persons employed ..	No.	143,607	186,409	188,312
Net output per person employed ..	£	170	111	98
Mechanical power available:—				
Prime movers	H.P.	46,049	61,464	114,546
Electric motors driven by purchased electricity	"	334,130	72,757	(not recorded).

Qualifications affecting comparisons.—Apart from the lack of comparability between the figures for 1907 and those for the two later years, due to the causes referred to above, the following qualifications should be borne in mind in considering the above table and the other tables in this report which show figures for different censal years:—

(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. Separate particulars for the Shipbuilding Trade were not published in connexion with the Census of Production taken by the Government of the Irish Free State for the year 1926. The exclusion of Southern Ireland from the results for 1924 does not, however, seriously affect comparisons.

(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 1,203, or less than 1 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 work done and goods made and the cost of materials used (including sub-contract work) 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 overstate the value of the output of, and the cost of materials used by, the Shipbuilding Trade considered as a whole. The matter is discussed on page 298, where it is estimated that the value, free from duplication, of the output of the Shipbuilding Trade in 1924 was about £54,400,000, and the cost of the materials purchased from sources outside the trade and worked up into its products was about £30,000,000.

Production.

Detailed information relating to the output of the Shipbuilding Trade in 1924 will be found in Table II on pages 301 to 303.

In addition to the output dealt with in this report, construction and repair work on ships, boats, etc., valued, on a cost basis, at £10,282,000, was recorded for 1924 by Government Dockyards, Railway Companies and Canal, Dock and Harbour Authorities.*

Classification of output in 1912 and 1924.—For the Census of 1912 shipbuilding firms were required to class their constructional work under five heads:—Warships, steamships, sailing ships, boats, and floating docks, distinguishing steamships, sailing ships, and boats according as they were built of iron or steel or of wood, and, in the case of steamships, showing separately the value of hull and fittings and of machinery. Where the work on a ship had been begun before the commencement of the censal year, or had not been completed at the end of that year, firms were instructed to make "an approximate estimate of the value of the work done in the year." Finally, a statement of the amount received for repair work had only to be given in one sum.

When the schedules for the Census of 1924 were in preparation the Shipbuilding Employers' Federation advised the Board of Trade that the detail required for 1912 (which was all that could be required compulsorily under the powers conferred by the Census of Production Act) was not sufficient, and prepared a more detailed statement of output which was adopted. The confidence felt by the Federation in the ability and the willingness of shipbuilders to furnish the information asked for was justified, for it was only in respect of an insignificant amount of repair work that the required detail was not forthcoming. In the output form adopted for 1924 war vessels were divided into three classes—steam, motor and other; vessels other than war vessels were similarly divided; and two headings were added for boats and floating docks as in 1912. War vessels, other vessels, and boats were further classified according as they were built of steel or were of wood or composite, but the valuation of hull and fittings separately from machinery was given up. Particulars of output in respect of each of these classes of vessel or floating dock were asked for in three categories. The first requested a statement in respect of ships, boats, etc., wholly constructed in the year of return, showing their number, gross tonnage, net tonnage, and estimated selling value, displacement tonnage being substituted for other tonnage particulars in the case of warships, if desired. In the second category firms were asked to state the estimated value of the work done in the year of return in respect of new constructional work done in the year on ships, boats, etc., not wholly constructed in that year, including work begun previous

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

to that year and completed in or subsequent to that year, and also of work begun in that year and completed in a subsequent year. The sums to be so stated were to cover "materials used in the year, wages paid in the year, and a due proportion of overhead charges and profits on the work." The third category dealt with repair work done on each class of vessel separately, firms being asked to state the actual amount charged in respect of repair contracts wholly executed in the year and a close estimate in respect of contracts only partially executed within the year.

Constructional and repair work done on ships, boats, etc.—The following statement shows the value of the work carried out in shipbuilding yards in the United Kingdom in the years 1924 and 1912, the totals for each year being inclusive of small amounts in respect of similar work done by firms whose returns were made on schedules for trades other than the Shipbuilding Trade.

Work done on ships, boats, etc.

