

METALLIFEROUS MINES AND QUARRIES (INCLUDING
OIL SHALE MINES).

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Introductory.*

The tables on pages 43 to 46 are based on returns received from firms in Great Britain and Northern Ireland whose business in 1924 consisted wholly or mainly in the working of metalliferous mines and quarries (including oil shale mines).

The number of such separate returns was 237. About 20 firms to which schedules were sent did not furnish returns, but these firms for the most part had very small establishments and they included some that 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 70 persons in all and that their total net output probably did not exceed £10,000.

* See also the Notes on pp. vii to xv.

Summary of results.—The following table shows the main results of the Censuses of 1924 and 1907, comparisons between the results for the two years being subject to the qualifications mentioned in the next paragraph. The information received in connexion with the Census of 1912, when details of output were not required from firms employing five persons or less, was not sufficiently complete to warrant its use for purposes of comparison.

Particulars.	Unit.	1924.	1907.
Value of products (Gross output)	£'000	5,566	4,311
Cost of materials used .. .. .	..	1,408	809
Net output .. .. .	..	4,158	3,502
Average number of persons employed	No.	22,174	33,761
Net output per person employed	£	188	104
Mechanical power available :—			
Prime movers	H.P.	65,048	81,259
Electric motors driven by purchased electricity ..	..	35,591	(not recorded).

Qualifications affecting comparisons.—In considering the above table and the other tables in this report which show figures for different censal years, the following qualifications should be borne in mind :—

(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 Census of 1907 covered the whole of Great Britain and Ireland, but that of 1924 applied only to Great Britain and Northern Ireland. The exclusion of Southern Ireland in 1924, however, does not materially affect the comparability of the figures.

(3) The field covered by the figures for 1924 is wider than that covered by the figure for 1907. All mines operated under the Coal Mines Regulation Acts were included in the report on Coal Mines for the earlier year, while, for 1924, mines where no coal was raised and ironstone was the principal product are included in this report.

Production.

Detailed information relating to the output of Metalliferous Mines and Quarries (including Oil Shale Mines) in 1924 will be found in Table II on page 44.

Minerals raised for sale.—The following table shows, for 1924 and 1907, the total value and (where recorded) the quantity of the principal minerals raised for sale, distinguishing, for 1924, the output recorded on the schedule for Metalliferous Mines and Quarries and the total recorded on schedules for all trades.

Minerals raised for sale.	1924.				1907.	
	Returned on schedules for				Total.	
	Metalliferous Mines and Quarries.		All trades.			
	Quantity.	Selling value.	Quantity.	Selling value.	Quantity.	Selling value.
Th. tons.	£'000	Th. tons.	£,000	Th. tons.	£'000	
Arsenic (white and other sorts) ..	2.4	88	2.4	88	4.0	41
Barytes :—						
Unground ..	34.5	67	34.5	67	40.3	51
Ground ..	15.6	48	20.0	62		
Copper ore (including copper matte, regulus and precipitate) ..	0.1	4	0.1	4	7.2	32
Fluorspar ..	55.3	55	55.3	55	45.4	19
Gypsum ..	178.4	107	..	139*	201.7	98
Iron ore ..	10,254.7	3,096	10,735.4	3,456	14,988.0	4,315
Calcined iron ore (returned as such)	322.5	87	322.5	87		
Lead ore ..	14.4	310	14.4	310	27.2	314
Ochre, umber, etc.	8.7	1	8.7†	11†	5.5	4
Tin ore (including concentrates) ..	3.1	417	3.1	417	26.8	684
Zinc ore ..	1.0	5	1.0	5	17.6	81
Manganese ore ..	3.1	8	..	26	..	113
Other ores ..	..	98	..	114		
Oil shale ..	2,854.6	1,070	2,854.6	1,070	2,715.0	650
TOTAL VALUE ..	..	5,471	..	5,911	..	6,402

* Of which £117,000 was returned as the value of 198,200 tons. The figure does not include 171,400 tons of gypsum raised and used by manufacturers of cement and plaster of Paris (see page 225).

† Not including the ochre, umber, etc. raised and used by manufacturers of paints and colours.

In addition to the output shown above, 1,500 tons of copper matte, regulus and precipitate, valued at £55,000; 31,500 tons of ground gypsum (mineral white), valued at £38,000; and 27,600 tons of anhydrite, valued at £7,000, were returned on schedules other than those for Metalliferous Mines and Quarries.

