THE ALUMINIUM, LEAD, TIN, ETC. TRADE (SMELTING, ROLLING, ETC.)

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 smelting, rolling and casting of aluminium, lead, tin, zinc and other non-ferrous metals, except copper and brass (see pages 414-430). Firms engaged in the refining of gold, silver, platinum and other precious metals are also dealt with in a separate report (pages 451-9). 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	26,539	31,760
Cost of materials used	„	20,291	25,196
Paid for work given out to other firms	„	64	38
Net output	„	6,184	6,526
Average number of persons employed	No.	22,311	22,366
Net output per person employed	£	277	292
Power available :—			
Prime movers	H.P.	59,839	67,050
Electric motors driven by purchased electricity	„	65,409	38,441
Number of returns	No.	178	211
Number of establishments	„	210	*

* Not available.

Deficiencies in 1930 aggregates.—The aggregate number of persons employed in 1930 by firms that stated that they employed not more than ten persons on the average was 1,307, the corresponding figure for 1924 being 594.* The value of the gross output of the small firms in 1924 was £860,000,* and particulars of the items included in this figure are given below :—

	£'000
Non-ferrous metals (except copper, brass and precious metals) and manufactures thereof :—	
Aluminium	55*
Lead	513*
Tin	119
White metal alloys	62
Other non-ferrous metals	68
Other goods made	36
Repair work, work done for the trade, etc.	7
TOTAL	860

* These figures include particulars relating to the few firms in Northern Ireland, separate information regarding which cannot be given.

In addition, 19 firms to which schedules were sent at the 1930 Census and 109 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 ...	45	1,060	258	797	324
25– 49 ...	43	1,591	482	1,534	314
50– 99 ...	34	2,065	544	2,438	223
100–199 ...	21	3,502	631	2,720	232
200–299 ...	10	2,247	654	2,440	268
300–399 ...	11	2,494	627	3,808	165
400–499 ...	5	1,692	475	2,199	216
500–749 ...	6	8,509	997	3,207	311
750 and over ...	3	3,379	1,516	3,168	479
TOTAL ...	178	26,539	6,184	22,311	277

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 ...	1930	50	4,241	1,044	5,091	205
	1924	*65*	*6,409*	*1,641*	*6,679*	*246*
2 ...	1930	19	9,825	1,009	2,660	379
	1924	*26*	*10,138*	*760*	*2,370*	*321*
3 ...	1930	16	1,181	465	2,270	205
	1924	*14*	*744*	*326*	*957*	*341*
4 ...	1930	9	937	210	1,027	204
	1924	*12*	*2,647*	*556*	*1,848*	*301*
5 ...	1930	46	3,527	1,114	4,980	229
	1924	*51*	*3,706*	*1,094*	*4,955*	*221*
6 ...	1930	16	2,238	379	1,703	222
	1924	*18*	*3,048*	*223*	*882*	*253*
7 and 8 ...	1930	8	3,025	1,428	2,902	492
	1924	*12*	*3,647*	*1,268*	*3,360*	*377*
9 and 10...	1930	14	1,565	535	1,678	319
	1924	*13*	*1,421*	*658*	*1,315*	*500*
TOTAL	1930	178	26,539	6,184	22,311	277
	1924	*211*	*31,760*	*6,526*	*22,366*	*292*

* For particulars see page xviii.

Northern Ireland.—The available information regarding the smelting, rolling, etc., of non-ferrous metals in Northern Ireland in 1930 and 1924 is given on page 416. Separate particulars for aluminium, lead, tin and the other metals dealt with in the present report cannot be given for either year owing to the risk of disclosing information relating to individual firms.

Sub-divisions of the industry.—In the following table the main particulars recorded at the 1930 Census are classified in groups according to the metal with which the firms in each group were chiefly concerned : it should be borne in mind, however, that many of these firms are concerned with more than one metal and that the groupings shown overlap in a considerable degree. Corresponding particulars are added for the year 1924, where possible.