Kind of work done and goods made.	1924.			1912.
	Returned on schedules for the Shipbuilding Trade.	Returned on schedules for other trades.	Total value of work carried out in the year.	Total value of work carried out in the year.
	£'000	£'000	£'000	£'000
Work of new construction:—				
War vessels	553	—	553	6,761
Steamers and motor ships (other than war vessels):—				
Of iron or steel	34,749	15	34,764	29,439
Of wood or composite	337*	4	341	408
Sailing ships (other than war vessels):—				
Of iron or steel	402	—	402	66
Of wood or composite	108	—	108	90
Boats and vessels without means of propulsion other than oars:—				
Of iron or steel	166	—	166	334
Of wood or composite	198	—	198	179
Floating docks, stages and other constructional work (including repairs)	218	—	218	583
Ships' fittings, returned as such ..	320	89	409	570
Repair work (excluding repairs to floating docks, stages, etc.)	17,408	102†	17,510	9,916
TOTAL VALUE OF CONSTRUCTIONAL AND REPAIR WORK	54,459	210	54,669	48,346

* Includes a small amount in respect of war motorships (of wood or composite) wholly constructed during the year.

† Of this sum £100,000 was received for repair work done on steel steamships and £2,000 for work done on wood or composite motor vessels.

More detailed particulars relating to the work done on ships and boats in 1924, as returned on schedules for the Shipbuilding Trade, are given overleaf.

Kind of work done.	Ships, boats, etc., wholly constructed in the censal year.	New construction work on ships, boats, etc., not wholly constructed in the censal year.	Total of construction work.	Repair work.	Total value of work done in the year.
	£'000.	£'000.	£'000.	£'000.	£'000.
War steamers :—					
Of steel	—	543	543	*	543*
Other war vessels :—					
Of wood or composite ..	—	10	10	—	10
Steamers (other than war vessels) :—					
Of steel	5,303	22,794	28,097	15,195*	43,292*
Of wood or composite ..	20	—	20	319	339
Motorships (all kinds) :—					
Of steel	442	6,210	6,652	241	6,893
Motorships (other than war motorships) :—					
Of wood or composite ..	174	—	174	126	300
Steamers and motorships (other than war vessels) :—					
Of wood or composite ..	—	143	143	—	143
Sailing vessels and barges (other than war vessels) :—					
Of steel	237	165	402	251	653
Of wood or composite ..	80	28	108	393	501
Boats and vessels without means of propulsion other than oars :—					
Of steel	140	26	166	121	287
Of wood or composite ..	171	27	198	205	403
Repairs to vessels not separately distinguished ..	—	—	—	210	210
Other repair work ..	—	—	—	347	347
TOTAL	6,567	29,946	36,513	17,408	53,921

* In order to avoid the possible disclosure of information relating to individual firms, the amount returned for repair work on war steamers of steel has been included with that returned for repair work on other steamers of steel.

The work done on floating docks, stages and other structures (valued at £218,000) is not shown in the above table, as separate particulars of constructional work and repair work cannot be given without disclosing information relating to individual firms.

Of the value of the work done on ships and boats in 1924, nearly 68 per cent. represented new construction and rather more than 32 per cent. repair work. About 18 per cent. of the total value of new construction was in respect of ships and boats wholly constructed in the censal year and 82 per cent. in respect of ships and boats not wholly constructed in that year. Only a very small part of the new constructional work and of the repair work was done by firms outside the Shipbuilding Trade. Particulars of the new construction of ships and boats in 1924 are given below; it will be seen that complete particulars were given in respect of construction valued at £6,334,000, or about 96 per cent. of the total value (£6,586,000) of ships and boats wholly built in the censal year, as returned on all schedules.

Kind of ships and boats completely built in 1924.	Number	Gross tonnage.	Net tonnage.	Value, £'000
Steamers (other than war vessels) :—				
Of steel	173	260,835	156,830	5,303
Of wood or composite	6	514	243	13
" " (Number only stated)	2	..	..	3
" " (No quantities stated)	..	..	..	4
Motorships (other than war vessels) :—				
Of steel	31	20,235	12,546	440
" " (Number only stated)	1	..	..	2
Motorships (all kinds) :—				
Of wood or composite	141	1,101	749	102
" " (Gross tonnage not stated)	2	..	45	2
" " (Number only stated)	90	..	..	49
" " (No quantities stated)	..	..	..	21
Sailing vessels and barges :—				
Of steel	454	18,166	13,455	237
Of wood or composite	79	2,150	1,702	66
" " (Net tonnage not stated)	15	45	..	3
" " (Number only stated)	61	..	..	11
Boats and vessels without means of propulsion other than oars :—				
Of steel	358	5,640	..	136
" " (Net tonnage not stated)	10	..	..	4
Of wood or composite (Net tonnage not stated)	422	1,842	..	37
" " (Number only stated)	2,274	..	..	128
" " (No quantities stated)	..	..	..	6
TOTAL VALUE .. .. .	..	..	..	6,567