The totals shown above are substantially free from duplication. Allowing for the gypsum raised and used by manufacturers of cement and plaster of Paris, the totals for 1924 given in the above table are in close agreement with those published in the Annual Report of the Secretary for Mines, such differences as exist being probably due to the fact that the figures returned to the Census relate to business years, while the Mines Department figures relate to the calendar year.

Other products.—In addition to the products shown in the preceding table, firms that made their returns on schedules for Metalliferous

Mines and Quarries (including Oil Shale Mines) returned the following goods which, being of kinds mainly produced in other trades, are dealt with in the reports on those trades.

Kind of product.	1924.		1907.
	Quantity.	Selling value.	Selling value.
	Th. tons.	£'000	£'000
Clay	4.7	3	} 285
Limestone	247.0	49	
Sandstone (including ganister)	1.5	1	
Other sorts of stone	32.5	13	
Gravel	19.0	3	
Sand	36.0	5	
Other minerals, etc. .. .. .	..	21	
TOTAL VALUE .. .. .	..	95	285

Cost of materials.—The cost of materials used by firms that made their returns on schedules for Metalliferous Mines and Quarries (including Oil Shale Mines) was returned as £1,408,000 in 1924, and £809,000 in 1907.

Net output.—The net output in 1924 of the firms (whose gross output was valued at £5,566,000) that made their returns on schedules for Metalliferous Mines and Quarries (including Oil Shale Mines) was £4,158,000, that sum representing the total amount by which the value, as delivered, of the aggregate output exceeded the cost, as purchased, of the materials used.

The net output per head of persons employed in the censal year 1924 was £188, as compared with £104 in 1907.

Exports and imports.—The output in the calendar year 1924 of the principal products dealt with in this report is shown below, as published in the Annual Report of the Secretary for Mines, together with the exports and retained imports in that year :—

Kind of product.	Production.	Exports.	Net imports.
	Th. tons.	Th. tons.	Th. tons.
Iron ore and ironstone	11,050.6	2.1	5,927.4
Copper ore (including matte, regulus, precipitate, etc.)	0.2	1.0	38.6
Tin ore	3.5	0.4	59.0
Lead ore	14.2	7.9	5.2
Zinc ore	1.3	12.5	120.4
Barytes :—			
Ground	20.0*	2.8	36.1
Unground	34.5*	2.8	2.9
Gypsum	371.3	6.3	26.8
Fluorspar	49.5	30.5	—
Ochre, umber, etc.	10.5	9.6	19.1

* Census of Production figures.

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 working Metalliferous Mines and Quarries* that made returns both to the Ministry of Labour and to the Census of Production office. According to the Census records this group of firms employed, in the week ended 18th October, 1924, 9,377 operatives, or 55 per cent. of the total of 16,922 operatives for the trade as a whole, and their net output totalled £1,791,000, or 55 per cent. of the aggregate net output of £3,279,000 for the trade as a whole. The total wage-bill of these firms, as returned to the Ministry of Labour, was £1,120,000, representing about 63 per cent. of their aggregate net output.

Employment.

The detailed information relating to employment in 1924 is summarised in Table III on page 45. The following table sets out certain particulars for that year together with those relating to the 1907 Census. In the Census of 1924, separate particulars of male and female operatives were not required for each month of the year in this trade and, for the purposes of comparison, the number of female operatives employed in the week ended 18th October has been taken as the average for the year. The resulting figure for male operatives has 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 16.	All ages.	Under 16.	All ages.	Under 16.	All ages.
1924.						
Operatives	655	21,349	2	44	657	21,393
Administrative, etc.	14	746	2	35	16	781
TOTAL	669	22,095	4	79	673	22,174
1907.						
Wage earners	1,188	32,652	28	260	1,216	32,912
Salaried	16	832	—	17	16	849
TOTAL	1,204	33,484	28	277	1,232	33,761

The numbers of operatives recorded month by month in 1924 ranged from 756 above the average, in January, to 678 below the average, in June. (See Table IIIB, page 45).

* Excluding Oil Shale Mines.

Mechanical Power.

The detailed information relating to mechanical power in 1924 is summarised in Table IV on page 46. The following table sets out the particulars for 1924 and 1907 relating to the capacity and kinds of *prime movers* and the capacity of *electric generators* installed.

