

THE MANUFACTURED ABRASIVES TRADE.

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Introductory.*

The tables on pages 269 to 272 are based on returns received from firms in Great Britain whose business in 1924 consisted wholly or mainly in the manufacture of emery and other abrasive papers and cloths, oil stones, grinding wheels and other abrasives. No production of such goods was recorded for Northern Ireland.

The number of such separate returns was 33. No separate schedule was issued for this trade, the information required being embodied in the schedule for the Tool and Implement Trades.

Comparative figures for 1907 and 1912 cannot be given, as in those years manufactured abrasives were included in general classes of goods manufactured by various trades. The production of grindstones, millstones, etc., is not covered by this report, as, for the purposes of the Census, they have been regarded as quarry products.

Summary of results.—The following table shows the main results of the Census of 1924 :—

Particulars.	Unit.	1924.
Value of goods made and work done (Gross output)	£'000.	1,368
Cost of materials used	"	731
Paid for work given out to other firms	"	19
Net output	"	618
Average number of persons employed	No.	2,000
Net output per person employed	£	309
Mechanical power available :—		
Prime movers	H.P.	1,520
Electric motors driven by purchased electricity.. .. .	"	1,688

* See also the Notes on pages vii to xv.

Value of output and cost of materials.—The figures in the above table representing the value of goods made and work done and the cost of materials used, are the aggregates of the figures recorded by the firms making returns, and, for the reasons explained in paragraphs (i) and (ii) on pages xii and xiii, they overstate the value of the output of, and the cost of materials used by, the Manufactured Abrasives Trade considered as a whole. The matter is discussed on page 267 where it is estimated that the value, free from duplication, of the output of the Manufactured Abrasives Trade in 1924 was probably about £1,287,000, and that the cost of materials purchased from sources outside the trade and worked up into its products was about £651,000.

Production.

Detailed information as to the output of the Manufactured Abrasives Trade in 1924 will be found in Table II on page 270.

Manufactured abrasives.—The following table shows the output in 1924 of the principal manufactured abrasive products recorded on schedules for the Tool and Implement Trades to which has been added £51,000, the value of similar products returned on schedules for other trades; particulars of exports and retained imports of similarly described goods are also shown.

Kind of goods.	Production.		Exports.		Net imports.	
	Quantity.	Selling value at factory.	Quantity.	Value f.o.b.	Quantity.	Value c.i.f.
	Th. reams.	£'000.	Th. reams.	£'000.	Th. reams.	£'000
Manufactured abrasives :						
Cloth and paper :—						
Emery cloth ..	151	391	57	121	2·4	3
Glass and sand paper	228	202	56	55	24·3	39
Other sorts ..	7	21	..	35	..	110
TOTAL—CLOTH AND PAPER	386	614	..	211	..	152
Grinding wheels :—						
Artificial corundum, alundum, aluxite, etc. ..	1,110	185	1	1	530	119
Carborundum ..	560	105	266	57	16	3
Emery ..	390	94*	256	48	111	21
Other hard abrasives ..	310	11	12	3	27	5
Not separately distinguished ..	780	92	..	..	..	..
TOTAL—GRINDING WHEELS ..	3,150	487*	535	109	684	148
Emery (grain, flour, powder, etc.) ..	..	96	..	..	..	..
Other abrasives and refractories ..	..	197	13	5	14	3
TOTAL—MANUFACTURED ABRASIVES ..	..	1,394	..	325	..	303

* Including emery wheels, valued at £36,000, for which no particulars of quantity were stated.

It will be seen that the exports of *other abrasive cloth and paper* shown above are in excess of the recorded production; probably some output by firms in other trades was returned under general headings in which its identity is concealed, or the exports included some production of previous years which had been held in stock.

It may also be observed that, under the description of *Abrasives, crude or partly manufactured*, there were exported from the United Kingdom in 1924 the following kinds :—

	Tons.
Natural, including natural corundum and emery ..	3,096
Artificial, including alundum, aluxite, carborundum, etc. ..	658
and imported and retained :—	
Corundum, artificial, including alundum, aluxite, etc. ..	1,919
Carborundum ..	2,072
Emery ..	6,191
Other hard abrasives ..	6,024

Other products.—Firms in the Manufactured Abrasives Trade also returned in 1924 an output of other goods to the value of £21,000, including grinding machines valued at £10,000; these are dealt with in the reports on the trades concerned.

