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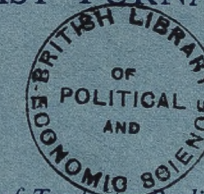
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*The Report on the  
Census of Production  
for 1954*

Volume 3 : Industry A

BLAST FURNACES



*Presented by the Board of Trade to Parliament in pursuance of the  
Statistics of Trade Act, 1947 (10 & 11 Geo. 6 Ch. 39, Sec. 7)*

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# The Report on the Census of Production for 1954

VOLUME 3 INDUSTRY A

## BLAST FURNACES

THIS REPORT on Blast Furnaces relates to establishments engaged wholly or mainly in iron smelting and the manufacture of pig iron, ferro-manganese and spiegeleisen.

This industry corresponds to minimum list heading 40 in the Standard Industrial Classification.

There were no larger establishments in Northern Ireland in the register for this industry.

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IMPORTANT NOTES and definitions appear on the next page. In interpreting the data in the tables, it is essential to bear these in mind.

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The following notes describe terms in general use in the tables of the report. More detailed explanations of the terms used and a description of the scope and method of taking the census are given in the separate booklet entitled 'The Report on the Census of Production for 1954 - Introductory Notes' (price 1s. 6d. net).

**Industrial Classification:** Establishments are classified to industries according to the nature of their output and, as far as possible, in conformity with the Standard Industrial Classification. Certain products are identified as the principal products of individual industries, the principal products for a given industry being of a similar nature or commonly associated in production. The principle of classification normally followed is that an establishment is classified to an industry if its output of the principal products of that industry accounted for a greater proportion of the value of its output than did its output of the principal products of any other industry.

**Specialist producers** normally comprise those establishments 50 per cent. or more of whose total output by value is accounted for by the characteristic products of the specialist group.

**Intermediate products:** For some industries figures are given showing the total quantities made during the year of intermediate products, i.e., products which may be further processed in the establishments in which they are produced.

**Larger establishments:** The information given in the report relates mainly to 'larger establishments', i.e., establishments of firms employing on the average more than 10 persons. In most cases an establishment comprises the whole of the premises under the same ownership or management at a particular address (e.g., a mine or factory). Offices, warehouses, laboratories and other ancillary places of business situated apart from the producing works are not regarded as separate establishments and are included in the return for the works.

**Small firms** are those employing on the average 10 or fewer persons.

The estimates for the industry as a whole given in Table 1 are normally obtained by increasing the other items shown in the same proportion as total employment.

**Gross output (production)** is the total value of goods made and other work done during the year: it is obtained by adjusting the value of sales and work done during the year for changes in the value of stocks of products on hand for sale and work in progress.

**Net output** is the amount left after deducting from the value of gross output the aggregate of the cost of materials and fuel used, the amount paid for work given out and, for 1951 and 1954, any transport payments made. This represents the value added to materials by the process of production, and constitutes the fund from which wages, salaries, rents, rates and taxes, advertising and other selling expenses and all other similar charges have to be met, as well as depreciation and profits.

**Sales** means sales during the year of goods made in the establishment covered by the return or made on commission for it, whether produced in the year or not. The value of sales is the net selling value, i.e., the amount charged to customers, whether on an ex-works or delivered basis, and net of any trade discounts, agents' commissions, allowances for returnable cases, purchase tax, etc. For goods charged on a delivered basis to customers overseas, firms were required to give the f.o.b. value.

**Materials and fuel:** The total cost of materials and fuel purchased includes all purchases during the year of materials for use in production, and of fuel (includ-

ing oil, gas and electricity) for all purposes; packing materials, including the full cost of returnable cases when first purchased; workshop and office materials; water charges; materials for repairs to buildings, plant and vehicles when carried out by firms' own work-people included in their returns; consumable tools; and parts for machinery purchased as replacements. Purchases of goods for merchandising are excluded. The cost of materials and fuel used, given in Table 2, is obtained by adjusting purchases for changes during the year in the value of stocks.

**Stocks:** Firms were required to give stocks of materials and fuel, products on hand for sale, and work in progress, at income tax values.

