# THE IRON AND STEEL TRADES

## GENERAL REPORT

The following report summarises in comparable form the principal results of the Censuses of 1930 and 1924 for the Iron and Steel Trades, of which detailed particulars are given in the succeeding reports on individual trades. The particulars in this report relate to the United Kingdom, except where otherwise specified, and are confined to production carried out by private firms.

### Principal results

The main particulars obtained for 1930 and 1924 are set out in the following table :—

| Trade | | Gross output (selling value of goods made and value of work done) | Cost of materials used and amount paid for work given out | Net output (excess of col. (2) over col. (3)) | Average number of persons employed (except out-workers) | Net output per person employed | Power available‡ |
|---|---|---|---|---|---|---|---|
| (1) | | (2) | (3) | (4) | (5) | (6) | (7) |
| | | £'000 | £'000 | £'000 | No. | £ | Thous. H.P. |
| Iron and Steel (Blast Furnaces) | 1930 | 23,820 | 19,872 | 3,948 | 19,362 | 204 | 2,402·8 |
| | *1924* | *36,572* | *31,315* | *5,257* | *26,970* | *195* | |
| Iron and Steel (Smelting and Rolling) ... | 1930 | 84,366 | 58,789 | 25,577 | 136,417 | 187 | *2,281·5* |
| | *1924* | *121,745* | *89,664* | *32,081* | *157,947* | *203* | |
| Iron and Steel Foundries† ... | 1930 | 29,423 | 12,391 | 17,032 | 91,351 | 186 | 151·2 |
| | *1924* | *31,046* | *14,385* | *16,661* | *84,302* | *198* | *132·7* |
| Tinplate ... ... | 1930 | 15,693 | 10,605 | 5,088 | 25,271 | 201 | 124·8 |
| | *1924* | *22,557* | *16,185* | *6,372* | *27,968* | *228* | *109·2* |
| Hardware, Hollow-ware, Metallic Furniture and Sheet Metal†... ... | 1930 | 28,577 | 13,890 | 14,687 | 82,600 | 178 | 77·0 |
| | *1924* | *23,285* | *11,702* | *11,583* | *66,696* | *174* | *53·9* |
| Chain, Nail, Screw and Miscellaneous Forgings ... ... | 1930 | 16,465 | 8,416 | 8,049 | 47,414 | 170 | 93·6 |
| | *1924* | *14,395* | *7,490* | *6,905* | *37,692* | *183* | *54·4* |
| Wrought Iron and Steel Tubes ... | 1930 | 13,252 | 7,598 | 5,654 | 25,796 | 219 | 124·8 |
| | *1924* | *13,760* | *8,378* | *5,382* | *24,845* | *217* | *94·9* |
| Wire ... ... | 1930 | 13,747 | 9,384 | 4,363 | 22,215 | 196 | 95·7 |
| | *1924* | *17,228* | *11,199* | *6,029* | *24,839* | *243* | *91·9* |
| Tool and Implement† ... ... | 1930 | 6,061 | 2,522 | 3,539 | 21,658 | 163 | 56·0 |
| | *1924* | *8,421* | *3,588* | *4,833* | *24,804* | *195* | *55·9* |
| Cutlery† ... ... | 1930 | 3,067 | 1,300 | 1,767 | 10,281 | 172 | 15·3 |
| | *1924* | *3,101* | *1,467* | *1,634* | *9,892* | *165* | *11·9* |

| Trade | | Gross output (selling value of goods made and value of work done) | Cost of materials used and amount paid for work given out | Net output (excess of col. (2) over col. (3)) | Average number of persons employed (except out-workers) | Net output per person employed | Power available‡ |
|---|---|---|---|---|---|---|---|
| (1) | | (2) | (3) | (4) | (5) | (6) | (7) |
| | | £'000 | £'000 | £'000 | No. | £ | Thous. H.P. |
| Needle, Pin, Fish-hook and Metal Smallwares ... | 1930 | 2,645 | 991 | 1,654 | 9,460 | 175 | 8·2 |
| | *1924* | *2,501* | *1,059* | *1,442* | *10,328* | *140* | *6·0* |
| Small Arms ... | 1930 | 485 | 175 | 310 | 1,366 | 227 | 1·4 |
| | *1924* | *624* | *250* | *374* | *2,100* | *180* | *2·6* |
| Iron and Steel Trades (Northern Ireland)* ... | 1930 | 94 | 34 | 60 | 386 | 155 | 0·4 |
| | *1924* | *210* | *119* | *91* | *529* | *172* | *0·4* |
| TOTAL—UNITED KINGDOM ... | 1930 | 237,695 | 145,967 | 91,728 | 493,577 | 186 | 3,151·2 |
| | *1924* | *295,445* | *196,801* | *98,644* | *498,912* | *198* | *2,895·3* |
| England and Wales ... ... | 1930 | 210,052 | 129,114 | 80,938 | 436,448 | 185 | 2,696·3 |
| | *1924* | *261,117* | *174,064* | *87,053* | *437,274* | *199* | *2,415·9* |
| Scotland ... ... | 1930 | 27,549 | 16,819 | 10,730 | 56,743 | 189 | 454·5 |
| | *1924* | *34,118* | *22,618* | *11,500* | *61,109* | *188* | *479·0* |
| Northern Ireland | 1930 | 94 | 34 | 60 | 386 | 155 | 0·4 |
| | *1924* | *210* | *119* | *91* | *529* | *172* | *0·4* |

† Great Britain.
* Includes Iron and Steel Foundries; Hardware, Hollow-ware, etc.; Tool and Implement; and Cutlery Trades; the small production in other trades was not separately recorded.
‡ Total capacity of prime movers and of electric motors driven by purchased electricity.

**Comparability of results.**—The iron and steel group includes a number of large undertakings that carry on several distinct industries, in some cases in a single plant, the products of one department being used as material for the manufacture of more finished goods in another department. So far as practicable, separate returns for each industry were obtained from these concerns at both Censuses, but the formation of Iron and Steel Foundries as a separate trade at the 1930 Census necessitated a greater degree of departmentalisation than was required for 1924. Firms making rough castings which they subsequently machined or used in the manufacture of other goods were required to make separate returns for their foundries and for their machining departments, etc., for 1930, but one return covering the business as a whole was usually accepted in such cases for 1924. In so far as the finished products of these firms were included within the scope of the iron and steel group, this change in method only affects the group aggregates of "gross output" and "cost of materials used"; where, however, these finished products were assignable to other groups of trades (e.g., machined castings made by engineers), the group aggregates shown for 1930 under each of the heads of information in the foregoing table are overstated in



relation to those for 1924 to the extent of the production, etc., of the foundries owned by such firms. The extent of the overstatement would not exceed 1 per cent. for any of the group aggregates.

The creation as a separate trade of Iron and Steel Foundries has necessitated a re-classification of the 1924 returns for those establishments which were allocated to the new trade for 1930, and this has led to considerable adjustment of the figures published in the Final Report on the Third Census for the trades affected, viz., the Light Castings Trade (which does not now form a separate category), the Iron and Steel (Smelting, Rolling and Founding) Trades, the Mechanical Engineering Trade and the Hardware, Hollow-ware and Sheet Metal Trades. It is believed that the figures for 1924 now given on the revised basis of classification cover substantially the same ground as those for 1930 and they should be regarded as substituting those published in the report on the previous Census.

Comparison between the aggregates for certain individual trades are affected by the assignment of the same firm, or the same class of production, to different trades at the two periods. The principal case of this kind is the inclusion of miscellaneous drop forgings in the Chain, Nail, Screw and Miscellaneous Forgings Trade for 1930 (see page 113), but a few less important instances are referred to in the reports on other trades. Apart from the case mentioned, the effect of these changes is not as a rule sufficiently great to impair the comparability of the figures given for the two years in respect of an individual trade; moreover, the differences only affect trades within the iron and steel group and they are therefore accounted for in the totals for the group as a whole.

All particulars relating to Great Britain, for both 1930 and 1924, are confined to firms employing more than ten persons, but those relating to Northern Ireland apply to firms employing more than five persons for the year 1930 and to all firms for 1924. This slight difference in scope has no appreciable effect on the comparability of the aggregates for the group as a whole.