Repair work and work done for the trade.—The amount recorded as received for repair work carried out in 1924 was £3,000, and the amount received for work done for the trade was £1,000.

Value of output free from duplication.—There is some duplication arising from the sale of emery or other abrasives by grinding firms to manufacturers of emery cloth, etc., and from a scrutiny of the returns it would appear that this duplication amounted to about £80,000. The amount received for work done for the trade (£1,000) was also probably duplicated. The value of the gross output in 1924 may, therefore, be put at about £1,287,000, free from duplication.

Cost of materials and work given out.—The cost of materials used by firms in the Manufactured Abrasives Trade was returned as £731,000 in 1924, a sum which, by the elimination of purchases of semi-manufactured products from other firms in the trade, is reduced to about £651,000.

The amount paid to other firms for work given out to them was returned as £19,000.

Net output.—The net output of the firms in the Manufactured Abrasives Trade (whose gross output was valued at £1,368,000) was £618,000, 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 work given out to them.

The net output per head of persons employed in the censal year 1924 was £309.

Wages in 1924.

No separate information is available respecting the wage-bill of firms in the Manufactured Abrasives Trade. Such particulars as were furnished by these firms to the Ministry of Labour in connexion with the voluntary enquiry undertaken by that Department into wages and hours in the United Kingdom in 1924 have been included in the report on the Tool and Implement Trades.*

Employment.

The detailed information relating to employment in 1924 is summarised in Table III on page 271. The following table shows the average numbers of operatives of each sex returned for 1924, 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.
	Operatives	144	1,363	49	254	193	1,617
Administrative, etc. ..	18	278	13	105	31	383
TOTAL	162	1,641	62	359	224	2,000

The numbers of operatives recorded month by month in 1924 ranged from 17 above the average, in September, to 20 below the average, in October (see Table IIIB, page 271).

Mechanical Power.

The detailed information relating to mechanical power in 1924 is summarised in Table III on page 272. The following table sets out the particulars recorded in 1924 relating to the capacity and kinds of *prime movers* and the capacity of *electric generators* installed.

Power equipment.	Ordinarily in use.	In reserve or idle.	Total
PRIME MOVERS:—	H.P.	H.P.	H.P.
Reciprocating steam engines	820	490	1,310
Gas engines	184	15	199
Petrol and light oil engines	11	..	11
TOTAL	1,015	505	1,520
ELECTRIC GENERATORS:—	Kw.	Kw.	Kw.
Driven by reciprocating steam engines ..	303	210	513

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

Electric motors.	Ordinarily in use.	In reserve or idle.	Total.
Driven by—	H.P.	H.P.	H.P.
Electricity generated in own works.. ..	394	220	614
Purchased electricity	1,563	125	1,688

* See page 164 of the volume containing the reports on the Iron and Steel Trades.

TABLES.

Note.—No production was recorded in Northern Ireland.

I.—Summary of results.

Particulars.	Unit.	England and Wales.	Scotland.	Great Britain.
Value of goods made and work done (Gross output)	£'000	1,324	44	1,368
Cost of materials used .. ..	..	698	33	731
Paid for work given out to other firms .. ..	..	19	..	19
Net output .. ..	..	607	11	618
Average number of persons employed	No.	1,941	59	2,000
Net output per person employed	£	313	181	309
Mechanical power available:—				
Prime movers	H.P.	1,488	32	1,520
Electric motors driven by purchased electricity .. ..	..	1,538	150	1,688

II.—Production.