**Customs and Excise Duty** paid on materials purchased is normally included in the cost of materials. Finished goods are similarly valued as they were sold, duty-paid or duty-free. The net amount of any duty paid is deducted in arriving at net output.

**Employment:** Total employment includes working proprietors, administrative, technical and clerical employees, and operatives, but excludes outworkers, canteen employees and persons engaged in merchandising or any other activity not covered by a firm's return, who are shown separately as excluded employees. Employees are persons on the pay-roll (i.e., persons whose National Insurance cards were held by employers), whether employed full-time or part-time.

**Working proprietors** are proprietors of businesses other than limited companies, together with members of their families who worked in the business without receiving fixed wages or salaries. Any persons working less than half the normal hours are excluded. For Northern Ireland directors of limited companies (other than those paid by fee only) are also included.

**Administrative, technical and clerical employees** include directors, other than those paid by fee only (except in Northern Ireland); managers, superintendents and works foremen; research, experimental, development, technical and design employees (other than operatives); draughtsmen and tracers; travellers; and office (including works office) employees.

**Operatives** include all other classes of employees, i.e., broadly speaking, all manual workers.

**Outworkers** are persons employed by the firm who work on materials supplied by the firm in their own homes.

**Wages and salaries** include all overtime payments, bonuses and commissions without any deductions for income tax, insurances, contributory pensions etc. They exclude payments to working proprietors.

**Capital expenditure** includes expenditure on new building work, and on plant, machinery and vehicles, charged to capital account during the year, including any transport and installation costs involved. It includes expenditure in respect of establishments in Great Britain which had not begun production before the end of the year (which has not previously been included in the Census of Production reports for individual industries).

**Symbols used:**

- .. for not available
- for nil or negligible (less than half the final digit shown).

Where figures are rounded, e.g., given to the nearest £ thousand, there may be apparent slight discrepancies between the sums of constituent items and the totals shown. In some cases, figures have been combined with others of a similar nature where publication of separate details might disclose information relating to an individual undertaking.

Industry summary  
Estimates for the industry as a whole

TABLE 1

	United Kingdom			Scotland 1954	Wales 1954
	1948	1951	1954		
Gross output (production)	£ million 91.9	£ million 121.9	£ million 201.9	£ million ..	£ million ..
Net output	19.0	21.1	35.1	..	..
Total stocks and work in progress					
At beginning of year	5.6	8.7	17.2	..	..
Change during year	+ 0.7	- 0.3	+ 1.2	..	..
Capital expenditure less disposals (b)	3.1	5.1	20.1	..	..
Wages and salaries	10.6	12.6	16.9	..	..
Total employment (including working proprietors)	Thousands 27.3	Thousands 27.8	Thousands 31.2	Thousands ..	Thousands ..

(a) Owing to the risk of disclosure of information relating to individual firms separate figures cannot be given.

(b) Capital expenditure on new building work, plant, machinery and vehicles (including (except in 1948) that incurred in Great Britain for establishments not yet in production), less amounts received for plant, machinery and vehicles disposed of.

## Summary of returns received

TABLE 2

	Unit	Great Britain 1948	United Kingdom	
			1951	1954
<b>FIRMS EMPLOYING ON AVERAGE MORE THAN 10 PERSONS</b>				
Number of establishments	No.	51	46	47
Total value of sales and work done	£'000	94,111	122,563	200,843
Products on hand for sale	"	1,425	2,546	3,976
and work in progress	"	- 123	- 704	+ 1,071
Gross output (production) (a)	"	91,906	121,860	201,914
Purchases of materials and fuel	"	73,677	94,949	157,424
Stocks of materials and fuel	"	4,126	6,108	13,226
at beginning of year	"	+ 799	+ 386	+ 101
change during year	"	72,878	94,563	157,473
Cost of materials and fuel used	"	70	156	157,473
Payment for work done on materials given out	"	2,083	6,046	9,311
Payment for transport (b)	"	18,958	21,094	35,130
Net output	"	23,629 (c)	23,864	26,778
Average number of employees	{ operatives	3,628	3,931	4,407
Total employment	{ others	27,257	27,795	31,185
Net output per person employed	"	£ 696	759	1,127
Wages and salaries	{ of operatives	£'000 8,994	10,530	14,303
	{ of others	1,602	2,071	2,633
Capital expenditure				
New building work (d)	"	589	805	1,315
Plant and machinery	{ acquisitions (d)	2,853	4,277	15,849
	{ disposals	115	28	36
Vehicles	{ acquisitions (d)	80	79	124
	{ disposals	265	11	11
<b>FIRMS EMPLOYING ON AVERAGE 10 OR FEWER PERSONS</b>				
Number of returns	No.	-	-	-
Total employment, including working proprietors	"	-	-	-