It will be apparent that the work begun and completed in the censal year is a very inadequate measure of the constructional work done in that year. The Annual Statement of the Navigation and Shipping of the United Kingdom for the years 1912 and 1924 gives the following particulars of the number and tonnage of the mercantile vessels built (i.e., launched) at British ports in those years :—

Mercantile vessels launched.	1924.			1912.		
	Number.	Th. tons net.	Th. tons gross.	Number.	Th. tons net.	Th. tons gross.
Built for British owners :—						
Steam and motor ships :—						
Of steel	493	758.5	1,291.2	588	854.3	1,406.8
Of wood	83	1.9	2.7	133	2.9	6.3
Sailing ships :—						
Of steel	191	20.4	21.2*	173	37.2	39.8*
Of wood	47	2.4	2.6*	116	5.9	6.6*
Built for foreign owners :—						
Steam and motor ships :—						
Of steel	43	92.0	156.5	176	186.6	309.4
Of wood	1	..	..	9	0.3	0.4
Sailing ships :—						
Of steel	2	1.5	1.5*	99	9.6	10.2*
Of wood	—	—	—	2	0.1	0.1*
Total—Steam and motor ships	620	852.4	1,450.4	906	1,044.1	1,722.9
Sailing ships	240	24.3	25.3	390	52.8	56.7
ALL SHIPS	860	876.7	1,475.7	1,296	1,096.9	1,779.6

* The gross tonnage of sailing ships launched in 1924 and 1912 was not recorded and has been calculated on the basis of the average ratio of gross to net tonnage of sailing ships newly registered in those two years respectively.

The firms that made their returns for 1912 on schedules for the Shipbuilding Trade furnished the following particulars as to their launchings in that year:—

	Tons, gross	Value £'000.
War vessels	179,214*	6,761
Mercantile vessels:—		
Steamships: Of steel or iron	1,702,702	21,476
Of wood	5,740	250
Sailing ships: Of steel or iron	6,419	65
Of wood	2,665	107
Boats: Of steel or iron	30,744	340
Of wood	8,836	245
Total—Mercantile vessels	1,757,106	22,483

In comparing these figures with those published in the Annual Statement of Navigation and Shipping, it has to be remembered that the former are the aggregates of the statements made by individual firms as to the vessels launched in the business year most closely corresponding to the calendar year 1912, and that they include all vessels, of whatever size and whether sea-going, river or harbour craft, except the small craft built by the firms that employed not more than five workpeople each and 1,203 in all. The statistics given in the Annual Statement relate strictly to the calendar year and exclude river and coast vessels under 15 tons burthen (except any that are voluntarily registered) and fishing vessels that are not registered as traders; the term *mercantile vessel* includes all vessels other than war vessels, whether they are trading vessels or pleasure craft; the term *sailing ship* includes all vessels not equipped with propelling machinery driven by steam- or motor-engine, provided they are registered.

Another comparison of the activity of the yards may be obtained from the figures in the Shipbuilding returns issued by Lloyd's Register. These relate to merchant vessels (i.e., all vessels other than war vessels) of 100 tons gross and upwards; they cover Great Britain and Ireland but the inclusion of the Irish Free State makes little difference to the totals.

* Displacement tonnage.