**Deficiencies due to the exclusion of small firms in Great Britain.**—There will be found in the report on each trade a brief section setting out the number of persons reported to have been employed in both 1924 and 1930 by firms employing not more than ten persons, with details of the chief classes of goods made and work done by these firms in the earlier year. Taking the iron and steel group as a whole, 34,047 persons were stated to have been employed by firms of this class at the 1930 Census and about 29,000* at that of 1924. Thus, of the aggregate number of employees recorded by firms of all classes, the proportion employed by the smaller firms was 6·5 per cent. in 1930 and 5·5 per cent. in 1924. The great majority of these small firms were in two trades, viz., Chain, Nail, Screw and Miscellaneous Forgings (including Blacksmithing) and Hardware, Hollow-ware, Metallic Furniture and Sheet Metal.

About 1,200 firms to which schedules were sent furnished no information at the 1930 Census, but these outstanding cases are

* Including an estimate of 2,000 in respect of Iron and Steel Foundries.

known to have consisted either of small businesses or of businesses which were in operation for only a part of the censal year. The number of firms that furnished no particulars at the previous Census was about 3,650.

As indicated by the greater number of firms that furnished no particulars at the earlier Census, the apparent increase between 1924 and 1930 in the proportion employed by the smaller firms is due largely to lack of completeness of the 1924 survey in respect of firms of this class, whose business records were frequently insufficient to enable them to supply the detailed information required for that year.

### Periods covered by firms' returns

As explained in Note 1 on page xi, firms were given the option of making returns for the calendar year 1930 or for their period of account most closely corresponding thereto, provided that the ending date of that period was not later than 31st March, 1931. The following table shows, for the iron and steel group of trades as a whole, the total number of returns and the numbers of persons employed according to the periods covered by the returns received. The particulars given relate to firms in Great Britain only.

| Returns in respect of twelve months ended | Number of returns | | Persons employed | |
|---|---|---|---|---|
| | Number | Per cent. of total | Average number | Per cent. of total |
| April, 1930 ... ... ... ... | 30 | 0·9 | 2,086 | 0·4 |
| May, 1930 ... ... ... ... | 28 | 0·8 | 2,481 | 0·5 |
| June, 1930 ... ... ... ... | 239 | 7·1 | 37,489 | 7·6 |
| July, 1930 ... ... ... ... | 74 | 2·2 | 16,896 | 3·4 |
| August, 1930 ... ... ... | 63 | 1·8 | 12,542 | 2·6 |
| September, 1930 ... ... ... | 131 | 3·9 | 26,661 | 5·4 |
| October, 1930 ... ... ... | 51 | 1·5 | 4,555 | 0·9 |
| November, 1930 ... ... ... | 21 | 0·6 | 1,443 | 0·3 |
| December, 1930 ... ... ... | 2,164 | 64·1 | 311,006 | 63·1 |
| January, 1931 ... ... ... | 50 | 1·5 | 8,789 | 1·8 |
| February, 1931 ... ... ... | 34 | 1·0 | 2,609 | 0·5 |
| March, 1931 ... ... | 492 | 14·6 | 66,634 | 13·5 |
| TOTAL ... ... ... | 3,377 | 100·0 | 493,191 | 100·0 |

The mean terminal date of all returns for the iron and steel group of trades at the 1930 Census was about the middle of December, 1930, and the aggregate results obtained may therefore slightly overstate the industrial activity of the calendar year, there being, as will be seen from the table on page 15, a substantial decline in employment in the later months of the year. About 64 per cent. of the total number of returns received were for the calendar year, and the firms concerned employed about 63 per cent. of the total number of persons recorded. The following table shows the number of returns and the numbers of persons employed in each trade in respect of these firms.



*Returns covering the twelve months ended 31st December, 1930*

| Trade | Number of returns | | Persons employed | |
|---|---|---|---|---|
| | Number | Per cent. of total | Average number | Per cent. of total |
| Iron and Steel (Blast Furnaces) ... | 51 | 75 | 13,863 | 72 |
| Iron and Steel (Smelting and Rolling) ... ... ... ... | 191 | 63 | 94,814 | 70 |
| Iron and Steel Foundries ... ... | 479 | 60 | 53,415 | 58 |
| Tinplate ... ... ... ... | 39 | 57 | 11,989 | 47 |
| Hardware, Hollow-ware, etc. ... | 596 | 64 | 54,799 | 66 |
| Chain, Nail, Screw, etc. ... ... | 311 | 65 | 24,885 | 52 |
| Wrought Iron and Steel Tubes ... | 38 | 58 | 17,016 | 66 |
| Wire ... ... ... ... ... | 138 | 69 | 13,312 | 60 |
| Tool and Implement ... ... | 140 | 58 | 10,706 | 49 |
| Cutlery ... ... ... ... | 108 | 85 | 9,456 | 92 |
| Needle, Pin, Fish-hook, etc. ... | 54 | 68 | 5,774 | 61 |
| Small Arms ... ... ... ... | 19 | 70 | 977 | 72 |
| TOTAL ... ... ... | 2,164 | 64 | 311,006 | 63 |

### Production

As between one trade and another the money value of the gross output (column 2 of the table on page 1) is largely dependent on the intrinsic value of the materials from which the products are manufactured, while as between one year and another the gross output figure for the same trade is influenced by changes in the prices of those materials and in manufacturing costs and profits. Further, in certain trades, duplication in the gross output value leads to some overstatement of the value of the products as finally delivered, this factor affecting each trade to a different extent. For these reasons the gross output figure does not provide a satisfactory representation of the position either of different trades in relation to each other in a given year, or of the same trade in different years.

The net output figure eliminates any overstatement due to the factor of duplication, but its utility as a basis of comparison between different trades in the same year is subject to the reservations mentioned in the Introductory Notes (p. x); moreover, the relationship between the net output reported by a given trade for different years is affected by fluctuations in the various items which the figure comprises, viz., wages and salaries, rent, sales expenses, etc., as well as depreciation and profits. Measurement of production by net output is therefore only a rough guide and the important qualifications which attach to comparisons on that basis should not be overlooked. Net output per head eliminates the variable factor of the numbers of persons employed, but the use of figures of net output per head for purposes of comparison is also subject to the qualifications mentioned. It will, however, be seen from a later calculation that the volume of production in the iron and steel group of trades in relation to the numbers employed showed for 1930 a somewhat smaller decline than that indicated by the respective figures of net output per person employed.

**Net output.**—The recorded value of the total net output in the iron and steel group as a whole was lower in 1930 than in 1924 by 7 per cent. Of the 13 trades in the group net output declined in 7 cases, the most important of which were the heavy Iron and Steel Trades which, taken together, showed a decline of about 21 per cent. in 1930, and the Tinplate, Wire, and Tool and Implement Trades, in which the decreases were 20, 28 and 27 per cent. respectively. Of the 6 trades returning an increased net output for 1930, the principal advances took place in the Hardware, Hollow-ware, etc., Trades (27 per cent.) and the Chain, Nail, Screw and Miscellaneous Forgings Trades (17 per cent.), but the increase in the latter is primarily due to differences in classification in the two years (see page 113).

Net output per person employed in the group as a whole declined from £198 in 1924 to £186 in 1930, or by 6·1 per cent. Apart from the minor exception of Small Arms, net output per head was equal to or higher than the group average in the same five trades in each year, viz., the heavy Iron and Steel Trades (which may be taken together for the purpose of this comparison), Iron and Steel Foundries, and the Tinplate, Wire, and Wrought Iron and Steel Tube Trades. Reference to the table on page 11 will show that the lower ranges of net output occurred as a rule in those trades which gave employment to relatively large numbers of females, though an exception will be noted in the case of the Tool and Implement Trade which, with an operative staff consisting of only 17 per cent. of females, showed a net output per head of £163 for 1930; in contrast, the net output per head in 1930 in the Needle, Pin, etc., Trades was £175 and in the Hardware, Hollow-ware, etc., Trades, £178, the proportion of female operatives in these trades being about 69 per cent. and 44 per cent. respectively.

The decline in the group figure of net output per head in 1930 resulted from a lower average for England and Wales, the average figure for Scotland showing a slight increase. Aggregate net output declined by about the same extent in both divisions, viz., by about 7 per cent.

