

THE RAILWAY CARRIAGE AND WAGON TRADE

(Private Firms)

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 construction or repair of railway carriages and wagons and parts thereof. Production in the workshops of railway companies and other public utility undertakings is dealt with in a separate volume.

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	10,735	16,235
Cost of materials used	"	6,298	10,933
Paid for work given out to other firms	"	41	*
Net output	"	4,396	5,302
Average number of persons employed	No.	23,339	29,495
Net output per person employed	£	188	180
Power available:—			
Prime movers	H.P.	26,870	23,210
Electric motors driven by purchased electricity...	"	51,245	41,701
Number of returns	No.	104	101
Number of establishments	"	154	†

* Not ascertained. † 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 187, the corresponding figure for 1924 being 102. The value of the gross output of the small firms in 1924 was £35,000, the work done consisting exclusively of repairs.

In addition, 7 firms to which schedules were sent at the 1930 Census and about 20 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	Net output per person employed
	No.	£'000	£'000	No.	£
11-24 ...	20	110	52	332	156
25-49 ...	25	329	141	885	160
50-99 ...	22	581	254	1,564	162
100-199 ...	17	1,030	476	2,574	185
200-499 ...	7	951	475	2,297	207
500-999 ...	7	2,783	1,023	5,093	201
1,000 and over ...	6	4,951	1,975	10,594	186
TOTAL ...	104	10,735	4,396	23,339	188

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	Net output per person employed
	No.	£'000	£'000	No.	£
1 and 4 ... 1930	8	312	168	927	181
1, 4 and 8 1924	9	188	106	591	179
2 ... 1930	18	1,471	786	2,930	268
... 1924	18	895	296	1,698	174
3 ... 1930	19	1,299	478	2,892	165
... 1924	16	1,882	648	3,293	197
5 ... 1930	16	4,018	1,385	8,372	165
... 1924	10	5,319	1,337	8,415	159
6 ... 1930	19	2,278	910	4,974	183
... 1924	23	5,413	1,991	10,865	183
7 ... 1930	16	634	370	1,837	201
... 1924	19	1,412	595	2,934	203
9 and 10... 1930	8	723	299	1,407	212
9 ... 1924	6	1,126	329	1,699	194
TOTAL { 1930	104	10,735	4,396	23,339	188
... 1924	101	16,235	5,302	29,495	180

Northern Ireland.—No production of railway carriages and wagons was recorded in Northern Ireland in 1930 or 1924.

* For particulars see page xviii.

Production

Principal products.—The following table shows the value and, where available, the quantities of railway carriages, wagons, trucks and parts thereof completed in 1930 and 1924 :—

Kind of goods	1930			1924	
	Quantity	Value	Entries	Quantity	Value
		£'000	No.		£'000
Railway carriages :—					
Of steel or iron and steel, complete	{ No. 291 } { Tons 9,669 }	989	6 { 446 }	{ 9,659 }	1,015
Other, complete	{ No. 299 }	900	6	{ 414 }	1,115
Parts (except axles, tyres and wheels) ... ..	...	560	13	...	429
TOTAL—Railway carriages and parts ... ..	...	2,449	...	...	2,559
Railway wagons and trucks :—					
Of steel or iron and steel, complete	{ No. 8,365 } { Tons 91,421 }	2,542	18 { 9,666 }	{ 96,953 }	3,027
Other, complete	{ No. 5,404 }	965	30	{ 34,240 }	5,403
Parts (except axles, tyres and wheels) ... ..	...	724	35	...	971
TOTAL—Railway wagons and parts ... ..	...	4,231	...	...	9,401
Railway carriages and wagons :—					
Wheels and axles, complete	{ No. of sets* 45,478 } { Tons 43,586 }	948	27 { 45,607 }	{ 71,960 }	1,861
Parts and accessories, not separately distinguished ... ..	...	369	23	...	467
TOTAL—Railway carriages, wagons and parts (except axles and tyres, sold as such)	...	7,997	...	...	14,288
Tramcars and trackless trolley vehicles and parts	{ Tons 1,153 } †	{ 130 } 326	16	...	277
Colliery tubs, trams and trucks	{ 1,959 } †	{ 38 } 182	23	...	177
TOTAL—PRINCIPAL PRODUCTS ... ..	...	8,673	...	...	14,742

* Specified for 1930 as consisting of 2 wheels and 1 axle. As the number of sets was recorded without specification for 1924, the figures for the two years may not be comparable.