Vessels (other than war vessels) over 100 tons gross.	Under construction at beginning of year.	Begun during year.	Launched during year.	Under construction at end of year.
1924.				
Steamers:—				
Of steel ..	{ Number .. 291 Th. tons gross (1,065·8)	322 (841·5)	423 (1,195·2)	230 (976·1)
Of wood, etc. ..	{	—	—	—
Motor ships:—				
Of steel ..	{ Number .. 54 Th. tons gross (323·1)	..	..	47 (319·3)
Of wood, etc. ..	{ Number .. 1 Th. tons gross (0·5)	..	..	3 (0·9)
Total—Motor ships ..	{ Number .. 55 Th. tons gross (323·6)	42 (204·2)	50 (237·5)	50 (320·2)
Sailing ships and barges:—				
Of steel ..	{ Number .. 12 Th. tons gross (5·3)	..	..	6 (0·7)
Of wood, etc. ..	{ Number .. 2 Th. tons gross (0·5)	..	..	—
Total—Sailing ships, etc. ..	{ Number .. 14 Th. tons gross (5·8)	18 (4·6)	21 (7·2)	6 (0·7)
TOTAL—1924	{ Number .. 360 Th. tons gross (1,395·2)	382 (1,050·3)	494 (1,439·9)	286 (1,297·0)
1912.				
Steamers:—				
Of steel ..	{ Number .. 441 Th. tons gross (1,509·6)	..	..	503 (1,960·2)
Of wood, etc. ..	{ Number .. 10 Th. tons gross (0·5)	..	..	3 (0·1)
Total—Steamers	{ Number .. 451 Th. tons gross (1,510·1)	758 (2,099·1)	643 (1,720·9)	506 (1,960·3)
Sailing ships and barges:—				
Of steel ..	{ Number .. 19 Th. tons gross (8·3)	..	..	22 (9·2)
Of wood, etc. ..	{ Number .. 13 Th. tons gross (0·7)	..	..	14 (0·6)
Total—Sailing ships, etc. ..	{ Number .. 32 Th. tons gross (9·0)	76 (16·1)	69 (17·6)	36 (9·8)
TOTAL—1912	{ Number .. 483 Th. tons gross (1,519·1)	834 (2,115·2)	712 (1,738·5)	542 (1,970·1)

In considering these figures note should be taken of the following particulars regarding vessels on which construction was in suspension at the dates shown:—

	No.	Tons gross.
31st December, 1924 .. .. .	..	60,000
31st December, 1923 .. .. .	..	164,000
31st December, 1912	11	2,753
31st December, 1911	12	3,919

The figures of vessels under construction at the beginning of the year plus new vessels begun during the year, do not agree with the totals of vessels launched in the year plus vessels under construction at the end of the year, because, it is understood, work still continued at the end of the year on some vessels launched during the year. The work under construction at the beginning of 1924 was 8.2 per cent. less in tonnage than that at the beginning of 1912 and the work under construction at the end of 1924 was 34.2 per cent. less than that at the end of 1912. The tonnage launched in 1924 was 17.2 per cent. less than the tonnage launched in 1912, and the tonnage begun in 1924 was 50.3 per cent. less than that begun in 1912. Whatever method of comparison is taken, there was a great falling-off in the volume of work in British shipbuilding yards in 1924 compared with 1912.

The market for British shipbuilding is indicated by the following table showing the countries for which the vessels (other than war vessels) launched in the United Kingdom in 1924 and 1912 were built :—

Country.	1924.		1912.	
	No.	Tons gross.	No.	Tons gross.
United Kingdom	419	1,218,944	502	1,322,995
Other Empire countries	29	51,528	47	72,970
Foreign countries	46	169,413	163	342,549
ALL COUNTRIES	494	1,439,885	712	1,738,514

Thus, of the tonnage launched in 1924, nearly 85 per cent. was recorded as for United Kingdom owners, while for 1912 the corresponding proportion was 76 per cent.

Exports of new ships and boats in 1924 and 1912 were as follows :—

Kind of ships.	1924.		1912.
	No.	Tons gross.	Tons gross.
War vessels	—	—	5,426
Steam ships and motor ships :—			
Of steel	80	150,538	355,487
Of wood, etc.	70	576	685
Sailing ships :—			
Of steel	1	6	4,167
Of wood, etc.	27	70	139
Boats, etc. (propelled by oars) :—			
Of steel	125	9,811	15,725
Of wood, etc.	463	471	1,477
TOTAL TONNAGE		161,472	383,106

Tonnage under construction in Great Britain and Ireland at the end of 1924 was, according to Lloyd's Register, about 7 per cent. less than it was at the beginning, but the tonnage of motor ships under construction decreased by only 1 per cent. and amounted to 25 per cent. of the total tonnage under construction at the end of the year as compared with 23 per cent. at the beginning; the tonnage of motor vessels launched was 16 per cent. of the total

tonnage launched. These figures demonstrate the rise of an industry which in 1912 was so new that only 11 vessels were launched "of a total tonnage of 6,000 tons with internal combustion engines."* The development of motor ship construction was even greater abroad; in all countries except the United Kingdom 264,340 tons gross of motor shipping were launched, or nearly 33 per cent. of the total tonnage launched in those countries.

Another prominent feature of the 1924 Census returns is the great decline in the building of warships. Despite the increase in average values, the total value of the work done in private yards on warships in 1924 was less than one-twelfth of the value of similar work in 1912.