**Volume of production.**—The following table shows, for each *principal class of commodities* produced by the iron and steel group of trades, the total output value recorded for the year 1930, and the result of a re-valuation of the output of similar classes of goods in 1924, based on the average factory value shown by the returns for 1930. In order to complete the calculation it has been necessary to make estimates in respect of the relatively small proportion of goods for which particulars of quantities were not obtained.

This calculation eliminates the factor of price changes, and provides a measure by which the output in the two years may be compared directly. The figures for both years represent the total recorded output, whether returned by firms in the trade chiefly concerned in the production of the specified goods, or by firms



in other trades. As regards Iron and Steel Foundries, comparison is affected by the somewhat greater range of the production figure for 1930 (see " Comparability of results " above), but this factor is not likely to have had an important effect on the calculation for the group as a whole.

The small production in Northern Ireland is not included in the particulars given for either year.

| Kind of goods | Total production in Great Britain | | | 1930 as a percentage of 1924 |
|---|---|---|---|---|
| | 1930 | 1924 | | |
| | As returned | As returned | At 1930 average values | |
| | £'000 | £'000 | £'000 | Per cent. |
| Pig iron and ferro-alloys ... ... | 22,423 | 35,328 | 26,599 | 84 |
| Crude steel and rolling mill products | 82,035 | 122,516 | 101,140 | 81 |
| Iron and steel castings ... ... | 29,129 | 30,142 | 26,964 | 108 |
| Tinned and terne plates ... ... | 15,520 | 21,132 | 16,563 | 94 |
| Hardware, hollow-ware, metallic furniture and sheet metal goods | 29,559 | 25,757 | 22,112 | 134 |
| Chains, nails, screws and miscellaneous forgings ... ... ... | 16,284 | 16,006 | 13,963 | 117 |
| Wrought iron and steel tubes ... | 13,058 | 13,647 | 11,313 | 115 |
| Wire and wire manufactures ... | 16,791 | 21,072 | 16,426 | 102 |
| Tools and implements ... ... | 6,931 | 7,506 | 6,667 | 104 |
| Cutlery ... ... ... ... | 2,635 | 2,505 | 2,083 | 126 |
| Needles, pins, fish-hooks and metal smallwares ... ... ... | 2,719 | 2,853 | 2,800 | 97 |
| Small arms ... ... ... ... | 352 | 470 | 600 | 59 |
| TOTAL ... ... ... | 237,436 | 298,934 | 247,230 | 96 |

The values shown represent the total output and no allowance for duplication is made for either year. Owing to the somewhat greater degree of departmentalisation required at the 1930 Census, it is probable that the gross production figures for that year contain a slightly greater amount of duplication than those for 1924, and the actual decline in 1930 may thus have been greater, to a relatively small extent, than that indicated by the above table.

Employment in the iron and steel group of trades in Great Britain declined from 498,383 in 1924 to 493,191 in 1930, and if the total output for 1930 and the re-valued output for 1924 are divided by the number of persons employed, the resulting figure, per employee, provides a basis of comparison which takes account of price changes and of differences in numbers of persons employed. The resulting figures are £481 per employee for 1930 and £496 per employee for 1924.

On this method of calculation, the output per employee in the iron and steel group of trades was lower in 1930 than in 1924 by 3 per cent. The extent to which this decline may have been due to irregular working cannot be estimated.

## Number of establishments*

The following table shows the number of separate establishments covered by the results for 1930, and the total number of returns received for 1930 and 1924. In the case of a firm owning more than one establishment situated in the same Census area and engaged in the same Census trade, a combined return covering all establishments was usually accepted, provided the number of operatives employed at each establishment was shown separately. The number of establishments reported was thus greater than the number of returns received.

| Trade | 1930 | | 1924 |
|---|---|---|---|
| | Number of establishments | Number of returns | Number of returns |
| Iron and Steel (Blast Furnaces) ... | 69 | 68 | 92 |
| Iron and Steel (Smelting and Rolling)... | 343 | 303 | 345 |
| Iron and Steel Foundries ... ... | 826 | 792 | 801 |
| Tinplate ... ... ... ... ... | 77 | 68 | 84 |
| Hardware, Hollow-ware, etc. ... ... | 977 | 925 | 885 |
| Chain, Nail, Screw, etc. ... ... ... | 538 | 482 | 475 |
| Wrought Iron and Steel Tubes ... ... | 78 | 65 | 62 |
| Wire ... ... ... ... ... | 213 | 200 | 212 |
| Tool and Implement ... ... ... | 280 | 240 | 314 |
| Cutlery ... ... ... ... ... | 139 | 127 | 162 |
| Needle, Pin, Fish-hook, etc. ... ... | 94 | 80 | 105 |
| Small Arms ... ... ... ... | 33 | 27 | 33 |
| TOTAL ... ... ... | 3,667 | 3,377 | 3,570 |

## Size of firms*

In the following table the main particulars recorded at the Census of 1930 for the Iron and Steel Trades are grouped according to the average numbers of persons shown in the returns :—

| Size of firm (average numbers employed) | Number of returns | Gross output | Cost of materials used | Amount paid for work given out | Net output | Average number of persons employed (excluding out-workers) | Net output per person employed |
|---|---|---|---|---|---|---|---|
| | No. | £'000 | £'000 | £'000 | £'000 | No. | £ |
| 11–24 ... | 845 | 4,700 | 2,070 | 74 | 2,556 | 14,884 | 172 |
| 25–49 ... | 806 | 9,700 | 4,687 | 114 | 4,899 | 28,175 | 174 |
| 50–99 ... | 662 | 17,743 | 9,204 | 183 | 8,356 | 46,363 | 180 |
| 100–199 ... | 479 | 29,154 | 16,842 | 222 | 12,090 | 66,966 | 181 |
| 200–299 ... | 198 | 21,291 | 12,434 | 110 | 8,747 | 47,622 | 184 |
| 300–399 ... | 120 | 20,897 | 12,900 | 83 | 7,914 | 40,951 | 193 |
| 400–499 ... | 71 | 19,407 | 12,690 | 51 | 6,666 | 31,730 | 210 |
| 500–749 ... | 85 | 28,398 | 18,410 | 119 | 9,869 | 53,017 | 186 |
| 750–999 ... | 43 | 21,421 | 14,647 | 51 | 6,723 | 37,185 | 181 |
| 1,000–1,499 ... | 35 | 23,334 | 15,122 | 60 | 8,152 | 42,844 | 190 |
| 1,500 and over | 33 | 41,556 | 25,700 | 160 | 15,696 | 83,454 | 188 |
| TOTAL ... | 3,377 | 237,601 | 144,706 | 1,227 | 91,668 | 493,191 | 186 |

* The particulars given in these sections relate to firms in Great Britain only.



As explained on page 2, the iron and steel group contains a number of very large undertakings whose business for purposes of Census record was divided into the different industries carried on and, in many cases, into individual establishments engaged in the same industry. This factor should not be overlooked in considering the particulars shown in the above table for each of the ranges of size of " firm."

The average number of persons recorded on each return in the iron and steel group was 146. About 50 per cent. of the total number of returns related to establishments employing less than 50 persons, but these establishments represented less than 9 per cent. of the total number of employees and about 8 per cent. of the aggregate net output of the group. The figures of net output per person employed show a progressive increase from £172 for the smallest firms to £210 for those employing from 400 to 499 persons, and in the same seven size ranges the cost of materials used formed an increasing proportion of the gross output, viz., from 44·0 per cent. for the smallest firms to 65·4 per cent. for those employing from 400 to 499 persons. For the higher ranges net output varied between £181 and £190 per person employed, and the ratio between the cost of materials and the gross output for these larger firms, which exceeded 64 per cent. for all the groups taken together, showed no marked variation from one group to another. The greater proportionate cost of materials in the larger size groups may be due to some extent to the inclusion in them of a relatively larger number of firms engaged in the primary processes of iron and steel production, in which the cost of materials forms a higher proportion of the value of the product than in the more finished stages of manufacture.