Kind of metal		Number of returns	Gross output	Value of products of metal specified*	Net output	Average number of persons employed	Net output per person employed
		No.	£'000	£'000	£'000	No.	£
Aluminium ...	1930	54	5,789	5,155†	1,893	9,222	205
	1924	...	*4,014*	*3,674†*	*1,538*	*6,647*	*231*
Lead	1930	49	5,097	3,437	919	3,143	292
	1924	...	*9,404*	*6,659*	*1,614*	*5,914*	*273*
Tin	1930	15	9,849	9,455	830	2,406	345
	1924	...	*10,988*	*10,498*	*659*	*1,678*	*393*
Zinc	1930	15	1,106	1,010	253	2,234	113
	1924	...	*1,823*	*1,681*	*474*	*2,138*	*222*
Nickel and nickel alloys	1930	15	3,138	2,460	1,633	2,794	585
	1924	...	*3,193*	*1,807*	*1,192*	*2,855*	*418*
White metal alloys ...	1930	8	436	368	156	662	236
Type metal‡...	1930	12	327	238	225	989	227
Total—White metal alloys and type metal‡ ...	1930	20	763	606	381	1,651	231
	1924	...	*1,822*	*1,424*	*864*	*2,545*	*339*
Other non-ferrous metals§	1930	10	797	332	275	861	319
	1924	...	*516*	*308*	*185*	*589*	*314*
TOTAL ...	1930	178	26,539	22,455	6,184	22,311	277
	1924	*211*	*31,760*	*26,051*	*6,526*	*22,366*	*292*

* Excluding scrap, waste, by-products and chemical compounds such as white lead, tin salts, nickel sulphate, etc.

† Excluding hollow-ware.

‡ Including printing type.

§ Except copper, brass, gold, silver and other precious metals.

Production

Total make.—Both at the 1930 Census and at that of 1924 firms that made returns on schedules for the Aluminium, Lead, Tin, etc., Trades were required to state the total quantity of certain metals made in the year, whether such metals were subsequently used by them for further manufacture or not. The particulars obtained for both years are summarised below. The output of similar products returned on schedules for other trades is included in the 1924 figures and is separately distinguished for 1930.

Kind of metal	1930				1924
	Returned on schedules for				Total
	The Aluminium, Lead, Tin, etc. Trades		All trades		
	Quantity	Entries	Quantity	Entries	Quantity
	Th. tons	No.	Th. tons	No.	Th. tons
Aluminium, crude, in ingots, blocks, billets, notch bars, sticks, wirebar, slabs, alloy and scrap	21·1	15	21·9	20	*
Antimony regulus	1·4	4	1·4	4	1·4
Lead (pig)	72·1	17	72·6	22	60·3
Tin :—					
Blocks, ingots, bars and slabs	47·8	8	47·8	8	38·5
Solder, soft	12·3	18	12·8	24	7·8
Zinc, crude (i.e. cakes, slabs, blocks, etc.)	49·9	9	50·5	12	60·7
White metal alloys :—					
Anti-friction metal ...	1·1	8	3·6	30	5·6

* Not available.

The particulars shown in the above table for aluminium contain an element of duplication, the extent of which is not precisely known. This duplication arises through the inclusion of the same metal at different stages of manufacture. It should also be noted that the figures for both years include remelted metal and metal recovered from scrap and waste, as well as metal smelted from ores.*

Goods sold (or added to stock).—The following table shows the value and, where available, the quantity of the specified metals and manufactures thereof, except chemical compounds, recorded for 1930 and 1924. The remarks made on duplication in the preceding section are applicable also to these figures.

* In the report issued by the Imperial Institute (*The Mineral Industry of the British Empire and Foreign Countries, 1930–32*) the estimated smelter production in 1930 was recorded as: Aluminium, 13,000 tons; Lead, 10,219 tons; Tin, 47,300 tons; Zinc, 48,598 tons.