Other products.—In addition to the work done on ships, boats, etc., which has been discussed in the preceding paragraphs, the goods shown below were returned as part of the output of firms that made their returns on schedules for the Shipbuilding Trade. These goods, being of kinds mainly produced in other trades, are dealt with in the reports on those trades.

Kind of goods.	1924.	1912.
Machinery and plant	£'000. 45	£'000. 104
Iron and steel manufactures	128	106
Other goods (including scrap)	39	127
TOTAL	212	337

Output in 1907.—The information secured at the first Census in respect of the work done at shipbuilding yards in Great Britain and Ireland during 1907 is summarised in the following statement :—

Gross output in 1907.	Thousand tons gross.	Selling value.
War vessels	63†	£'000. 3,512
Steamships other than war vessels :—		
Of iron and steel :—		
Hull and fittings	1,585	19,157
Machinery .. .. .	..	4,437
Of wood † :—		
Hull and fittings	13	226
Machinery .. .. .	..	103
Sailing ships other than war vessels :—		
Of iron and steel	10	121
Of wood †	6	134
Boats (including barges) :—		
Of iron and steel .. .. .	..	270
Of wood .. .. .	..	209
TOTAL VALUE—SHIPS AND BOATS		28,169
Floating docks, stages and other structural work .. .. .	..	153
Marine machinery and parts thereof .. .. .	..	5,073
Repair work .. .. .	..	8,371
Other goods made and work done .. .. .	..	790
TOTAL VALUE OF GOODS MADE AND WORK DONE		42,556

† Displacement tonnage. ‡ Including a small proportion of composite ships.

* Lloyd's Register of British and Foreign Shipping: Shipbuilding at Home and Abroad in 1912.

Value of output in 1924 free from duplication.—The gross value of the output in 1924 of firms that made returns on schedules for the Shipbuilding Trade was £54,671,000. It would appear, however, that there is some possibility of duplication in the sum of £364,000, the value of new constructional work done on boats and other vessels without means of propulsion other than oars, and in the sum of £320,000, the value of ships' fittings returned as such.

From the information available it would appear that the value of duplicated products is adequately provided for by a sum of about £300,000, and there remains as the value, free from duplication, of the output in 1924 of the Shipbuilding Trade, a sum in the neighbourhood of £54,400,000.

Cost of materials.—The cost of materials used by and sub-contract work done for firms that made their returns on schedules for the Shipbuilding Trade was returned as £30,228,000 in 1924, a sum which, by the exclusion of purchases of the products of other firms in the same trade, is reduced to about £30,000,000.

Net output.—The net output in 1924 of the firms that made their returns on schedules for the Shipbuilding Trade (whose gross output was valued at £54,671,000) was £24,443,000, 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 sub-contract work.

The net output per head of persons employed in the censal year 1924 was £170, as compared with £111 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 Shipbuilding Trade, 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, 81,272 operatives, or 62 per cent. of the total of 130,101 operatives for the trades as a whole, and their net output totalled £15,038,000, or 62 per cent. of the aggregate net output of £24,443,000 for the trades as a whole. The total wage-bill of these firms, as returned to the Ministry of Labour, was £10,851,000, representing about 72 per cent. of their aggregate net output.

Employment.

The detailed information relating to employment in 1924 is summarised in Table III on pages 304 and 305. The following table sets out the particulars for that year together with those obtained at

the 1912 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	13,749	131,724	106	806	13,855	132,530
Administrative, etc. ..	826	9,451	157	1,626	983	11,077
TOTAL	14,575	141,175	263	2,432	14,838	143,607
1912.						
Wage earners	19,458	175,373	1,331	1,936	20,789	177,309
Salariated	928	8,464	110	636	1,038	9,100
TOTAL	20,386	183,837	1,441	2,572	21,827	186,409

The numbers of operatives recorded month by month in 1924 ranged from 5,392 above the average, in August, to 5,120 below the average in January (*see* Table III.B, page 305). It would appear that the periods of greatest activity were different in England and Wales from those recorded for Scotland and that both were different from those recorded for Northern Ireland.

Mechanical Power.

The detailed information relating to mechanical power in 1924 is summarised in Table IV on page 306. The following table sets out certain particulars for 1924 and 1912 relating to the capacity and kinds of *prime movers* and the capacity of *electric generators* installed.