Goods sold or added to stock and work done.	Great Britain.*	
	Quantity.	Selling value.
	Th. reams.†	£'000.
Manufactured abrasives :—		
Cloth and paper :—		
Emery cloth	151	391
Glass and sand paper	228	202
Other abrasive cloths and paper	7	21
Total—Abrasive cloths and paper	386	614
Grinding wheels :—	Tons.	
Artificial corundum (including alundum, aluxite, etc.)	1,110	185
Carborundum	560	105
Emery	340	50
Other hard abrasives	30	4
Grinding wheels, not separately distinguished	780	92
Total—Grinding wheels	2,820	436
Emery (grain, flour, powder, etc.) .. .. .	..	96
Other abrasives and refractories .. .. .	..	197*
TOTAL—MANUFACTURED ABRASIVES .. .. .	..	1,343
Grinding machines .. .. .	..	10
Other products .. .. .	..	11
TOTAL VALUE OF GOODS MADE .. .. .	..	1,364
Repair work .. .. .	..	3‡
Work done on commission or for the trade .. .. .	..	1‡
TOTAL VALUE OF WORK DONE .. .. .	..	4‡
TOTAL VALUE OF GOODS MADE AND WORK DONE (GROSS OUTPUT) .. .. .	..	1,368

* The only output returned for Scotland related to *other abrasives and refractories* valued at £44,000.

† Reams of 480 sheets.

‡ Amount received for work done.

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	142	1,313	49	246	191	1,559
Administrative, etc.*	17	268	13	102	30	370
TOTAL	159	1,581	62	348	221	1,929
<i>Scotland</i> :—						
Operatives	—	30	—	8	—	38
Administrative, etc.*	1	10	—	3	1	13
TOTAL	1	40	—	11	1	51
<i>Great Britain</i> :—						
Operatives	142	1,343	49	254	191	1,597
Administrative, etc.*	18	278	13	105	31	383
TOTAL	160	1,621	62	359	222	1,980

* Administrative, technical and clerical staff.

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

England and Wales. (Annual average : Males, 1,326 ; Females, 245 ; Total, 1,571.)

Week ended.	Males.	Females.	Total.	Week ended.	Males.	Females.	Total.
Jan. 12th ..	1,318	241	1,559	July 19th ..	1,336	243	1,579
Feb. 16th ..	1,324	243	1,567	Aug. 16th ..	1,327	259	1,586
March 15th ..	1,325	235	1,560	Sept. 13th ..	1,331	259	1,590
April 12th ..	1,339	240	1,579	Oct. 18th ..	1,313	246	1,559
May 17th ..	1,326	237	1,563	Nov. 15th ..	1,320	248	1,568
June 21st ..	1,329	235	1,564	Dec. 13th ..	1,329	256	1,585

Scotland. (Annual average : Males, 37 ; Females, 9 ; Total, 46.)

Jan. 12th ..	40	7	47	July 19th ..	35	10	45
Feb. 16th ..	40	8	48	Aug. 16th ..	34	9	43
March 15th ..	43	9	52	Sept. 13th ..	35	9	44
April 12th ..	43	8	51	Oct. 18th ..	30	8	38
May 17th ..	40	8	48	Nov. 15th ..	31	7	38
June 21st ..	39	10	49	Dec. 13th ..	32	9	41

Great Britain. (Annual average : Males, 1,363 ; Females, 254 ; Total, 1,617.)

Jan. 12th ..	1,358	248	1,606	July 19th ..	1,371	253	1,624
Feb. 16th ..	1,364	251	1,615	Aug. 16th ..	1,361	268	1,629
March 15th ..	1,368	244	1,612	Sept. 13th ..	1,366	268	1,634
April 12th ..	1,382	248	1,630	Oct. 18th ..	1,343	254	1,597
May 17th ..	1,366	245	1,611	Nov. 15th ..	1,351	255	1,606
June 21st ..	1,368	245	1,613	Dec. 13th ..	1,361	265	1,626

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	808	475	12	15	820	490
Gas engines	179	15	5	—	184	15
Petrol and light oil engines	11	—	—	—	11	—
TOTAL	998	490	17	15	1,015	505
TOTAL OF PRIME MOVERS INSTALLED	1,488		32		1,520	
	Kw.	Kw.	Kw.	Kw.	Kw.	Kw.
ELECTRIC GENERATORS :—						
Driven by reciprocating steam engines ..	303	210	—	—	303	210
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
ELECTRIC MOTORS :—						
Driven by—						
Electricity generated in own works ..	394	220	—	—	394	220
Purchased electricity ..	1,438	100	125	25	1,563	125