Kind of goods	1930						1924	
	Returned on schedules for						Total	
	The Aluminium, Lead, Tin, etc., Trades			All trades				
	Quantity	Value	Entries	Quantity	Value	Entries	Quantity	Value
	Th. tons	£'000	No.	Th. tons	£'000	No.	Th. tons	£'000
Aluminium :—								
Crude, in ingots, blocks, billets, notch bars, sticks, wirebar, slabs, alloy and scrap ... Plates, sheets, bars, sections, tubes, wire, strand, etc.	31·2	2,975	18	33·4	3,360	30	19·2	2,461
Manufactures :—								
Castings†	9·9	1,774	35	10·5	1,937	96	8·2	1,746
Other (excluding hollow-ware)‡ ...	1·3	390	13	1·3	402	18	*	135
	*	93	3	*	436	60		
Total—Aluminium and manufactures thereof	...	5,232	...	...	6,135	...	...	4,342
Lead :—								
Pig	45·4	822	14	45·9	829	19	49·0	1,672
Sheet	51·2	1,219	28	51·2	1,219	28	42·4	1,715
Pipes	47·3	1,163	40	47·7	1,171	42	51·0	2,146
Foil	2·1	82	11	2·1	82	11	5·0	259
Other manufactures (except white lead§)	5·6	223	21	5·8	233	28	21·3	910
	*		3	*	123	17	*	472
Total—Lead and manufactures thereof	...	3,576	...	...	3,657	...	...	7,174
Nickel and nickel alloys :—								
Unwrought and wrought (ingots, sheets, strip, plates, wire, etc.)	14·4	2,308	8	15·6	2,487	25	14·2	2,014
Manufactures ...	0·5	126	4	1·7	371	20		
	*	25	1	*	139	6		
Total—Nickel and nickel alloys and manufactures thereof	...	2,459	...	...	2,997	...	14·2	2,014
Tin :—								
Blocks, ingots, bars and slabs ...	47·8	8,439	8	47·8	8,439	8	38·5	9,478
Solder, soft ...	12·3	1,042	18	12·7	1,082	24	7·8	1,052
Foil	0·9	233	5	0·9	233	5	0·9	314
Other manufactures	0·3	85	10	0·4	111	14	0·5	128
	*	16	1	*	16	1	*	68
Total—Tin and manufactures thereof ...	...	9,815	...	...	9,881	...	...	11,040

Kind of goods	1930						1924	
	Returned on schedules for							
	The Aluminium, Lead, Tin, etc., Trades			All trades			Total	
	Quantity	Value	Entries	Quantity	Value	Entries	Quantity	Value
	Th. tons	£'000	No.	Th. tons	£'000	No.	Th. tons	£'000
Zinc :—								
Crude (i.e., cakes, slabs, blocks, etc.)	49·9	883	9	50·3	889	12	60·7	2,048
Rolled sheets, plates and discs (excluding printing plates) and other manufactures ...	4·6	182	13	5·2	206	26	5·2	229
	*	10	1	*	149	17	*	17
Total—Zinc and manufactures thereof ...	...	1,075	...	...	1,244	...	...	2,294
White metal alloys (other than soft solder), unwrought or partly wrought:—								
Anti-friction metal	1·1	158	8	3·6	439	30	5·1	800
Type metal... ...	3·7	113	6	3·8	120	9	5·6	255
Other sorts ...	4·6	219	16	4·6	223	29	1·9	152
	*	91	5	*	92	7	*	335
Total—White metal alloys	...	581	...	...	874	...	...	1,542
Other non-ferrous metals (except copper, brass, and precious metals), unwrought, wrought and manufactured :—								
Printing type ...	0·7	198	10	0·8	203	12	0·9	363
Antimony regulus and manufactures of antimony ...	2·5	96	5	2·5	98	6	5·3	568
Other sorts (including metallic bismuth and tungsten)	1·0	189	8	1·0	190	10	*	57
	*	104	2	*	163	6		
Manufactures of unclassified metals ...	—	—	—	...	257	...	...	714
TOTAL — PRINCIPAL PRODUCTS	...	23,325	...	...	25,699	...	...	30,108

* Quantity not stated.
† So far as separately recorded.
‡ The production of aluminium hollow-ware is dealt with in the report on the Hardware, Hollow-ware, etc., Trade (see pages 93–96).
§ The total make of white lead (basic carbonate), together with the output sold (or added to stock), is dealt with in the report on the Paint, Colour and Varnish Trade which forms part of a separate volume.

Prices.—The average selling values of certain classes of non-ferrous metals in 1930 and 1924, as calculated from the Census returns, are shown in the following table. So far as the miscellaneous headings are concerned it should be borne in mind that these comparisons do not take account of any differences in the kinds of goods included in these headings.