Power equipment.	1924.			1912.
	Ordinarily in use.	In reserve or idle.	Total.	Total.
PRIME MOVERS:—	H.P.	H.P.	H.P.	H.P.
Reciprocating steam engines ..	11,368	10,835	22,203	36,790
Steam turbines	3,660	800	4,460	1,987
Gas engines	7,524	4,452	11,976	20,185
Petrol and light oil engines ..	1,050	1,211	2,261	1,417
Heavy oil engines	4,555	594	5,149	
Water power	—	—	—	1,085
TOTAL	28,157	17,892	46,049	61,464
ELECTRIC GENERATORS:—	Kw.	Kw.	Kw.	Kw.
Driven by—				
Reciprocating steam engines ..	1,304	5,979	7,283	15,753
Steam turbines	2,500	600	3,100	1,765
Gas engines	2,336	2,489	4,825	13,789
Petrol and light oil engines ..	33	681	714	
Heavy oil engines	2,928	465	3,393	
Water power	—	—	—	
TOTAL	9,101	10,214	19,315	31,307

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	22,916	5,310	28,226	45,754
Purchased electricity	247,755	86,375	334,130	72,757

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 16,315,000.

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	33,829	17,571	51,400	3,271
Cost of materials used and sub-contract work	"	17,766	10,645	28,411	1,817
Net output	"	16,063	6,926	22,989	1,454
Average number of persons employed	No.	92,583	43,478	136,061	7,546
Net output per person employed	£	173	159	169	193
Mechanical power available :—					
Prime movers	H.P.	25,848	10,106	35,954	10,095
Electric motors driven by purchased electricity ..	"	167,030	138,146	305,176	28,954

II.—Production.

Kind of work done and goods made.	Unit.	England and Wales and N. Ireland.†	Scotland.	United Kingdom.
<i>Ships and boats wholly constructed in the year.</i>		Number, tonnage and selling value.		
Steamers (other than war vessels) :				
Of steel†	{	120	53	173
	<i>Number</i> ..			
	<i>Tons gross</i>	179,922	80,913	260,835
	<i>Tons net</i> ..	107,502	49,328	156,830
	£'000 ..	3,516	1,787	5,303
	<i>Number</i> ..	*	*	6
	<i>Tons gross</i>	*	*	514
	<i>Tons net</i> ..	*	*	243
	£'000 ..	*	*	13
Of wood or composite	{	*	*	2
	<i>Number stated</i>	*	*	3
	£'000 ..	*	*	4
	<i>Value only stated</i>	*	*	
Motor ships (other than war vessels) :—				
Of steel	{	23	8	31
	<i>Number</i> ..			
	<i>Tons gross</i>	9,414	10,821	20,235
	<i>Tons net</i> ..	5,808	6,733	12,546
	£'000 ..	236	204	440
	<i>Number</i> ..	1	—	1
	£'000 ..	2	—	2
Motor ships (including war vessels) :—				
Of wood or composite	{	114	27	141
	<i>Number</i> ..			
	<i>Tons gross</i>	807	294	1,101
	<i>Tons net</i> ..	523	226	749
	£'000 ..	75	27	102
	<i>Number</i> ..	2	—	2
	<i>Tons net</i> ..	45	—	45
	£'000 ..	2	—	2
	<i>Number</i> ..	64	26	90
	£'000 ..	32	17	49
	<i>Value only stated</i>	1	20	21

*† See notes on page 303.

II—Production—continued.