(a) For the year 1948 gross output excludes payments for transport services outwards on finished goods sold. For subsequent years gross output includes payments to other firms and undertakings and to firms' own separate transport organisations for transport services.

(b) Payments to other firms and undertakings and to firms' own separate transport organisations. For the year 1948 payments cover only transport outwards of finished goods sold. For subsequent years they cover payments for transport of both finished goods sold and materials and fuel purchased.

(c) Number in week ended September 25, 1948.

(d) Excluding expenditure for establishments not yet in production.



## BLAST FURNACES

Analysis by size, 1954

Larger establishments in the United Kingdom

TABLE 3

Average number employed	Estab-lish-ments	Gross output	Net output	Employees		Wages and salaries		Capital expenditure (a)	Net output per person employed
				Operatives	Others	Operatives	Others		
	Number	£'000	£'000	Number	Number	£'000	£'000	£'000	£
11 - 99	3	653	137	137	18	76	14	7	882
100 - 199	4	2,745	497	540	82	293	47	14	798
200 - 299	4	6,219	1,311	757	91	418	46	14	1,546
300 - 499	12	36,091	4,931	4,120	627	2,226	398	3,902	1,039
500 - 749	10	35,307	5,350	5,591	715	2,838	437	2,164	848
750 - 999	6	40,195	5,499	4,165	866	2,194	457	2,836	1,093
1,000 and over	8	80,704	17,407	11,468	2,008	6,258	1,233	8,353	1,292
Total	47	201,914	35,130	26,778	4,407	14,303	2,633	17,289	1,127

(a) Capital expenditure on new building work and on acquisition of plant, machinery and vehicles. Excluding expenditure for establishments not yet in production.

TABLE 4 - Analysis according to specialisation within the industry, 1954

Larger establishments in the United Kingdom

No specialisation within this industry was distinguished.

Sales of the principal products of the industry, including sales of these products by establishments classified to other industries

Larger establishments in the United Kingdom

TABLE 5

	1951		1954		
	Quantity	Value	Quantity	Value	Entries
	Th. tons	£'000	Th. tons	£'000	Number
Pig iron					
Forge and foundry	1,563.3	17,087	1,537.5	22,975	19
Hematite	1,326.6	17,091	1,416.0	25,384	10
Basic	6,713.8	71,230	8,727.6	124,923	28
Total pig iron	9,603.7	105,408	11,681.1	173,282	..
Spiegeleisen and ferro-manganese	156.9	5,231	199.0	9,897	10
Direct iron castings	12.1	244	11.8	316	7
Waste products					
Blast furnace slag	2,214.1(a)	665(b)	2,595.0	778	32
			..	150	
Other waste products	369.2	242	410.9	588	14
	..	40			
Total		111,829		185,011	..
Sales in other industries (see Table 6)		362		687	..
Principal products of this industry sold by establishments in the industry		111,466		184,324	45

(a) In 1951 this was shown as slag.  
(b) So far as recorded separately.

## BLAST FURNACES

Sales of principal products of the industry by establishments classified to other industries

Larger establishments in the United Kingdom

TABLE 6

	1954			Principal industries in which produced (a)
	Quantity	Value	Entries	
	Th. tons	£'000	Number	
Ferro-manganese	5.6	630	6	3B and 3G
Blast furnace slag	..	57	..	3I
Total		687	..	

(a) The volume number and industry references given are to the industries shown in the list at the back of this report.

Sales in the industry of other than principal products

Larger establishments in the United Kingdom

TABLE 7

	1954	
	Quantity	Value
	Th. tons	£'000
Coke breeze	32.0	66
Electricity sold	Mn. kWh. 601	2,043
Gas sold	Mn. cu. ft. 28,558	456
Steam sold	Th. therms 587,689	9,034
Other goods	..	787
	..	4,132
Total		16,519

TABLE 8 - Total make of intermediate products

Larger establishments in the United Kingdom

This table is not applicable to the industry.