† Weight not stated.

The particulars for 1930 in the above table include the following amounts returned on schedules for other trades. As already stated, the production of railway companies and other public utility undertakings is not included.

Kind of goods	1930		
	Quantity	Value	Entries
		£'000	No.
Railway carriages, of steel or iron and steel, complete	{ No. 5 } { Tons 185 }	7	1
Railway wagons and trucks :—			
Of steel or iron and steel, complete	{ No. 304 } { Tons 2,618 }	78	5
Other, complete	{ No. 17 }	3	1
Parts (except axles, tyres and wheels) ... ..	...	31	1
Railway carriages and wagons :—			
Wheels and axles, complete	{ No. of sets 12,362 } { Tons 10,604 }	212	13
Parts and accessories, not separately distinguished ... ..	...	39	4
Tramcars and trackless trolley vehicles and parts ... ..	...	181	8
Colliery tubs, trams and trucks	{ 1,852 } *	{ 36 } 20	{ } 10
TOTAL ... ..	...	607	...

*Weight not stated.

The table on page 370 shows a considerable change in the two years in the average weight of railway carriages of iron and steel, which increased from 23·9 tons in 1924 to 33·2 tons in 1930, or by about 39 per cent. An increase of 10 per cent. in 1930 is indicated in the average weight of wagons and trucks of iron and steel.

The quantities and values shown in the table on page 370 for carriages and wagons represent the vehicles *completed* in the year, and therefore include those begun in the previous year as well as those wholly constructed in the year. The figures for individual classes of vehicles may thus overstate or understate the output properly attributable to the census year, but any excess or defect in values is corrected in the total value of the output of the trade as a whole by making adjustment for the value of all work in progress at the beginning and at the end of the year (see page 375).

Prices.—The average selling values of railway carriages, wagons and trucks in 1930 and 1924, as calculated from the Census returns, are shown in the following table. It should be borne in mind that carriages of steel or iron and steel built in 1930 were, on the average, of a substantially heavier type than those built in 1924 (see above) and that changes of this kind considerably affect comparisons between the prices shown for complete vehicles in the two years.

Kind of goods	Average value		1930 as a percentage of 1924
	1930	1924	
	£	£	Per cent.
Railway carriages, complete :—			
Of steel or iron and steel { Per ton	102.4	105.1	97.4
Other { Per carriage	3,435.3	2,277.2	150.9
Railway wagons and trucks, complete :—			
Of steel or iron and steel { Per ton	27.8	31.2	89.1
Other { Per wagon	303.8	313.2	97.0
Railway wheels and axles, complete	178.6	157.8	113.2
Per ton	21.7	25.9	83.8

Volume of production in 1930 and 1924.—The following table compares the volume of production of railway carriages, wagons, trucks and parts thereof, and the volume of repair work, in 1930 and 1924 :—

Kind of goods	Total production			1930 as a percentage of 1924
	1930	1924		
	As returned	As returned	At 1930 average values	
	£'000	£'000	£'000	Per cent.
Railway carriages :—				
Of steel or iron and steel, complete	989	1,015	989*	100
Other, complete	900	1,115	1,100†	82
Parts (except axles, tyres and wheels)	560	429	420‡	133
Railway wagons and trucks :—				
Of steel or iron and steel, complete	2,542	3,027	2,697*	94
Other, complete	965	5,403	4,800‡	20
Parts (except axles, tyres and wheels)	724	971	862‡	84
Railway carriages and wagons :—				
Wheels and axles, complete	948	1,861	1,560*	61
Parts and accessories, not separately distinguished	369	467	410‡	90
Tramcars and trackless trolley vehicles, complete and parts	456	277	270‡	168
Colliery tubs, trams and trucks	220	177	157‡	140
Repair work	2,095	2,647	2,382§	88
Total of above... ..	10,768	17,389	15,647	69
Deduction on account of work in progress (see page 375)	167	142	128§	...
TOTAL	10,601	17,247	15,519	68

* Based on average value per ton.

† Based on average value per ton of complete railway carriages of steel or iron and steel.

‡ Based on average value per ton of complete railway wagons and trucks of steel or iron and steel.

§ Based on average value of all preceding items in the table.

Production, exports and imports.—The following table gives particulars of the principal classes of railway carriages, wagons and parts thereof exported from the United Kingdom in 1930 and 1924, and of those imported and retained. The particulars of production which are added for comparison are those shown in previous tables as recorded by private firms, and are therefore exclusive of vehicles and parts manufactured by railway companies.