As the following table shows, the figures of net output per person employed for the principal trades in the group give little evidence of any definite tendency of direction according to the size of the establishments concerned :—

*Net output per person employed*

| Size of firm (average numbers employed) | Iron and Steel | | Iron and Steel Foundries | Tinplate | Hardware, Hollow-ware, etc. | Chain, Nail, Screw, etc. | Wrought Iron and Steel Tubes |
|---|---|---|---|---|---|---|---|
| | Blast Furnaces | Smelting and Rolling | | | | | |
| | £ | £ | £ | £ | £ | £ | £ |
| 11–24 ... | 105 | 235 | 167 | 185 | 179 | 166 | 146 |
| 25–49 ... | 389 | 212 | 167 | | 173 | 171 | 146 |
| 50–99 ... | 312 | 184 | 173 | | 175 | 169 | 171 |
| 100–199 ... | 188 | 216 | 182 | | 176 | 164 | 205 |
| 200–299 ... | 195 | 178 | 170 | 198 | 192 | 189 | 221 |
| 300–399 ... | 160 | 197 | 205 | 206 | 193 | 192 | 197 |
| 400–499 ... | 206 | 201 | 206 | 205 | 225 | | |
| 500–749 ... | 208 | 189 | 203 | 214 | 159 | 155 | |
| 750–999 ... | 220 | 189 | 179 | 195 | 162 | | 231 |
| 1,000 and over | 324 | 182 | 205 | | | | |
| TOTAL ... | 204 | 187 | 186 | 201 | 178 | 170 | 219 |

## Regional distribution

In the following table, the principal aggregates for the iron and steel group as a whole are grouped according to the areas into which the United Kingdom has been sub-divided :—

| Area | | Number of returns | Gross output | Net output | Average number of persons employed (excluding out-workers) | Net output per person employed |
|---|---|---|---|---|---|---|
| | | No. | £'000 | £'000 | No. | £ |
| 1. Greater London ... | 1930 | 371 | 12,576 | 6,868 | 30,378 | 226 |
| | *1924* | *342* | *9,922* | *5,075* | *23,181* | *219* |
| 2. Lancashire with North Cheshire and the Glossop and New Mills District of Derbyshire ... | 1930 | 312 | 23,767 | 8,580 | 46,743 | 184 |
| | *1924* | *355* | *28,899* | *9,246* | *43,377* | *213* |
| 3. The West Riding of Yorkshire and the City of York ... | 1930 | 617 | 35,181 | 15,479 | 86,013 | 180 |
| | *1924* | *659* | *40,483* | *16,826* | *84,206* | *200* |
| 4. Northumberland, Durham and the Cleveland District of Yorkshire ... | 1930 | 137 | 24,909 | 6,737 | 36,952 | 182 |
| | *1924* | *134* | *32,129* | *7,009* | *39,977* | *175* |
| 5. Warwickshire, Worcestershire and Staffordshire ... | 1930 | 1,179 | 51,683 | 24,037 | 136,714 | 176 |
| | *1924* | *1,255* | *58,403* | *24,062* | *133,869* | *180* |
| 6. The rest of England (except Monmouthshire) ... ... | 1930 | 314 | 27,083 | 9,247 | 48,167 | 192 |
| | *1924* | *322* | *30,132* | *9,267* | *46,377* | *200* |
| 7. Glamorganshire, Monmouthshire and Carmarthenshire ... ... | 1930 | 158 | 33,975 | 9,774 | 49,926 | 196 |
| | *1924* | *169* | *54,421* | *13,618* | *57,952* | *235* |
| 8. The rest of Wales ... | 1930 | 9 | 878 | 216 | 1,555 | 139 |
| | *1924* | *16* | *6,728* | *1,950* | *8,335* | *234* |
| TOTAL—England and Wales ... ... | 1930 | 3,097 | 210,052 | 80,938 | 436,448 | 185 |
| | *1924* | *3,252* | *261,117* | *87,053* | *437,274* | *199* |
| 9. Lanarkshire, Renfrewshire and Dumbartonshire ... | 1930 | 170 | 21,068 | 7,348 | 38,782 | 189 |
| | *1924* | *203* | *27,627* | *8,376* | *44,059* | *190* |
| 10. The rest of Scotland | 1930 | 110 | 6,481 | 3,382 | 17,961 | 188 |
| | *1924* | *115* | *6,491* | *3,124* | *17,050* | *183* |
| TOTAL—Scotland ... | 1930 | 280 | 27,549 | 10,730 | 56,743 | 189 |
| | *1924* | *318* | *34,118* | *11,500* | *61,109* | *188* |
| TOTAL—Great Britain | 1930 | 3,377 | 237,601 | 91,668 | 493,191 | 186 |
| | *1924* | *3,570* | *295,235* | *98,553* | *498,383* | *198* |
| 11. Northern Ireland* ... | 1930 | 22 | 94 | 60 | 386 | 155 |
| | *1924* | *101* | *210* | *91* | *529* | *172* |
| TOTAL—UNITED KINGDOM | 1930 | 3,399 | 237,695 | 91,728 | 493,577 | 186 |
| | *1924* | *3,671* | *295,445* | *98,644* | *498,912* | *198* |

* See footnote (*) to table on page 1 : the 1924 figures include the small firms.



Of the total number of persons employed in the United Kingdom in this group of trades, establishments in England and Wales represented 88·4 per cent. in 1930 and 87·6 per cent. in 1924 ; for establishments in Scotland, the corresponding proportions were 11·5 per cent. and 12·2 per cent. respectively. The counties of Warwickshire, Worcestershire and Staffordshire were the most important of the individual areas in both years, the West Riding of Yorkshire taking the second place, while, in 1930, Lancashire, the South Wales area and the " rest of England " were of about the same order of importance.

Net output per head was highest in 1930 in Greater London, the figure for this area being over 21 per cent. above the average for the whole of the United Kingdom ; the South Wales area, the " rest of England " and the two Scottish areas also showed figures of net output per head higher than the general average. The metal working trades in which large numbers of females were employed were concentrated to a considerable extent in the Warwickshire, Worcestershire and Staffordshire area and net output per head in this area was lower than the general average by about 5 per cent.

## Employment

The following table shows the average numbers of male and female operatives and administrative, technical and clerical staff in each of the trades in this group in the two censal years.

*Average numbers (excluding outworkers) employed in 1930 and 1924 in the several Iron and Steel Trades*

| Trade | | Operatives | | Administrative, technical and clerical staff | | Total |
|---|---|---|---|---|---|---|
| | | Males | Females | Males | Females | |
| Iron and Steel (Blast Furnaces) ... ... ... | 1930 | 18,015 | 68 | 1,141 | 138 | 19,362 |
| | *1924* | *25,233* | *92* | *1,487* | *158* | *26,970* |
| Iron and Steel (Smelting and Rolling) ... ... | 1930 | 122,521 | 1,195 | 10,730 | 1,971 | 136,417 |
| | *1924* | *144,060* | *1,542* | *10,797* | *1,548* | *157,947* |
| Iron and Steel Foundries† | 1930 | 78,712 | 4,219 | 6,592 | 1,828 | 91,351 |
| | *1924* | *73,571* | *3,189* | *6,015* | *1,527* | *84,302* |
| Tinplate ... ... ... | 1930 | 21,659 | 2,755 | 794 | 63 | 25,271 |
| | *1924* | *23,313* | *3,785* | *796* | *74* | *27,968* |
| Hardware, Hollow-ware, etc.† ... ... ... | 1930 | 41,715 | 32,680 | 5,630 | 2,575 | 82,600 |
| | *1924* | *35,095* | *25,279* | *4,326* | *1,996* | *66,696* |
| Chain, Nail, Screw, etc. ... | 1930 | 28,878 | 13,728 | 3,260 | 1,548 | 47,414 |
| | *1924* | *21,504* | *12,701* | *2,346* | *1,141* | *37,692* |