Kind of work done and goods made.	Unit.	England and Wales and N. Ireland.†	Scotland.	United Kingdom.
Number, tonnage and selling value.				
Sailing vessels and barges (other than war vessels) :—				
Of steel	Number ..	448	6	454
	Tons gross	16,146	2,020	18,166
	Tons net ..	11,520	1,935	13,455
	£'000 ..	202	35	237
	Number ..	72	7	79
Of wood or composite	Tons gross	2,099	51	2,150
	Tons net ..	1,652	50	1,702
	£'000 ..	58	8	66
	Number ..	—	15	15
	Tons gross	—	45	45
	£'000 ..	—	3	3
	Number ..	48	13	61
	£'000 ..	9	2	11
Boats and vessels without means of propulsion other than oars :—				
Of steel	Number ..	*	*	358
	Tons gross	*	*	5,640
	£'000 ..	*	*	136
	Number ..	*	*	10
	£'000 ..	*	*	4
Of wood or composite	Number ..	246	176	422
	Tons gross	1,519	323	1,842
	£'000 ..	22	15	37
	Number ..	1,951	323	2,274
	£'000 ..	115	13	128
	Value only stated	£'000 ..	5	1
TOTAL VALUE.—Ships and boats wholly constructed in the year	£'000 ..	*	*	6,567
Work of new construction done in the year on ships and boats not wholly constructed in the year.				
War steamers :—				
Of steel	£'000	*	*	543
Other war vessels :—				
Of wood or composite ..	"	10	—	10
Steamers (other than war vessels) :				
Of steel†	"	12,460	10,334	22,794
Motor ships (other than war vessels) :—				
Of steel†	"	3,500	2,710	6,210
Steamers and motor ships (other than war vessels) :—				
Of wood or composite ..	"	98	45	143
Sailing vessels and barges (other than war vessels) :—				
Of steel†	"	119	46	165
Of wood or composite ..	"	*	*	28
Boats and vessels without means of propulsion other than oars :—				
Of steel	"	26	—	26
Of wood or composite ..	"	22	5	27
TOTAL VALUE.—Work of new construction done in the year on ships and boats not wholly constructed in the year	£'000	*	*	29,946

*† See notes on page 303.

II—Production—continued.

Kind of work done and goods made.	Unit.	England and Wales and N. Ireland.†	Scotland.	United Kingdom.
Value.				
Repair work on ships and boats.				
Steamers (including war vessels) :				
Of steel†	£'000	13,562	1,633	15,195
Motor ships (including war vessels) :—				
Of steel†	"	224	17	241
Steamers (other than war vessels) :				
Of wood or composite ..	"	249	70	319
Motor ships (other than war vessels) :—				
Of wood or composite ..	"	101	25	126
Sailing vessels and barges (other than war vessels) :—				
Of steel	"	*	*	251
Of wood or composite ..	"	358	35	393
Boats and vessels without means of propulsion other than oars :—				
Of steel	"	*	*	121
Of wood or composite ..	"	*	*	205
Vessels not separately distinguished†	"	145	65	210
TOTAL VALUE.—Repair work on ships and boats	£'000	*	*	17,061
Floating docks, stages and other structural work completed, partly completed and repaired in the year	£'000	218	—	218
Other repair work†	"	336	11	347
Other goods made :—				
Ships' fittings returned as such†	"	267	53	320
Machinery and plant† ..	"	33	12	45
Iron and steel manufactures ..	"	127	1	128
Other goods (including scrap)	"	38	1	39
TOTAL VALUE OF WORK DONE AND GOODS MADE (GROSS OUTPUT)	£'000	37,100	17,571	54,671

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

† In order to avoid the possible disclosure of information relating to individual firms, the particulars for Northern Ireland have been combined with those for England and Wales. The items affected by this combination are also marked thus (†).

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</i> :—						
Operatives	8,441	82,652	34	468	8,475	83,120
Administrative, etc.*	518	5,974	76	801	594	6,775
TOTAL	8,959	88,626	110	1,269	9,069	89,895
<i>Scotland</i> :—						
Operatives	4,577	41,738	70	311	4,647	42,049
Administrative, etc.*	289	2,834	63	637	352	3,471
TOTAL	4,866	44,572	133	948	4,999	45,520
<i>Great Britain</i> :—						
Operatives	13,018	124,390	104	779	13,122	125,169
Administrative, etc.*	807	8,808	139	1,438	946	10,246
TOTAL	13,825	133,198	243	2,217	14,068	135,415
<i>Northern Ireland</i> :—						
Operatives	482	4,923	2	9	484	4,932
Administrative, etc.*	19	643	18	188	37	831
TOTAL	501	5,566	20	197	521	5,763
<i>United Kingdom</i> :—						
TOTAL	14,326	138,764	263	2,414	14,589	141,178

* Administrative technical and clerical staff.

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

England and Wales. (Annual average : Males, 85,328 ; Females, 480 ; Total, 85,808.)

Week ended.	Males.	Females.	Total.	Week ended.	Males.	Females.	Total.
Jan. 12th ..	84,613	489	85,102	July 19th ..	92,681	491	93,172
Feb. 16th ..	83,844	438	84,282	Aug. 16th ..	90,550	503	91,053
Mar. 15th ..	81,691	420	82,111	Sept. 13th ..	86,788	494	87,282
April 12th ..	81,852	509	82,361	Oct. 18th ..	82,652	468	83,120
May 17th ..	85,714	469	86,183	Nov. 15th ..	82,330	545	82,875
June 21st ..	87,256	477	87,733	Dec. 13th ..	83,960	454	84,414

Scotland. (Annual average : Males, 39,691 ; Females, 316 ; Total, 40,007.)