Kind of goods	Production		Exports		Retained imports	
	No.	Th. tons	No.	Th. tons	No.	Th. tons
Railway carriages, complete :—						
Of steel or iron and steel... .. { 1930	291	9.7	234	6.4	—	—
Other { 1924	446	9.7	192	4.3	—	—
Other { 1930	299	...	95	...	—	—
Other { 1924	414	...	50	...	—	—
Railway wagons and trucks, complete :—						
Of steel or iron and steel... .. { 1930	8,365	91.4	5,601	28.4	6,151	1.7
Other { 1924	9,666	97.0	7,669	32.8	8,713	3.1
Other { 1930	5,404	...	2,770	...	295	...
Other { 1924	34,240	...	1,302	...	767	...
Railway wheels and axles, complete { 1930	...	42.4	...	16.0	...	0.4
Other { 1924	...	72.0	...	16.2	...	1.4
		Value at factory		Value f.o.b.		Value c.i.f.
		£'000		£'000		£'000
Other parts (except tyres and axles) :—						
Of railway carriages { 1930	560	809	20			
Other { 1924	429	856	7			
Of railway wagons and trucks { 1930	724	1,225	24			
Other { 1924	971	1,809	9			
TOTAL—Parts of carriages and wagons (except tyres, wheels and axles) { 1930	1,653*	2,034	44			
Other { 1924	1,867*	2,665	16			

* Including £369,000 for 1930 and £467,000 for 1924 in respect of unclassified parts of carriages and wagons.

For purposes of export, vehicles are in many cases dismantled prior to shipment and may appear in the record of exports as parts and not as complete vehicles. The excess in each year of the value of *parts* exported over the recorded production is probably due mainly to this cause. Owing to this factor and to the possible inclusion among exports of goods manufactured by railway companies, etc., precise comparisons cannot be made between the recorded production and the exports of the various classes of complete vehicles specified.

Repair work and work done for the trade.—The value of repair work carried out to railway carriages and wagons during 1930 was returned as £2,095,000 (including £40,000 returned on schedules for other trades), the corresponding figure for 1924 being £2,647,000. In addition, sums of £23,000 and £34,000 were received for other kinds of work done during 1930 and 1924 respectively.

Other products.—In addition to the output shown in the table of principal products on page 370, the following goods were produced in 1930 and 1924 by firms that made their returns on schedules for the Railway Carriage and Wagon Trade. 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
Complete vehicles (not mechanically driven) ...	7	234*
Motor bodies, complete	100	
Railway tyres and axles	438 (20,426 tons)	70 (3,286 tons)
Machinery and parts	8	112
Other iron and steel manufactures	66	
Other goods made	7	2
TOTAL	626	418

* Including some commercial motor vehicles.

Waste products sold.—The following sales of manufacturers' scrap and other waste products were recorded for 1930 by firms in the Railway Carriage and Wagon Trade. Corresponding particulars are not available for 1924.

	£
Iron and steel scrap	128,000 (55,572 tons)
Other metal scrap and waste products ...	4,000

Work in progress.—The value of the work in progress at the beginning of 1930 was returned as £1,812,000 as compared with £1,645,000 at the end of the year. Work in progress at the beginning of 1924 was valued at £1,912,000 and at the end of the year at £1,770,000. Work in progress at the end of the year represents the estimated value of unfinished carriages, wagons and other goods that were in course of construction at the end of the year, and work in progress at the beginning of the year represents a similar estimate for vehicles, etc. in course of construction at that time, some or all of which would represent goods completed within the year. The amount by which the value of the work in progress at the beginning of the year exceeded that at the end, viz., £167,000 for 1930, should be deducted from the value of the goods completed in order to arrive at the value of the output attributable to that year; a deduction of £142,000 is similarly required in respect of the value of the output in 1924.

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)	2,305	20,196	29	218	2,334	20,414
Administrative, technical and clerical staff (as at 18th October)	214	2,221	152	704	366	2,925
TOTAL	2,519	22,417	181	922	2,700	23,339
1924						
Operatives (average for the year)	3,315	26,186	54	266	3,369	26,452
Administrative, technical and clerical staff (as at 18th October)	294	2,338	72	705	366	3,043
TOTAL	3,609	28,524	126	971	3,735	29,495

Wages.—The available information as to the amount of wages paid in 1930 and 1924 is given on pages 212-3.