## BLAST FURNACES

Purchases of materials and fuel, 1954  
Larger establishments in the United Kingdom

TABLE 9

	Quantity	Cost
	Th. tons	£'000
<b>Materials</b>		
Iron ore		
Imported	10,673.5	44,516
Home produced	15,237.8	11,113
Limestone	2,745.7	2,260
Cinder and scale	534.9	1,314
Manganese ore	454.3	6,783
Iron and steel scrap	823.6	4,538
Refractories	58.0	324
	..	332
Replacement parts for own machinery, plant and vehicles		3,043
Consumable tools bought as replacements, including engineers' small tools, jigs, fixtures and measuring instruments		852
All other purchased materials		7,277
<b>Fuel and electricity</b>		
Coal	306.6	1,066
Coke	12,971.2	70,750
Liquid fuels (including creosote/pitch mixtures)		
For use in internal combustion engines	Th. gal.	
Motor spirit (petrol) for use in road vehicles and derv. fuel	329	48
Other	201	17
For burning in furnaces, boilers, kilns, etc.	6,201	255
Gas purchased (a)	Th. therms	
From Gas Boards	160	7
From other sources, including other departments of the same firms	4,223 Mn. cu. ft. 4,075	89 284
Electricity purchased (b)	Th. kWh.	
From Electricity Boards	255,420	873
From other sources, including other departments of the firms	197,182	831
All other purchased fuel		854
<b>Total Cost</b>		<b>157,424</b>

(a) The total quantity of gas produced amounted to 2,156,722 Th.therms of which 1,523,121 Th.therms were consumed in the same works.

(b) The total quantity of electricity generated in firms' own establishments in this industry in 1954 was 1,019 Mn.kWh.

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## BLAST FURNACES

Average number of employees, and wages, salaries and superannuation payments (a)

Larger establishments in the United Kingdom

TABLE 10

	1951	1954
	Number	Number
<b>Average number of employees</b>		
Operatives	23,864	26,778
Administrative, technical and clerical employees	3,931	4,407
<b>Total</b>	<b>27,795</b>	<b>31,185</b>
<b>Wages and salaries paid to</b>	<b>£'000</b>	<b>£'000</b>
Operatives	10,530	14,303
Administrative, technical and clerical employees	2,071	2,633
<b>Total</b>	<b>12,601</b>	<b>16,936</b>
<b>Wages and salaries per head</b>	<b>£</b>	<b>£</b>
Operatives	441	534
Administrative, technical and clerical employees	527	597
<b>Superannuation and other pension funds for employees and dependents</b>		<b>£'000</b>
Employers' contributions	..	201
<b>Employees covered</b>	..	<b>Number</b> 7,672
<b>Pension, etc. payments to former employees and dependents (b)</b>	..	<b>£'000</b> 43

(a) The following persons, not included above, were also employed by larger establishments in this industry ('other workers' includes, for example, employees engaged in merchanting)

	Number	
	1951	1954
<b>United Kingdom</b>		
Canteen workers		
Males	25	20
Females	135	126
<b>Total</b>	<b>160</b>	<b>146</b>
Other workers		
Males	33	50
Females	75	46
<b>Total</b>	<b>108</b>	<b>96</b>
<b>Total excluded employees</b>	<b>268</b>	<b>242</b>

(b) The figures given relate to larger establishments in Great Britain only.

Employment in a specified week (a)

Larger establishments in the United Kingdom

TABLE 11

	1951			1954		
	Males	Females	Total	Males	Females	Total
Working proprietors	-	-	-	-	-	-
Operatives	23,927	198	24,125	26,274	235	26,509
Administrative, technical and clerical employees	3,163	861	4,024	3,572	938	4,510
<b>Total employees</b>	<b>27,090</b>	<b>1,059</b>	<b>28,149</b>	<b>29,846</b>	<b>1,173</b>	<b>31,019</b>

(a) Week ended September 22, 1951, or October 30, 1954.

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