Power equipment.	1924.			1907.
	Ordinarily in use.	In reserve or idle.	Total.	Total.
PRIME MOVERS :—	H.P.	H.P.	H.P.	H.P.
Reciprocating steam engines ..	46,583	10,592	57,175	68,957
Steam turbines	1,445	220	1,665	3,250
Gas engines	2,115	896	3,011	} 5,659
Petrol and light oil engines ..	769	191	960	
Heavy oil engines	603	305	908	
Water power	1,120	209	1,329	3,360
Other	—	—	—	33
TOTAL	52,635	12,413	65,048	81,259
ELECTRIC GENERATORS :—	Kw.	Kw.	Kw.	Kw.
Driven by—				
Reciprocating steam engines ..	3,895	2,495	6,390	2,786
Steam turbines	1,020	—	1,020	2,385
Gas engines	266	166	432	} 1,638
Petrol and light oil engines ..	37	15	52	
Heavy oil engines	—	—	—	
Water power	58	2	60	
Other prime movers	—	—	—	
TOTAL	5,276	2,678	7,954	6,809

The capacity of *electric motors* recorded in 1924 was as shown below :—

Electric motors.	1924.		
	Ordinarily in use.	In reserve or idle.	Total.
Driven by—	H.P.	H.P.	H.P.
Electricity generated in own works	7,346	2,920	10,266
Purchased electricity	32,886	2,705	35,591

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 1,378,000.

TABLES.

I.—Summary of results.

Particulars.	Unit.	England and Wales.	Scotland.	Great Britain.	Northern Ireland.
Value of products	£'000	4,344	1,204	5,548	18
Cost of materials used	„	1,175	229	1,404	4
Net output	„	3,169	975	4,144	14
Average number of persons employed	No.	17,167	4,838	22,005	169
Net output per person employed ..	£	185	202	188	82
Mechanical power available :—					
Prime movers	H.P.	52,798	12,200	64,998	50
Electric motors driven by purchased electricity	„	24,642	10,949	35,591	—

II.—Production.

Output sold or added to stock.	Unit.	England and Wales.	Scotland.	Great Britain.	Northern Ireland.
		Quantity and selling value.			
Arsenic (white and other sorts)	<i>Th. tons</i>	2.4	—	2.4	—
	£'000	88	—	88	—
Barytes :—					
Ground	<i>Th. tons</i>	15.6	—	15.6	—
	£'000	48	—	48	—
Unground	<i>Th. tons</i>	*	*	34.5	—
	£'000	*	*	67	—
Copper ore (including copper matte, regulus and precipitate)	<i>Th. tons</i>	0.1	—	0.1	—
	£'000	4	—	4	—
Fluorspar	<i>Th. tons</i>	55.3	—	55.3	—
	£'000	55	—	55	—
Gypsum	<i>Th. tons</i>	178.4	—	178.4	—
	£'000	107	—	107	—
Iron ore	<i>Th. tons</i>	*	*	10,254.7†	†
	£'000	*	*	3,096†	†
Calcined iron ore (returned as such)	<i>Th. tons</i>	322.5	—	322.5	—
	£'000	87	—	87	—
Manganese ore	<i>Th. tons</i>	3.1	—	3.1	—
	£'000	8	—	8	—
Lead ore	<i>Th. tons</i>	*	*	14.4	—
	£'000	*	*	310	—
Ochre, umber, etc. ..	<i>Th. tons</i>	8.7	—	8.7	—
	£'000	11	—	11	—
Tin ore and concentrates	<i>Th. tons</i>	3.1	—	3.1	—
	£'000	417	—	417	—
Zinc ore	<i>Th. tons</i>	1.0	—	1.0	—
	£'000	5	—	5	—
Other ores	<i>Th. tons</i>	27.7	0.7	28.4	§
	£'000	94	1	95	3
Oil shale	<i>Th. tons</i>	—	2,854.6	2,854.6	—
	£'000	—	1,070	1,070	—
Clay	<i>Th. tons</i>	0.2	—	0.2	4.5
	£'000	†	—	†	3
Limestone	<i>Th. tons</i>	216.1	—	216.1	30.9
	£'000	41	—	41	8
Sandstone (including ganister)	<i>Th. tons</i>	1.5	—	1.5	—
	£'000	1	—	1	—
Other sorts of stone ..	<i>Th. tons</i>	23.4†	9.1	32.5†	†
	£'000	7†	6	13†	†
Gravel	<i>Th. tons</i>	12.0	7.0	19.0	—
	£'000	2	1	3	—
Sand	<i>Th. tons</i>	36.0	—	36.0	—
	£'000	5	—	5	—
Other minerals, etc. ..	£'000	21†	—	21†	†
TOTAL VALUE OF PRODUCTS (GROSS OUTPUT)	£'000	4,344	1,204	5,548	18

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

† In order to avoid the possible disclosure of information relating to individual firms, the figures for Northern Ireland have been included with those for England and Wales and for Great Britain.