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	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
Reciprocating steam engines	9,764	4,908	14,672	6,650	3,539	10,189
Steam turbines	7,365	2,804	10,169	8,820	2,000	10,820
Internal combustion engines :—						
Gas	1,282	208	1,490	1,672	68	1,740
Petrol, kerosene, or other light oils ...	14	17	31	64	2	66
Heavy oils	425	58	483	350	20	370
Water engines	25	—	25	25	—	25
TOTAL	18,875	7,995	26,870	17,581	5,629	23,210
ELECTRIC GENERATORS	Kw.	Kw.	Kw.	Kw.	Kw.	Kw.
Driven by						
Reciprocating steam engines	2,672	3,065	5,737	3,095	2,423	5,518
Steam turbines	5,100	2,468	7,568	6,468	1,500	7,968
Internal combustion engines :—						
Gas	286	80	366	580	4	584
Petrol, kerosene, or other light oils	—	—	—	10	—	10
Heavy oils	144	20	164	68	—	68
Water engines	8	—	8	—	—	—
TOTAL	8,210	5,633	13,843	10,221	3,927	14,148
ELECTRIC MOTORS	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
Driven by						
Electricity generated in same works ...	28,035	4,953	32,988	16,449	5,971	22,420
Electricity generated in other works under same ownership	452	—	452	1,115	143	1,258
Purchased electricity	46,531	4,714	51,245	38,147	3,554	41,701
TOTAL	75,018	9,667	84,685	55,711	9,668	65,379

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)	For power and other purposes, not separately distinguished
	Tons	Tons	Tons
Coal	43,724	154,436*	1,176
Coke	586	26,205*	227
			B.T.U. (Kw.-hrs.) '000
Electricity used for all purposes :—			
Generated in same works			18,730
Generated in other works under same ownership			393
Purchased			25,608
TOTAL—Electricity			44,731

* These figures were recorded by firms representing 96.3 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	10,012	723	10,735
Cost of materials used	"	5,874	424	6,298
Paid for work given out to other firms	"	41	—	41
Net output	"	4,097	299	4,396
Average number of persons employed	No.	21,932	1,407	23,339
Net output per person employed	£	187	212	188
Power available :—				
Prime movers	H.P.	26,255	615	26,870
Electric motors driven by purchased electricity	"	44,953	6,292	51,245

II. Production

Goods sold or added to stock and work done	Unit	England and Wales	Scotland	Great Britain
Railway carriages :—				
Of steel or iron and steel, complete	No.	286	—	286
	Tons	9,484	—	9,484
	£'000	982	—	982
Other, complete	No.	299	—	299
	£'000	900	—	900
Parts (except axles, tyres and wheels)	Tons	*	*	3,033
	£'000	*	*	201
	£'000	*	*	359
TOTAL—Carriages and parts	£'000	*	*	2,442
Railway wagons and trucks :—				
Of steel or iron and steel, complete	No.	*	*	8,061
	Tons	*	*	88,803
	£'000	*	*	2,464
Other, complete	No.	*	*	5,337
	£'000	*	*	962
Parts (except axles, tyres and wheels)	Tons	*	*	9,190
	£'000	*	*	186
	£'000	*	*	507
TOTAL—Wagons and parts	£'000	*	*	4,119

Goods sold or added to stock and work done	Unit	England and Wales	Scotland	Great Britain
Railway carriages and wagons :—				
Wheels and axles, complete ...	No. of sets†	29,630	3,486	33,116
	Tons	30,196	2,786	32,982
	£'000	670	66	736
Parts and accessories, not separately distinguished ...	Tons	4,654	463	5,117
	£'000	64	8	72
	£'000	256	2	258
TOTAL—Carriages, wagons and parts (except axles and tyres)	£'000	*	*	7,627
Tramcars and trackless trolley vehicles, complete and parts ...	Tons	*	*	1,153
	£'000	*	*	130
Colliery tubs, trams and trucks	Tons	* 107	—	107
	£'000	2	—	2
Railway tyres and axles, not included above	Tons	162	—	162
	£'000	*	*	20,426
Complete vehicles (not mechanically driven)	£'000	*	*	438
Motor bodies, complete	£'000	7	—	7
Machinery and parts	"	*	*	100
Other manufactures of iron and steel	"	8	‡	8
Other goods made	"	54	12	66
Iron and steel scrap sold	"	3	4	7
Other metal scrap and waste products sold	Tons	53,853	1,719	55,572
Repair work	£'000	123	5	128
Work done for the trade (machining, grinding, planing, etc.)	"	4	‡	4
	"	2,004§	51§	2,055§
	"	23§	—	23§
TOTAL	£'000	10,201	701	10,902
Plus Value of work in progress at the end of 1930	"	1,544	101	1,645
Less Value of work in progress at the beginning of 1930	"	1,733	79	1,812
TOTAL VALUE OF GOODS MADE AND WORK DONE (GROSS OUTPUT)	£'000	10,012	723	10,735