| Trade | | Operatives | | Administrative technical and clerical staff | | Total |
|---|---|---|---|---|---|---|
| | | Males | Females | Males | Females | |
| Wrought Iron and Steel Tubes ... ... ... | 1930 | 22,108 | 677 | 2,317 | 694 | 25,796 |
| | *1924* | *21,315* | *593* | *2,250* | *687* | *24,845* |
| Wire ... ... ... | 1930 | 16,511 | 3,229 | 1,723 | 752 | 22,215 |
| | *1924* | *18,661* | *3,813* | *1,742* | *623* | *24,839* |
| Tool and Implement† ... | 1930 | 15,661 | 3,322 | 1,761 | 914 | 21,658 |
| | *1924* | *18,855* | *2,916* | *2,181* | *852* | *24,804* |
| Cutlery† ... ... ... | 1930 | 4,795 | 4,254 | 718 | 514 | 10,281 |
| | *1924* | *5,586* | *3,246* | *712* | *348* | *9,892* |
| Needle, Pin, Fish-hook, etc. | 1930 | 2,682 | 5,866 | 536 | 376 | 9,460 |
| | *1924* | *2,988* | *6,515* | *488* | *337* | *10,328* |
| Small Arms ... ... | 1930 | 995 | 181 | 125 | 65 | 1,366 |
| | *1924* | *1,716* | *132* | *174* | *78* | *2,100* |
| Iron and Steel Trades (Northern Ireland)* ... | 1930 | 324 | 10 | 43 | 9 | 386 |
| | *1924* | *391* | *9* | *122* | *7* | *529* |
| TOTAL—UNITED KINGDOM ... ... ... | 1930 | 374,576 | 72,184 | 35,370 | 11,447 | 493,577 |
| | *1924* | *392,288* | *63,812* | *33,436* | *9,376* | *498,912* |
| England and Wales ... | 1930 | 325,992 | 69,255 | 31,004 | 10,197 | 436,448 |
| | *1924* | *339,576* | *60,890* | *28,695* | *8,113* | *437,274* |
| Scotland ... ... ... | 1930 | 48,260 | 2,919 | 4,323 | 1,241 | 56,743 |
| | *1924* | *52,321* | *2,913* | *4,619* | *1,256* | *61,109* |
| Northern Ireland ... ... | 1930 | 324 | 10 | 43 | 9 | 386 |
| | *1924* | *391* | *9* | *122* | *7* | *529* |

† Great Britain.

* See footnote (*) to table on page 1.

**Distribution by status.**—The number of *operatives* employed in this group of trades declined by 9,340, or about 2 per cent. of the 1924 total, but the number of *administrative, technical and clerical staff* increased by about 9 per cent. Five trades reported increased employment of operatives, the principal changes taking place in the Hardware, Hollow-ware, etc., Trades and the Chain, Nail, Screw, etc., Trades, for which the 1930 totals were higher than those for 1924 by 23 per cent. and 25 per cent. respectively; in the latter case, however, a change in classification in the two years resulted in an increase in numbers employed in 1930 estimated at 5,600, and if allowance is made for this, the increase in employment is reduced to between 8 and 9 per cent. The other trades in which increases occurred were Iron and Steel Foundries,* Wrought Iron and Steel Tubes, and Cutlery. Of the trades showing

* See "Comparability of results," page 2.



a falling-off in employment of operatives, by far the most important in point of magnitude were the heavy Iron and Steel Trades, which, taken together, showed a decrease of over 29,000 persons, or about 17 per cent. of the 1924 total; of the minor trades, a decline of 36 per cent. was reported in the case of Small Arms.

The number of administrative, technical and clerical staff employed in the group increased from 8·6 per cent. of all employees in 1924 to 9·5 per cent. in 1930. In the majority of trades a greater number of this class of employee was reported for 1930 than for the earlier year, but, among the major trades, a decline of about 12 per cent. occurred in the Tool and Implement Trade and the numbers shown by the heavy Iron and Steel Trades and the Tinplate Trade were fractionally lower.

**Distribution by sex.**—Male labour predominated in the Iron and Steel Trades as a whole in both years but females formed a large proportion of the operative staff in certain individual trades; in the Needle, Pin, Fish-hook, etc., Trade the number of female operatives considerably exceeded the number of males and in the Cutlery Trade, the Hardware, Hollow-ware, etc., Trades and the Chain, Nail, Screw, etc., Trades, the proportion of females in 1930 was about 47, 44 and 32 per cent., respectively, of all operatives employed. Taking the group as a whole, 83·1 per cent. of all employees in 1930 and 85·3 per cent. in 1924 were males, the proportion of males in the operative staff declining from 86·0 per cent. in 1924 to 83·8 per cent. in 1930, and in the administrative, etc., staff from 78·1 per cent. in 1924 to 75·5 per cent. in 1930.

In most of the trades increases or decreases in the numbers of male operatives were accompanied by a like movement in respect of female operatives, but in the Cutlery Trade and the Tool and Implement Trade, there would appear to have been an appreciable substitution of female for male labour between 1924 and 1930. In the Cutlery Trade, the number of female operatives was greater in 1930 than in 1924 by 1,008 (31 per cent.), while the number of male operatives declined by 791 (14 per cent.). In the Tool and Implement Trade the total number of operatives declined by 2,788 (13 per cent.) but female operatives increased by 406 (14 per cent.).

**Distribution by age.**—The following table classifies by age the numbers of persons (excluding outworkers) of each class recorded as employed in the various Iron and Steel Trades in the weeks ended 18th October, 1930 and 1924:—

*Numbers of persons (excluding outworkers) employed in the weeks ended 18th October, 1930 and 1924*

| Trade | | Operatives | | | | Administrative, technical and clerical staff | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Males | | Females | | Males | | Females | |
| | | Under 18 | Total | Under 18 | Total | Under 18 | Total | Under 18 | Total |
| | | No. | No. | No. | No. | No. | No. | No. | No. |
| Iron and Steel (Blast Furnaces) ... | 1930 | 349 | 15,127 | 5 | 57 | 80 | 1,141 | 24 | 138 |
| | *1924* | *473* | *24,066* | *8* | *84* | *118* | *1,487* | *11* | *158* |
| Iron and Steel (Smelting and Rolling) ... | 1930 | 7,332 | 110,936 | 209 | 1,082 | 1,055 | 10,730 | 333 | 1,971 |
| | *1924* | *10,990* | *140,636* | *398* | *1,595* | *1,009* | *10,797* | *142* | *1,548* |
| Iron and Steel Foundries† ... | 1930 | 10,125 | 76,680 | 1,146 | 4,110 | 647 | 6,592 | 305 | 1,828 |
| | *1924* | *10,781* | *75,340* | *1,071* | *3,241* | *635* | *6,015* | *245* | *1,527* |
| Tinplate ... | 1930 | 2,351 | 21,432 | 643 | 2,726 | 53 | 794 | 4 | 63 |
| | *1924* | *3,824* | *23,592* | *1,285* | *3,860* | *88* | *796* | *5* | *74* |
| Hardware, Hollow-ware, etc.† ... | 1930 | 7,288 | 40,983 | 11,294 | 32,106 | 515 | 5,630 | 452 | 2,575 |
| | *1924* | *6,379* | *35,945* | *8,858* | *25,952* | *407* | *4,326* | *362* | *1,996* |
| Chain, Nail, Screw, etc. ... | 1930 | 4,365 | 28,325 | 4,029 | 13,465 | 278 | 3,260 | 269 | 1,548 |
| | *1924* | *3,802* | *21,705* | *3,897* | *12,747* | *163* | *2,346* | *195* | *1,141* |
| Wrought Iron and Steel Tubes ... | 1930 | 1,864 | 21,572 | 170 | 661 | 229 | 2,317 | 99 | 694 |
| | *1924* | *2,148* | *21,653* | *117* | *581* | *185* | *2,250* | *74* | *687* |
| Wire ... ... | 1930 | 1,926 | 16,030 | 1,058 | 3,135 | 129 | 1,723 | 108 | 752 |
| | *1924* | *2,463* | *18,316* | *1,092* | *3,786* | *263* | *1,742* | *121* | *623* |
| Tool and Implement† ... | 1930 | 2,728 | 15,506 | 839 | 3,290 | 160 | 1,761 | 170 | 914 |
| | *1924* | *3,319* | *18,956* | *834* | *2,931* | *170* | *2,181* | *115* | *852* |
| Cutlery† ... | 1930 | 731 | 4,853 | 1,393 | 4,305 | 33 | 718 | 116 | 514 |
| | *1924* | *751* | *5,699* | *1,011* | *3,327* | *35* | *712* | *38* | *348* |
| Needle, Pin, Fish-hook, etc. ... ... | 1930 | 278 | 2,666 | 1,769 | 5,831 | 10 | 536 | 69 | 376 |
| | *1924* | *439* | *3,020* | *1,663* | *6,563* | *44* | *488* | *67* | *337* |
| Small Arms ... | 1930 | 135 | 998 | 44 | 182 | 13 | 125 | 17 | 65 |
| | *1924* | *279* | *1,794* | *66* | *143* | *19* | *174* | *20* | *78* |
| Iron and Steel Trades (Northern Ireland)* | 1930 | 78 | 319 | 1 | 10 | 1 | 43 | — | 9 |
| | *1924* | *81* | *416* | *1* | *9* | *8* | *122* | *2* | *7* |
| TOTAL ... | 1930 | 39,550 | 355,427 | 22,600 | 70,960 | 3,203 | 35,370 | 1,966 | 11,447 |
| | *1924* | *45,729* | *391,138* | *20,301* | *64,819* | *3,144* | *33,436* | *1,397* | *9,376* |

† Great Britain.
* See footnote (*) to table on page 1.