Kind of goods	Average value		1930 as a percentage of 1924
	1930	1924	
	£ per ton	£ per ton	Per cent.
Aluminium :—			
Crude, in ingots, blocks, etc. ...	82·4	109·3	75·4
Plates, sheets, bars, sections, etc.	126·8	161·9	78·3
Lead :—			
Pig	18·1	34·1	53·1
Sheet	23·8	40·4	58·9
Pipes	24·6	42·1	58·4
Foil	39·7	51·4	77·2
Other manufactures (except white lead)	40·3	42·7	94·4
Tin :—			
Blocks, ingots, bars and slabs ...	176·6	246·5	71·6
Solder, soft...	84·9	134·6	63·1
Foil	261·3	334·2	78·2
Other manufactures	277·7	250·3	111·0
Zinc :—			
Crude (i.e., cakes, slabs, blocks, etc.)	17·7	33·8	52·4
Manufactures (including rolled sheets, plates and discs but excluding printing plates) ...	39·8	44·4	89·6
White metal alloys :—			
Anti-friction metal	123·3	157·3	78·4
Type metal	31·8	45·8	69·4
Other sorts	48·4	79·7	60·7
Other non-ferrous metals :—			
Printing type	265·8	394·0	67·5

Volume of production in 1930 and 1924.—The following table compares the volume of production of aluminium, lead, tin, etc., and manufactures thereof in 1930 and 1924. In particular connection with the increases shown for certain manufactures of these metals, it should be noted that in 1924 the unclassified output was considerably larger than in 1930.

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.
Aluminium :—				
Crude, in ingots, blocks, billets, notch bars, sticks, wirebar, slabs, alloy and scrap...	3,360	2,461	1,888	178
Plates, sheets, bars, sections, tubes, wire, strand, etc.				
Other manufactures (except hollow-ware)	2,775	1,881	1,754	158
Total—Aluminium and manufactures thereof	6,135	4,342	3,642	168
Lead :—				
Pig	829	1,672	888	93
Sheet	1,219	1,715	1,010	121
Pipes	1,171	2,146	1,253	93
Foil	82	259	200	41
Other manufactures (except white lead)	356	1,382	1,305	27
Total—Lead and manufactures thereof	3,657	7,174	4,656	79
Nickel and nickel alloys and manufactures thereof	2,997	2,014	2,380	126
Tin :—				
Blocks, ingots, bars and slabs ...	8,439	9,478	6,786	124
Solder, soft	1,082	1,052	664	163
Foil	233	314	246	95
Other manufactures	127	196	218	58
Total—Tin and manufactures thereof	9,881	11,040	7,914	125
Zinc :—				
Crude	889	2,048	1,073	83
Rolled sheets, plates, etc., and other manufactures	355	246	202	176
Total—Zinc and manufactures thereof	1,244	2,294	1,275	98

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.
White metal alloys :—				
Anti-friction metal	439	800	627	70
Type metal	120	255	177	68
Other sorts	315	487	296	106
Total—White metal alloys ...	874	1,542	1,100	79
Other non-ferrous metals :—				
Printing type	203	363	245	83
Other sorts	451	625	418	108
Manufactures of unclassified metals	257	714	525*	†
TOTAL	25,699	30,108	22,155	116

* Based on the average value of all preceding items.
† This figure would have no significance.

Production, exports and imports.—In the following table the exports and retained imports of the chief classes of non-ferrous metals in 1930 and 1924 are compared with the recorded production in each year. It should be noted, in any comparisons of the figures, that while the 1930 particulars of production relate only to the output of firms in Great Britain that employed an average of more than ten persons, those for 1924 relate to *all* firms, including those in Northern Ireland.

Kind of goods		Production	Exports	Proportion of production exported	Retained imports	Available for use in the United Kingdom	Share of home market held by British products
		Th. tons	Th. tons	Per cent.	Th. tons	Th. tons	Per cent.
Aluminium (in ingots, blocks, billets, notch bars, etc., and plates, sheets, bars, sections, etc.) ...	1930	33·4	7·9	*	23·7	*	*
	1924	*19·3*	*4·5*	*	*12·2*	*	*
Antimony regulus	1930	1·4	0·5	39·4	3·6	4·5	18·5
	1924	†	*0·6*	...	*3·5*	...	...
Lead :—							
Pig	1930	72·6	3·8	*	286·2	*	*
	1924	*61·5*	*9·4*	*	*223·7*	*	*
Sheet	1930	51·2	4·4	8·6	7·9	54·7	85·5
	1924	*42·7*	*5·5*	*12·9*	*4·3*	*41·5*	*89·6*
Pipes	1930	47·7	1·6	3·4	6·0	52·1	88·5
	1924	*55·9*	*1·4*	*2·5*	*1·6*	*56·1*	*97·2*
Foil	1930	2·1	‡	1·4	‡	2·1	99·0
	1924	*5·1*	‡	*0·5*	‡	*5·1*	*99·4*