* Owing to the possible disclosure of information relating to individual firms separate particulars for England and Wales and for Scotland cannot be given.
 † 2 wheels and 1 axle. ‡ Less than £500. § Amount received for work done.

III. Employment.

A.—NUMBERS EMPLOYED IN WEEK ENDED 18TH OCTOBER, 1930

Persons employed	Males		Females		Males and females	
	Under 18	All ages	Under 18	All ages	Under 18	All ages
	<i>England and Wales :—</i>					
Operatives	2,038	18,004	26	201	2,064	18,205
Administrative, etc.* ...	198	2,047	149	673	347	2,720
TOTAL	2,236	20,051	175	874	2,411	20,925
<i>Scotland :—</i>						
Operatives	136	1,047	1	5	137	1,052
Administrative, etc.* ...	16	174	3	31	19	205
TOTAL	152	1,221	4	36	156	1,257
<i>Great Britain :—</i>						
Operatives	2,174	19,051	27	206	2,201	19,257
Administrative, etc.* ...	214	2,221	152	704	366	2,925
TOTAL	2,388	21,272	179	910	2,567	22,182

* 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...	19,600	1,221	20,821	July 19 ...	19,860	1,193	21,053
Feb. 15...	19,761	1,319	21,080	Aug. 16 ...	19,317	1,009	20,326
Mar. 15...	19,902	1,360	21,262	Sept. 13...	19,330	1,048	20,378
Apl. 12...	20,536	1,298	21,834	Oct. 18 ...	18,205	1,052	19,257
May 17...	20,457	1,256	21,713	Nov. 15...	17,108	1,187	18,295
June 21...	20,201	1,274	21,475	Dec. 13 ...	16,269	1,207	17,476
AVERAGE FOR THE 12 MONTHS					19,212	1,202	20,414

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
PRIME MOVERS						
Reciprocating steam engines	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
Steam turbines	9,424	4,633	340	275	9,764	4,908
Internal combustion engines :—						
Gas	1,282	208	—	—	1,282	208
Petrol, kerosene, or other light oils	14	17	—	—	14	17
Heavy oils	425	58	—	—	425	58
Water engines	25	—	—	—	25	—
TOTAL	18,535	7,720	340	275	18,875	7,995
TOTAL OF PRIME MOVERS INSTALLED ...	26,255		615		26,870	
ELECTRIC GENERATORS						
Driven by	Kw.	Kw.	Kw.	Kw.	Kw.	Kw.
Reciprocating steam engines	2,672	3,065	—	—	2,672	3,065
Steam turbines	5,100	2,468	—	—	5,100	2,468
Internal combustion engines :—						
Gas	286	80	—	—	286	80
Heavy oils	144	20	—	—	144	20
Water engines	8	—	—	—	8	—
TOTAL	8,210	5,633	—	—	8,210	5,633
TOTAL OF ELECTRIC GENERATORS INSTALLED ...	13,843		—		13,843	
ELECTRIC MOTORS						
Driven by	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
Electricity generated in same works	28,035	4,953	—	—	28,035	4,953
Electricity generated in other works under same ownership	402	—	50	—	452	—
Purchased electricity	41,251	3,702	5,280	1,012	46,531	4,714
TOTAL	69,688	8,655	5,330	1,012	75,018	9,667
TOTAL OF ELECTRIC MOTORS INSTALLED	78,343		6,342		84,685	

V. Consumption of fuel

Kind of fuel used	England and Wales	Scotland	Great Britain
	Tons	Tons	Tons
Coal used for power*	37,011	6,713	43,724
Coke used for power*	586	—	586
	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	18,730	—	18,730
Generated in other works under same ownership	371	22	393
Purchased	23,519	2,089	25,608
TOTAL—Electricity	42,620	2,111	44,731

* In addition, 1,176 tons of coal and 227 tons of coke (all in England and Wales) were recorded as used for power and for other purposes, not separately distinguished.