The number of *young persons* employed in this group showed comparatively little change, being 67,319 in 1930 and 70,571 in 1924, or 14·2 and 14·1 per cent. respectively of the total of all employees. In each year the largest number of persons under eighteen years of age was employed in the Hardware, Hollow-ware, etc., Trades, the proportion being about 24 per cent. of the total in both 1924 and 1930, while the number increased from 16,006 to 19,549. Other trades employing a large number and proportion of young persons in 1930 were Iron and Steel Foundries (12,223, or 14 per cent.) and



Chain, Nail, Screw, etc. (8,941, or 19 per cent.). The number employed in the Iron and Steel (Smelting and Rolling) Trade was also large (8,929), but the proportion was only 7 per cent.

**Monthly fluctuations in employment.**—Firms were required to state the actual numbers of operatives employed in the middle week of each month of the periods covered by their returns, and the following table shows the monthly aggregates for each of the trades in the iron and steel group :—

*Operative staff (excluding outworkers) in the Iron and Steel Trades in 1930 and 1924*

| Middle week in | 1930 | | 1924 |
|---|---|---|---|
| | Total number | Number employed by firms furnishing returns in respect of the twelve months ended December* | Total number |
| (1) | (2) | (3) | (4) |
| January ... | 470,315 | 301,235 | 452,565 |
| February ... | 466,198 | 299,657 | 457,214 |
| March ... | 465,842 | 299,013 | 457,451 |
| April ... ... | 466,734 | 294,752 | 458,394 |
| May ... ... | 462,155 | 293,716 | 461,920 |
| June ... ... | 455,552 | 287,721 | 459,733 |
| July ... ... | 443,759 | 277,385 | 455,627 |
| August ... | 433,960 | 269,338 | 454,653 |
| September ... | 431,812 | 268,631 | 446,871 |
| October ... | 426,387 | 260,781 | 455,957 |
| November ... | 419,971 | 257,110 | 456,644 |
| December ... | 418,449 | 255,329 | 456,141 |
| AVERAGE FOR THE TWELVE MONTHS ... | 446,760 | 280,389 | 456,100 |

* Great Britain only.

The figures in columns (2) and (4) represent the aggregates recorded in all returns, irrespective of the periods to which they related*; thus, for example, in the case of returns covering the twelve months ended March 31st, 1931, the figures recorded in column (2) for the first three months were the numbers employed in that period of the year 1931, while the numbers at work in the last three months of the year 1929 were stated in returns covering the twelve months ended 30th September, 1930. A more accurate

* See Introductory Notes, page xi.

representation of the fluctuations in employment in the year 1930 is provided by the figures in column (3), which show the numbers recorded in returns that related to the calendar year. It will be seen that employment declined uninterruptedly throughout the year 1930, though the rate of decline was relatively small in the first quarter. In the following nine months employment decreased more rapidly, the figure shown for December being lower by 15 per cent. than the average of the first three months of the year. Comparing columns (2) and (4) it will be seen that, though the average for the year 1930 was about 2 per cent. below that for 1924, during the first quarter of the year a greater number of persons were employed than in the corresponding months of 1924. The comparison cannot be carried beyond this period in view of the inclusion in the later figures for 1930 of returns covering the period of higher production in 1929.

**Outworkers.**—The following table shows the numbers of outworkers employed in 1930 and 1924 in the iron and steel group of trades :—

*Average numbers of outworkers employed*

| Trade | 1930 | | | 1924 | | |
|---|---|---|---|---|---|---|
| | Males | Females | Total | Males | Females | Total |
| Chain, Nail, Screw, etc.... | 278 | 177 | 455 | 245 | 312 | 557 |
| Needle, Pin, Fish-hook, etc. ... ... ... | 23 | 168 | 191 | 38 | 506 | 544 |
| Small Arms ... ... | 259 | 3 | 262 | 191 | 3 | 194 |
| Iron and Steel Trades (Northern Ireland)* ... | 8 | — | 8 | — | — | — |
| TOTAL ... ... | 568 | 348 | 916 | 474 | 821 | 1,295 |

* See footnote (*) to table on page 1.

## Wages

The table on pages 18 and 19 summarises the information available as to the amount of wages paid by firms in the Iron and Steel Trades in 1930 and 1924. The particulars of wages shown in column (8) are those ascertained by the Ministry of Labour as a result of the voluntary inquiries undertaken by that Ministry into wages and hours of labour in the United Kingdom.

The numbers of operatives shown in columns (1) and (3) are those returned to the Census of Production as employed by the firms concerned in the weeks ended 18th October, 1930 and 1924, and the average during the year 1930 respectively. The amount of



wages paid shown in column (8) was the aggregate returned to the Ministry of Labour in respect of the same firms. The proportion of each trade represented by the firms that furnished particulars of their wage bills is shown in columns (2) and (4) based on the numbers of operatives employed and, in column (7), on net output. The average numbers of operatives employed during the year 1924, corresponding to those given in column (3) in respect of 1930, are not available.

Reference is made in this report, and in the reports on individual trades, to certain changes in classification of products which were made for the purposes of the 1930 Census, and to consequential adjustments of the previously published figures for 1924 in order to place the results for the two years on a comparable basis. It has not been possible to make the requisite adjustments in respect of the wages particulars published for the previous Census, and though these changes in classification are for the most part accounted for in the figures relating to the group as a whole, the particulars given for some of the individual trades are not completely comparable. The trades chiefly affected are the Iron and Steel (Smelting and Rolling) Trade and Iron and Steel Foundries, the particulars for which are combined in the following table for comparison with the 1924 aggregates for the Iron and Steel (Smelting, Rolling and Founding) Trade and the Light Castings Trade; for the reasons given in the reports on these two trades (see pages 27 and 61) the combined figures for 1924 may cover certain types of production which are not represented in the totals for 1930. In the Chain, Nail, Screw, etc., Trades, the range of goods covered by the schedule for 1930 was somewhat greater than that for 1924, and in the Needle, Pin, Fish-hook, etc. Trade, slightly less.

The figures for wages for both years relate to firms employing on an average more than ten persons during the respective years and cover firms in Great Britain only.