Kind of goods		Production	Exports	Proportion of production exported	Retained imports	Available for use in the United Kingdom	Share of home market held by British products
		Th. tons	Th. tons	Per cent.	Th. tons	Th. tons	Per cent.
Nickel and nickel alloys, unwrought and wrought (pellets, cubes, rondels, ingots, sheets, strip, plates, wire, etc.)	1930	15·6	5·3	*	1·7	*	*
	1924	*15·8*§	*6·6*	*	*0·7*	*	*
Tin :—							
Blocks, ingots, bars and slabs	1930	47·8	22·9	47·9	4·3	29·2	85·2
	1924	*38·5*	*18·1*	*47·1*	*5·9*	*26·3*	*77·6*
Solder, soft ...	1930	12·8	2·8	21·8	‡	10·0	99·6
	1924	*8·7*	*1·1*	*12·4*	*0·2*	*7·8*	*98·1*
Foil	1930	0·9	0·3	33·9	0·3	0·9	68·1
	1924	*1·0*	*0·5*	*46·8*	*0·4*	*0·9*	*55·7*
Zinc, crude (i.e cakes, slabs, blocks, etc.) ...	1930	50·5	3·9	7·6	130·6	177·2	26·3
	1924	*62·1*	*6·1*	*9·9*	*118·5*	*174·5*	*32·1*
White metal alloys :—							
Anti-friction metal ...	1930	3·6	1·9	53·4	0·1	1·8	95·8
	1924	*5·7*	*2·0*	*34·8*	*0·1*	*3·8*	*97·4*
Type metal ...	1930	3·8	1·6	43·6	‡	2·2	98·1
	1924	*6·0*	*0·9*	*14·3*	*0·1*	*5·2*	*98·6*

* Owing to duplication, arising in part from the inclusion of remelted metal, in the particulars of production no reliable figures can be inserted here.
† Not available.
‡ Less than 50 tons.
§ Including some manufactures of nickel.

Work done for the trade, etc.—The total amount recorded as received for work done for the trade and repair work was £256,000 in 1930, the corresponding total for 1924 being £226,000. The items included in these totals were as follows :—

Kind of work done	1930	1924
	Amount received	Amount received
	£'000	£'000
Rolling of copper	7	8
Casting and rolling of brass and other copper alloys		
Rolling of nickel alloys	45*	124†
Other work (including repair work)	204	94
TOTAL	256	226

* Including £24,000 returned on schedules for other trades.
† Including £45,000 returned on schedules for other trades.

Other products.—In addition to the output shown in the table of principal products on pages 435-6, the following goods were produced in 1930 and 1924 by firms that made their returns on schedules for the Aluminium, Lead, Tin, etc., Trade. These goods are dealt with in the reports on those trades in which the principal output was recorded.

Kind of goods	1930		1924	
	Quantity	Value	Quantity	Value
	Th. tons	£'000	Th. tons	£'000
Copper and manufactures thereof:—				
Finished copper goods	...	37	†	†
Other manufactures of copper (except copper sulphate) ...	0·1	9	0·1	6
Brass and other alloys of copper and manufactures thereof :—				
Ingots and castings	2·2	132	3·7	422
	*	7		
Finished brass goods	...	74		
Other goods (including sheet and strip, wire and tubes)... ...	1·5	129		
	*	14		
	Th. ozs. troy		Th. ozs. troy	
Gold, silver and other precious metals and manufactures thereof	397	39	1,999	556
			*	183
Chemical manufactures :—				
	Th. cwts.		Th. cwts.	
White lead (basic carbonate) ...	120	199	550	1,175
	Th. tons		Th. tons	
Litharge	2·2	72		
Other lead compounds, including red lead and orange lead ...	9·6	267	26·2	614
			*	97
Other chemicals (including copper sulphate, cobalt compounds, tin compounds, etc.)	26·0	521		
	*	121		
Manufactures of iron and steel ...	2·7	331	...	655
	*	40		
Machinery and parts	...	21		
Other goods made	...	333		
TOTAL	...	2,346	...	3,708

* Quantity not stated. † Not separately recorded.