‡ Less than £500.

§ Weight not stated.

III.—Employment.

A.—NUMBERS EMPLOYED IN WEEK ENDED 18TH OCTOBER, 1924.

Kind of staff.	Males.		Females.		Males and females.	
	Under 16.	All ages.	Under 16.	All ages.	Under 16.	All ages.
<i>England and Wales :—</i>						
Operatives	411	16,191	2	34	413	16,225
Administrative, etc.*	12	642	2	24	14	666
TOTAL	423	16,833	4	58	427	16,891
<i>Scotland :—</i>						
Operatives	218	4,773	—	9	218	4,782
Administrative, etc.*	2	99	—	9	2	108
TOTAL	220	4,872	—	18	220	4,890
<i>Great Britain :—</i>						
Operatives	629	20,964	2	43	631	21,007
Administrative, etc.*	14	741	2	33	16	774
TOTAL	643	21,705	4	76	647	21,781
<i>Northern Ireland :—</i>						
Operatives	19	170	—	1	19	171
Administrative, etc.*	—	5	—	2	—	7
TOTAL	19	175	—	3	19	178
<i>United Kingdom :—</i>						
TOTAL	662	21,880	4	79	666	21,959

* Administrative, technical and clerical staff.

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

Week ended.*	England and Wales.	Scotland.	Great Britain.	Northern Ireland.
	Males and females.	Males and females.	Males and females.	Males and females.
Jan. 12th	17,205	4,783	21,988	161
Feb. 16th	16,937	4,788	21,725	161
Mar. 15th	16,186	4,702	20,888	169
Apr. 12th	16,416	4,667	21,083	169
May 17th	16,633	4,698	21,331	151
June 21st	15,850	4,701	20,551	164
July 19th	16,362	4,728	21,090	169
Aug. 16th	16,232	4,710	20,942	156
Sept. 13th	16,509	4,743	21,252	162
Oct. 18th	16,225	4,782	21,007	171
Nov. 15th	16,662	4,726	21,388	156
Dec. 13th	16,798	4,728	21,526	157
ANNUAL AVERAGE ..	16,501	4,730	21,231	162

* The numbers employed at Oil Shale Mines relate to the last week in each month.

IV.—Mechanical Power.

PARTICULARS OF PRIME MOVERS, ELECTRIC GENERATORS AND ELECTRIC MOTORS.

Power equipment.	England and Wales.		Scotland.		Great Britain.	
	Ordinarily in use.	In reserve or idle.	Ordinarily in use.	In reserve or idle.	Ordinarily in use.	In reserve or idle.
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
PRIME MOVERS :—						
Reciprocating steam engines	36,823	8,828	9,720	1,764	46,543	10,592
Steam turbines	1,385	40	60	180	1,445	220
Gas engines	1,832	796	273	100	2,105	896
Petrol and light oil engines	764	191	5	—	769	191
Heavy oil engines	579	305	24	—	603	305
Water power	1,046	209	74	—	1,120	209
TOTAL	42,429	10,369	10,156	2,044	52,585	12,413
TOTAL OF PRIME MOVERS INSTALLED	52,798		12,200		64,998	
	Kw.	Kw.	Kw.	Kw.	Kw.	Kw.
ELECTRIC GENERATORS :—						
Driven by—						
Reciprocating steam engines	2,416	1,923	1,479	572	3,895	2,495
Steam turbines	950	—	70	—	1,020	—
Gas engines	224	154	42	12	266	166
Petrol and light oil engines	37	15	—	—	37	15
Water power	52	—	6	2	58	2
TOTAL	3,679	2,092	1,597	586	5,276	2,678
TOTAL OF ELECTRIC GENERATORS INSTALLED	5,771		2,183		7,954	
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
ELECTRIC MOTORS :—						
Driven by—						
Electricity generated in own works	5,267	2,725	2,079	195	7,346	2,920
Purchased electricity	22,444	2,198	10,442	507	32,886	2,705

The power equipment recorded for Northern Ireland consisted of prime movers (all ordinarily in use) of a capacity of 50 horse-power, viz. : Reciprocating steam engines, 40 h.p., and gas engines, 10 h.p.