returns of wages

| Trade | | Firms furnishing: Operative staff employed: During week ended 18th October (1) | Proportion of trade (2) | Average during year (3) | Proportion of trade (4) | Gross output (5) | Net output: Amount (6) | Net output: Proportion of trade (7) | Wages paid: Amount (8) | Wages paid: Proportion of net output (9) | Trade |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Number | Per cent. | Number | Per cent. | £'000 | £'000 | Per cent. | £'000 | Per cent. | |
| Iron and Steel (Blast Furnaces) ... ... ... | 1930 | 6,424 | 42·3 | 7,708 | 42·6 | 9,659 | 1,591 | 40·3 | 1,475 | 92·7 | 1930 Iron and Steel (Blast |
| | *1924* | *15,549* | *64·4* | * | * | * | *3,012* | *57·3* | *2,472* | *82·1* | *1924* Furnaces). |
| Iron and Steel (Smelting and Rolling) ... ... | 1930 | 79,958 | 71·4 | 87,123 | 70·4 | 61,447 | 17,374 | 67·9 | 13,312 | 76·6 | 1930 ... Iron and Steel (Smelting and Rolling). |
| Iron and Steel Foundries ... | 1930 | 51,940 | 64·3 | 53,090 | 62·8 | 19,542 | 11,157 | 65·5 | 6,743 | 60·4 | 1930 ... Iron and Steel Foundries. |
| Total ... ... ... | 1930 | 131,898 | 68·4 | 140,213 | 67·9 | 80,989 | 28,531 | 67·0 | 20,055 | 70·3 | 1930 ... Total. |
| Iron and Steel (Smelting, Rolling and Founding) ... | *1924* | *100,992* | * | * | * | * | *23,287* | * | *15,920* | *68·4* | *1924* ... Iron and Steel (Smelting, Rolling and Founding). |
| Light Castings ... ... | *1924* | *22,662* | * | * | * | * | *5,454* | * | *3,026* | *55·5* | *1924* Light Castings. |
| Total ... ... ... | *1924* | *123,654* | *56·0* | * | * | * | *28,741* | *59·0* | *18,946* | *65·9* | *1924* ... Total. |
| Tinplate ... ... ... | 1930 | 20,856 | 86·3 | 20,902 | 85·6 | 13,903 | 4,480 | 88·0 | 3,224 | 72·0 | 1930 Tinplate. |
| | *1924* | *21,708* | *79·1* | * | * | * | *5,020* | *78·8* | *3,542* | *70·6* | *1924* |
| Hardware, Hollow-ware, etc. ... ... ... | 1930 | 37,802 | 51·7 | 38,475 | 51·7 | 14,666 | 7,502 | 51·1 | 3,844 | 51·2 | 1930 Hardware, Hollow-ware, etc. |
| | *1924* | *38,279* | *61·8* | * | * | * | *7,170* | *61·9* | *3,776* | *52·7* | *1924* |
| Chain, Nail, Screw, etc. ... | 1930 | 23,238 | 55·6 | 23,927 | 56·2 | 9,184 | 4,436 | 55·1 | 2,783 | 62·7 | 1930 Chain, Nail, Screw, etc. |
| | *1924* | *20,247* | *58·8* | * | * | * | *4,198* | *60·8* | *1,961* | *46·7* | *1924* |
| Wrought Iron and Steel Tubes ... ... ... | 1930 | 18,282 | 82·2 | 18,764 | 82·4 | 11,108 | 4,724 | 83·5 | 2,597 | 55·0 | 1930 Wrought Iron and Steel Tubes. |
| | *1924* | *17,641* | *79·3* | * | * | * | *4,389* | *81·5* | *2,390* | *54·4* | *1924* |
| Wire ... ... ... | 1930 | 15,156 | 79·1 | 15,560 | 78·8 | 10,663 | 3,264 | 74·8 | 2,022 | 62·0 | 1930 Wire. |
| | *1924* | *16,586* | *75·8* | * | * | * | *4,576* | *75·9* | *2,222* | *48·5* | *1924* |
| Tool and Implement ... | 1930 | 7,820 | 41·6 | 7,969 | 42·0 | 2,486 | 1,487 | 42·0 | 804 | 54·1 | 1930 Tool and Implement. |
| | *1924* | *13,346* | *61·0* | * | * | * | *3,091* | *64·0* | *1,510* | *48·9* | *1924* |
| Cutlery ... ... ... | 1930 | 3,474 | 37·9 | 3,269 | 36·1 | 930 | 504 | 28·5 | 321 | 63·7 | 1930 Cutlery. |
| | *1924* | *6,080* | *67·4* | * | * | * | *1,158* | *70·9* | *637* | *55·0* | *1924* |
| Needle, Pin, Fish-hook, etc.† ... ... ... | 1930 | 4,215 | 49·6 | 4,322 | 50·6 | 1,334 | 787 | 47·6 | 366 | 46·5 | 1930 Needle, Pin, Fish-hook, etc.† |
| | *1924* | *6,455* | *67·4* | * | * | * | *1,030* | *71·4* | *545* | *52·8* | *1924* |
| Small Arms ... ... | 1930 | 909 | 77·0 | 889 | 75·6 | 350 | 222 | 71·6 | 127 | 57·2 | 1930 Small Arms. |
| | *1924* | *1,586* | *81·9* | * | * | * | *296* | *79·1* | *215* | *72·6* | *1924* |
| TOTAL ... ... ... | 1930 | 270,074 | 63·3 | 281,998 | 63·1 | 155,272 | 57,528 | 62·8 | 37,618 | 65·4 | 1930 ... TOTAL. |
| | *1924* | *281,131* | *61·7* | * | * | * | *62,681* | *63·6* | *38,216* | *61·0* | *1924* |

* Not available.

† The 1924 figures probably include particulars of certain returns now transferred to the Ivory, Horn, etc., Trade which is dealt with in a separate volume, the main output of these firms being buttons not of metal.

The proportion of the total trade of the group covered by firms whose wages returns are included in this table was about the same in the two years, being slightly higher in 1930 measured in terms of employment, and slightly lower measured by net output. For 1930 the net output per operative employed by the firms whose wages returns are included was somewhat smaller than that of the firms not included in the table. Comparing the results for individual trades, wages formed a larger proportion of net output in 1930 in eight cases, and a smaller proportion in three. In the Chain, Nail, Screw, etc., Trades and the Wire Trade, the proportion of net output formed by wages increased by 16 and 13·5 per cent. of the respective totals, whereas in the Small Arms Trade the proportion represented by wages was smaller by 15·4 per cent.

In connection with the large percentage figure for both 1924 and 1930 shown in column (9) in respect of Blast Furnaces, it should be borne in mind that a very large proportion of the output of pig iron is used in steel works connected with blast furnaces under the same ownership. The value assigned to the output of the blast furnaces in such cases was the price at which the iron was transferred to the steel works. This valuation was dependent on the methods of costing followed by the individual firms, and did not necessarily correspond with the prices charged in the case of goods sold to other firms. For this reason the net output figures shown for Blast Furnaces may be somewhat understated, and the proportion of wages indicated in the above table for that trade is probably excessive as compared with trades the products of which were recorded on the basis of selling value. Any understatement in respect of Blast Furnaces will lead to an overstatement in respect of the Iron and Steel (Smelting and Rolling) Trade. Taking these trades together with Iron and Steel Foundries, the proportion of net output represented by wages was 67·5 per cent. in 1924 and 71·5 per cent. in 1930.

## Power

The particulars recorded at the Censuses of 1930 and 1924 in respect of power installed and employed in the iron and steel group of trades are shown in the following table :—



*Power ordinarily in use and not in use in the Iron and Steel Trades in 1930 and 1924*

| Type | Capacity ordinarily in use | | Capacity in reserve or idle | | Proportion in reserve or idle | |
|---|---|---|---|---|---|---|
| | 1930 | 1924 | 1930 | 1924 | 1930 | 1924 |
| PRIME MOVERS | Th. H.P. | Th. H.P. | Th. H.P. | Th. H.P. | Per cent. | Per cent. |
| Reciprocating steam engines ... ... | 980·4 | 1,220·1 | 326·3 | 281·3 | 25·0 | 18·7 |
| Steam turbines ... ... | 455·7 | 331·2 | 187·6 | 158·7 | 29·2 | 32·4 |
| Internal combustion engines :— | | | | | | |
| Gas ... ... ... | 145·3 | 133·5 | 55·0 | 50·8 | 27·4 | 27·6 |
| Petrol, kerosene, or other light oils ... | 0·5 | 0·7 | 0·2 | 0·1 | 29·7 | 9·7 |
| Heavy oils ... ... | 12·6 | 2·7 | 1·4 | 0·1 | 10·2 | 3·3 |
| Water engines ... ... | 4·0 | 3·0 | 0·5 | 0·1 | 12·0 | 4·7 |
| Other ... ... ... | 0·3 | 1·0 | 0·1 | 0·1 | 18·2 | 10·2 |
| TOTAL—Prime movers | 1,598·8 | 1,692·2 | 571·1 | 491·2 | 26·2 | 22·5 |
| ELECTRIC GENERATORS | Th. Kw. | Th. Kw. | Th. Kw. | Th. Kw. | | |
| Driven by | | | | | | |
| Reciprocating steam engines ... ... | 38·5 | 46·5 | 28·1 | 32·4 | 42·2 | 41·0 |
| Steam turbines ... | 187·5 | 176·7 | 103·4 | 80·3 | 35·6 | 31·3 |
| Internal combustion engines :— | | | | | | |
| Gas ... ... ... | 52·6 | 46·0 | 26·9 | 22·5 | 33·8 | 32·9 |
| Petrol, kerosene, or other light oils ... | 0·2 | 0·1 | 0·1 | * | 24·8 | 12·5 |
| Heavy oils ... ... | 3·2 | 0·8 | 0·5 | 0·1 | 15·0 | 11·4 |
| Water engines ... | 0·6 | 0·2 | * | * | 4·7 | 8·2 |
| TOTAL—Electric generators ... ... | 282·6 | 270·3 | 159·0 | 135·3 | 36·0 | 33·4 |
| ELECTRIC MOTORS | Th. H.P. | Th. H.P. | Th. H.P. | Th. H.P. | | |
| Driven by | | | | | | |
| Electricity generated in same works ... | 485·9 | 495·8 | 122·7 | 105·6 | 20·2 | 17·6 |
| Electricity generated in other works under same ownership ... | 152·0 | 14·0 | 23·0 | 2·6 | 13·2 | 15·6 |
| Purchased electricity... | 831·4 | 618·1 | 149·9 | 93·8 | 15·2 | 13·2 |
| TOTAL—Electric motors ... ... | 1,469·3 | 1,127·9 | 295·6 | 202·0 | 16·6 | 15·2 |

* Less than 50 kw.