Waste and by-products sold.—The following sales of scrap and other waste and by-products (including some metal scrap purchased and graded, etc., for re-sale) were recorded by firms in this trade in 1930 and 1924 :—

Metal scrap and by-products	1930		1924	
	Quantity	Value	Quantity	Value
	Th. tons	£'000	Th. tons	£'000
Scrap of :—				
Copper and brass	7·1	309	3·1	145
Iron and steel	74·3	154	...	177
Aluminium*	0·9	28	} 4·6	133
Lead	2·0	12		
Other and unclassified metals ...	0·4	13		
Concentrates, residues, scale, etc. ...	...	120	...	125
TOTAL	...	636	...	580

* So far as separately recorded.

Employment and Wages

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

Persons employed	Males		Females		Total	
	Under 18	All ages	Under 18	All ages	Under 18	All ages
1930						
Operatives (average for the year)	1,341	17,206	604	2,025	1,945	19,231
Administrative, technical and clerical staff (as at 18th October)	196	2,367	103	713	299	3,080
TOTAL	1,537	19,573	707	2,738	2,244	22,311
1924						
Operatives (average for the year)	1,552	16,906	779	2,905	2,331	19,811
Administrative, technical and clerical staff (as at 18th October)	142	2,007	70	548	212	2,555
TOTAL	1,694	18,913	849	3,453	2,543	22,366

Wages.—The available information as to the amount of wages paid in 1930 and 1924 is given on pages 406 and 407.

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	10,502	5,241	15,743	13,173	2,952	16,125
Steam turbines ...	360	—	360	—	—	—
Internal combustion engines :—						
Gas	1,011	394	1,405	1,812	1,040	2,852
Petrol, kerosene, or other light oils ...	86	8	94	18	—	18
Heavy oils	431	36	467	—	50	50
Water engines ...	36,045	5,725	41,770	47,855	150	48,005
TOTAL	48,435	11,404	59,839	62,858	4,192	67,050
ELECTRIC GENERATORS	Kw.	Kw.	Kw.	Kw.	Kw.	Kw.
Driven by						
Reciprocating steam engines	3,604	3,384	6,988	5,580	1,964	7,544
Steam turbines ...	300	—	300	—	—	—
Internal combustion engines :—						
Gas	309	250	559	268	605	873
Heavy oils ...	251	63	314	—	35	35
Water engines ...	24,135	3,663	27,798	30,929	29	30,958
TOTAL	28,599	7,360	35,959	36,777	2,633	39,410
ELECTRIC MOTORS	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
Driven by						
Electricity generated in same works ...	13,305	3,728	17,033	15,282	2,096	17,378
Electricity generated in other works under same ownership	360	—	360	—	—	—
Purchased electricity	55,544	9,865	65,409	34,521	3,920	38,441
TOTAL	69,209	13,593	82,802	49,803	6,016	55,819

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	60,305	265,263*	2,750
Coke	910	33,375*	1,500
			B.T.U. (Kw.-hrs.) '000
Electricity used for all purposes :—			
Generated in same works			165,498
Generated in other works under same ownership			363
Purchased			218,140
TOTAL—Electricity			384,001

* These figures were recorded by firms representing 96·1 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	24,974	1,565	26,539
Cost of materials used	,,	19,261	1,030	20,291
Paid for work given out to other firms	,,	64	—	64
Net output	,,	5,649	535	6,184
Average number of persons employed...	No.	20,633	1,678	22,311
Net output per person employed ...	£	274	319	277
Power available :—				
Prime movers	H.P.	17,762	42,077	59,839
Electric motors driven by purchased electricity	,,	59,067	6,342	65,409