Jan. 12th ..	32,481	265	32,746	July 19th ..	38,585	324	38,909
Feb. 16th ..	39,347	301	39,648	Aug. 16th ..	41,261	328	41,589
Mar. 15th ..	40,328	295	40,623	Sept. 13th ..	41,395	348	41,743
April 12th ..	39,075	302	39,377	Oct. 18th ..	41,738	311	42,049
May 17th ..	41,091	344	41,435	Nov. 15th ..	41,345	312	41,657
June 21st ..	39,698	335	40,033	Dec. 13th ..	39,950	332	40,282

Great Britain. (Annual average : Males, 125,019 ; Females, 796 ; Total, 125,815.)

Jan. 12th ..	117,094	754	117,848	July 19th ..	131,266	815	132,081
Feb. 16th ..	123,191	739	123,930	Aug. 16th ..	131,811	831	132,642
Mar. 15th ..	122,019	715	122,734	Sept. 13th ..	128,183	842	129,025
April 12th ..	120,927	811	121,738	Oct. 18th ..	124,390	779	125,169
May 17th ..	126,805	813	127,618	Nov. 15th ..	123,675	857	124,532
June 21st ..	126,954	812	127,766	Dec. 13th ..	123,910	786	124,696

Northern Ireland. (Annual average : Males, 6,705 ; Females, 10 ; Total, 6,715.)

Jan. 12th ..	9,544	18	9,562	July 19th ..	5,751	8	5,759
Feb. 16th ..	9,127	15	9,142	Aug. 16th ..	5,271	9	5,280
Mar. 15th ..	8,508	11	8,519	Sept. 13th ..	5,005	9	5,014
April 12th ..	8,053	11	8,064	Oct. 18th ..	4,923	9	4,932
May 17th ..	6,617	8	6,625	Nov. 15th ..	5,738	9	5,747
June 21st ..	5,975	8	5,983	Dec. 13th ..	5,945	8	5,953

IV.—Mechanical Power.

PARTICULARS OF PRIME MOVERS, ELECTRIC GENERATORS AND ELECTRIC MOTORS.

(a) Ordinarily in use. (b) In reserve or idle.	England and Wales.	Scotland.	Great Britain.	Northern Ireland.
	H.P.	H.P.	H.P.	H.P.
PRIME MOVERS :—				
Reciprocating steam engines	{ (a) 9,427 (b) 3,692	1,941	11,368	—
Steam turbines	{ (a) 1,460 (b) —	2,200	3,660	5,400
Gas engines	{ (a) 7,000 (b) 1,769	379	7,379	800
Petrol and light oil engines	{ (a) 918 (b) 211	132	1,050	145
Heavy oil engines	{ (a) 777 (b) 594	28	805	—
		—	594	3,750
TOTAL	{ (a) 19,582 (b) 6,266	4,680	24,262	3,895
		5,426	11,692	6,200
TOTAL OF PRIME MOVERS INSTALLED				
	25,848	10,106	35,954	10,095
	Kw.	Kw.	Kw.	Kw.
ELECTRIC GENERATORS :—				
Driven by—				
Reciprocating steam engines	{ (a) 1,191 (b) 1,205	113	1,304	—
Steam turbines	{ (a) 1,000 (b) —	1,500	2,500	3,620
Gas engines	{ (a) 2,331 (b) 839	5	2,336	600
Petrol and light oil engines	{ (a) 7 (b) 21	26	33	—
Heavy oil engines	{ (a) 428 (b) 465	—	428	2,500
		—	465	—
TOTAL	{ (a) 4,957 (b) 2,530	1,644	6,601	2,500
		3,464	5,994	4,220
TOTAL OF ELECTRIC GENERATORS INSTALLED				
	7,487	5,108	12,595	6,720
	H.P.	H.P.	H.P.	H.P.
ELECTRIC MOTORS :—				
Driven by—				
Electricity generated in own works	{ (a) 12,842 (b) 802	3,874	16,716	6,200
Purchased electricity	{ (a) 138,195 (b) 28,835	95,058	233,253	4,243
		43,088	71,923	14,502
		—	—	14,452