II. Production

A.—TOTAL MAKE OF CERTAIN NON-FERROUS METALS AS RETURNED ON SCHEDULES FOR THE ALUMINIUM, LEAD, TIN, ETC. (SMELTING, ROLLING, ETC.) TRADE

Non-ferrous metals	Great Britain*
	Tons
Aluminium, crude, in ingots, blocks, billets, notch bars, sticks, wirebar, slabs, alloy and scrap	21,056
Antimony regulus	1,354
Lead (pig)	72,088
Tin :—	
Blocks, ingots, bars and slabs	47,813
Soft solder	12,270
Zinc, crude, in cakes, slabs, blocks, etc.	49,919
White metal alloys (other than soft solder) :—	
Anti-friction metal	1,147

* Owing to the possible disclosure of information relating to individual firms, detailed particulars of the output in Scotland cannot be given.

B.—Output sold or added to stock and work done

Kind of goods made and work done	Great Britain‡	
	Quantity	Value
	Th. tons	£'000
Aluminium :—		
Crude, in ingots, blocks, billets, notch bars, sticks, wirebar, slabs, alloy and scrap	31·2	2,975
Plates, sheets, bars, sections, tubes, wire, strand, etc.		
Manufactures of aluminium :—		
Castings†	9·9	1,774
Other (excluding hollow-ware)	1·3	390
	*	93
Total—Aluminium and manufactures thereof ...	...	5,232
Antimony regulus and manufactures of antimony ...	2·5	96
Lead :—		
Pig	45·4	822
Sheet	51·2	1,219
Pipes	47·3	1,163
Foil	2·1	82
Other manufactures (except white lead) ...	5·6	223
	*	67
Total—Lead and manufactures thereof	...	3,576
Nickel and nickel alloys :—		
Unwrought and wrought (ingots, sheets, strip, plates, wire, etc.)	14·4	2,308
Manufactures of nickel and nickel alloys ...	0·5	126
	*	25
Total—Nickel and nickel alloys and manufactures thereof	...	2,459
Tin :—		
Blocks, ingots, bars and slabs	47·8	8,439
Solder, soft	12·3	1,042
Foil	0·9	233
Other manufactures of tin (except tin salts)	0·3	85
	*	16
Total—Tin and manufactures thereof	...	9,815
Zinc :—		
Crude (i.e., cakes, slabs, blocks, etc.)	49·9	883
Rolled sheets, plates and discs (excluding printing plates) and other manufactures of zinc ...	4·6	182
	*	10
Total—Zinc and manufactures thereof	...	1,075

Kind of goods made and work done	Great Britain‡	
	Quantity	Value
	Th. tons	£'000
White metal alloys (other than soft solder), unwrought or partly wrought :—		
Anti-friction metal	1·1	158
Type metal	3·7	113
Other sorts	4·6	219
	*	91
Total—White metal alloys	...	581
Other non-ferrous metals (except copper, brass, and precious metals), unwrought, wrought and manufactured :—		
Printing type	0·7	198
Other sorts (including metallic bismuth and tungsten powder)	1·0	189
	*	104
Total—Other non-ferrous metals	...	491
Total—Non-ferrous metals and manufactures thereof (except copper, brass and precious metals) ...	...	23,325
Copper and manufactures thereof :—		
Finished copper goods†	...	37
Other manufactures of copper (except copper sulphate)	0·1	9
Brass and other alloys of copper and manufactures thereof :—		
Ingots and castings†	2·2	132
	*	7
Finished brass goods†	...	74
Other goods (including sheet and strip, wire and tubes)	1·5	129
	*	14
Gold, silver and other precious metals and manufactures thereof	Th. oz. troy 397	39
Chemical manufactures :—	Th. cwts.	
White lead (basic carbonate)	120	199
	Th. tons	
Litharge†	2·2	72
Other lead compounds, including red lead and orange lead†	9·6	267
Other chemicals (including copper sulphate, cobalt compounds, tin compounds, etc.)	26·0	521
	*	121
Manufactures of iron and steel	2·7	331
	*	40
Machinery and parts	...	21
Other goods made	...	333
Scrap, waste and by-products sold :—		
Aluminium scrap†	0·9	28
Lead scrap†	2·0	12
Copper and brass scrap	7·1	309
Iron and steel scrap	74·3	154
Other and unclassified metal scrap	0·4	13
Concentrates, residues, scale, etc.	...	120
Total value of goods made	...	26,307

Kind of goods made and work done	Great Britain‡
	Amount received £'000
Work done for the trade, etc.:—	
Rolling of copper, Casting and rolling of brass and other copper alloys	7
Rolling of nickel alloys	21
Other work (including repair work)	204
TOTAL AMOUNT RECEIVED FOR WORK DONE	232
TOTAL VALUE OF GOODS MADE AND WORK DONE (GROSS OUTPUT)	26,539

‡ Owing to the possible disclosure of information relating to individual firms, detailed particulars of the output in Scotland cannot be given.

† So far as separately recorded.

* Quantity not stated.

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
England and Wales:—						
Operatives	1,199	14,806	534	1,778	1,733	16,584
Administrative, etc.* ...	190	2,206	101	671	291	2,877
TOTAL	1,389	17,012	635	2,449	2,024	19,461
Scotland:—						
Operatives	54	1,274	31	115	85	1,389
Administrative, etc.* ...	6	161	2	42	8	203
TOTAL	60	1,435	33	157	93	1,592
Great Britain:—						
Operatives	1,253	16,080	565	1,893	1,818	17,973
Administrative, etc.* ...	196	2,367	103	713	299	3,080
TOTAL	1,449	18,447	668	2,606	2,117	21,053

* 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 ...	18,636	1,493	20,129	July 19 ...	17,677	1,460	19,137
Feb. 15 ...	18,699	1,481	20,180	Aug. 16 ...	17,311	1,520	18,831
Mar. 15 ...	18,590	1,479	20,069	Sept. 13...	17,090	1,408	18,498
Apl. 12 ...	18,507	1,580	20,087	Oct. 18 ...	16,584	1,389	17,973
May 17 ...	18,409	1,584	19,993	Nov. 15...	16,721	1,415	18,136
June 21 ...	18,025	1,534	19,559	Dec. 13 ...	16,822	1,352	18,174
AVERAGE FOR THE 12 MONTHS					17,756	1,475	19,231

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	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
Reciprocating steam engines	10,232	5,241	270	—	10,502	5,241
Steam turbines ...	360	—	—	—	360	—
Internal combustion engines:—						
Gas	969	394	42	—	1,011	394
Petrol, kerosene, or other light oils ...	86	8	—	—	86	8
Heavy oils	431	36	—	—	431	36
Water engines ...	—	5	36,045	5,720	36,045	5,725
TOTAL	12,078	5,684	36,357	5,720	48,435	11,404
TOTAL OF PRIME MOVERS INSTALLED	17,762		42,077		59,839	
ELECTRIC GENERATORS Driven by	Kw.	Kw.	Kw.	Kw.	Kw.	Kw.
Reciprocating steam engines	3,604	3,384	—	—	3,604	3,384
Steam turbines ...	300	—	—	—	300	—
Internal combustion engines:—						
Gas	285	250	24	—	309	250
Heavy oils ...	251	63	—	—	251	63
Water engines ...	—	—	24,135	3,663	24,135	3,663
TOTAL	4,440	3,697	24,159	3,663	28,599	7,360
TOTAL OF ELECTRIC GENERATORS INSTALLED	8,137		27,822		35,959	

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
ELECTRIC MOTORS Driven by	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
Electricity generated in same works ...	12,134	3,636	1,171	92	13,305	3,728
Electricity generated in other works under same ownership	360	—	—	—	360	—
Purchased electricity	49,760	9,307	5,784	558	55,544	9,865
TOTAL	62,254	12,943	6,955	650	69,209	13,593
TOTAL OF ELECTRIC MOTORS INSTALLED	75,197		7,605		82,802	

V. Consumption of fuel

Kind of fuel used	England and Wales	Scotland	Great Britain
	Tons	Tons	Tons
Coal used for power*	59,435	870	60,305
Coke used for power*	910	—	910
	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	†	†	165,498
Generated in other works under same ownership	†	†	363
Purchased	†	†	218,140
TOTAL—Electricity ...	†	†	384,001

* In addition, 2,750 tons of coal and 1,500 tons of coke (all in England and Wales) were recorded as used for power and for other purposes, not separately distinguished.

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