The power generated by prime movers is required partly for direct application and partly for driving generators for the production of electrical energy. The electrical energy so produced may be used either for the purpose of driving electric motors or for heating, lighting and process purposes. Particulars of the power applied mechanically (i.e. directly) and electrically are given in the table on page 24.

Reciprocating steam engines formed the principal source of power in the iron and steel group of trades in both years, but the total capacity of these engines in use in 1930 was nearly 20 per cent. smaller than in 1924, while that of steam turbines increased by about 38 per cent. A large increase took place between the two years in the use of electrical energy. For purposes of comparison between 1930 and 1924 the capacity of motors driven by electricity generated in the same works and of those driven by electricity generated in other works under the same ownership should be added together, the latter class having been incompletely separated in 1924 (see page 49); the increase in the aggregate in use was 25 per cent. The increase in the capacity of motors driven by purchased electricity was somewhat larger, viz., 34 per cent. The increased employment of gas engines and heavy oil engines may also be noted.

At the 1930 Census, firms were definitely informed that obsolete engines should not be recorded in their returns, and as no similar instruction was given at the previous Census, the figures for reserve or idle plant in the two years may not be precisely comparable. In any case, the proportion of reserve or idle plant does not furnish a reliable measure of the activity of trade since all engines that were in operation during the greater part of the period in which production was carried on were recorded as " ordinarily in use," irrespective of intermittent working.

The particulars furnished at the two Censuses by each of the trades included in the iron and steel group, in respect of prime movers, electric generators and electric motors *installed* are shown in the following table :—

*Power available in 1930 and in 1924*

| Trade | | Prime movers | Electric generators | Electric motors | | | |
|---|---|---|---|---|---|---|---|
| | | | | Driven by electricity | | | All electric motors |
| | | | | Generated in same works | Generated in other works under same ownership | Purchased | |
| | | Th. H.P. | Th. Kw. | Th. H.P. | Th. H.P. | Th. H.P. | Th. H.P. |
| Iron and Steel (Blast Furnaces and Smelting and Rolling)... ... | 1930 | 1,924·3 | 380·6 | 538·5 | 149·8 | 478·6 | 1,166·9 |
| | *1924* | *1,904·4* | *346·3* | *523·0* | *13·4* | *377·1* | *913·5* |
| Iron and Steel Foundries‡ ... | 1930 | 30·0 | 15·1 | 14·7 | 17·2 | 121·2 | 153·1 |
| | *1924* | *40·0* | *18·0* | *23·0* | *1·5* | *92·7* | *117·2* |
| Tinplate ... ... | 1930 | 109·2 | 21·6 | 18·4 | 4·1 | 15·5 | 38·0 |
| | *1924* | *104·6* | *12·3* | *11·3* | *1·6* | *4·6* | *17·5* |
| Hardware, Hollow-ware, etc.‡ ... | 1930 | 12·9 | 2·9 | 2·6 | 0·8 | 64·1 | 67·5 |
| | *1924* | *17·7* | *3·1* | *1·9* | *0·1* | *36·2* | *38·2* |
| Chain, Nail, Screw, etc. ... ... | 1930 | 22·7 | 4·2 | 6·8 | 0·2 | 70·9 | 77·9 |
| | *1924* | *25·5* | *6·3* | *6·2* | — | *29·0* | *35·2* |
| Wrought Iron and Steel Tubes ... | 1930 | 17·6 | 2·9 | 5·3 | — | 107·2 | 112·5 |
| | *1924* | *26·1* | *6·4* | *15·3* | — | *68·8* | *84·1* |
| Wire ... ... | 1930 | 30·5 | 10·1 | 18·6 | 2·9 | 65·2 | 86·7 |
| | *1924* | *36·9* | *10·0* | *16·5* | — | *55·0* | *71·5* |



| Trade | | Prime movers | Electric generators | Electric motors | | | |
|---|---|---|---|---|---|---|---|
| | | | | Driven by electricity | | | All electric motors |
| | | | | Generated in same works | Generated in other works under same ownership | Purchased | |
| | | Th. H.P. | Th. Kw. | Th. H.P. | Th. H.P. | Th. H.P. | Th. H.P. |
| Tool and Implement‡ ... ... | 1930 | 15·8 | 2·0 | 2·5 | — | 40·2 | 42·7 |
| | *1924* | *20·1* | *2·2* | *3·2* | — | *35·8* | *39·0* |
| Cutlery‡ ... ... | 1930 | 2·4 | 0·3 | 0·3 | — | 12·9 | 13·2 |
| | *1924* | *4·6* | *0·5* | *0·6* | — | *7·3* | *7·9* |
| Needle, Pin, Fish-hook, etc. ... | 1930 | 4·1 | 1·8 | 0·8 | — | 4·1 | 4·9 |
| | *1924* | *3·1* | *0·5* | *0·4* | — | *2·8* | *3·2* |
| Small Arms ... | 1930 | 0·1 | 0·1 | 0·1 | — | 1·3 | 1·4 |
| | *1924* | *0·2* | — | — | — | *2·4* | *2·4* |
| Iron and Steel Trades (Northern Ireland)* ... | 1930 | 0·3 | † | † | — | 0·1 | 0·1 |
| | *1924* | *0·2* | † | — | — | *0·2* | *0·2* |
| TOTAL—UNITED KINGDOM ... | 1930 | 2,169·9 | 441·6 | 608·6 | 175·0 | 981·3 | 1,764·9 |
| | *1924* | *2,183·4* | *405·6* | *601·4* | *16·6* | *711·9* | *1,329·9* |
| England and Wales | 1930 | 1,850·5 | 389·4 | 510·5 | 172·0 | 845·8 | 1,528·3 |
| | *1924* | *1,830·9* | *354·6* | *517·1* | *14·8* | *585·0* | *1,116·9* |
| Scotland ... ... | 1930 | 319·1 | 52·2 | 98·1 | 3·0 | 135·4 | 236·5 |
| | *1924* | *352·3* | *51·0* | *84·3* | *1·8* | *126·7* | *212·8* |
| Northern Ireland... | 1930 | 0·3 | † | † | — | 0·1 | 0·1 |
| | *1924* | *0·2* | † | — | — | *0·2* | *0·2* |

‡ Great Britain.
* See footnote (*) to table on page 1.
† Less than 50 kw. or h.p.

**Total power in use.**—The figures in the following table represent the estimated amount of power actually employed by each of the trades in this group in the two years. For the purpose of arriving at the power applied mechanically, the capacity of the prime movers required to drive electric generators has been calculated and deducted from the total capacity of the prime movers; the power applied electrically represents the capacity of electric motors driven by generators at firms' works added to that of motors driven by purchased electricity. As the basis of calculating the amount of the primary power that is converted into electrical energy, 746 kilowatts of electrical energy have been taken as equivalent to 1,000 horse-power of primary power and an average loss of 10 per cent. in transmission has been allowed except for steam turbines, in which the loss is negligible. The power capacity recorded as " ordinarily in use " has been taken as the basis of the calculation in all cases.

The horse-power of motors designed to be driven by electricity generated in the same works may be greater than that of the prime movers used (or calculated in this manner to have been necessary) to drive them, since machines required for special processes are frequently equipped with individual motors which will only be in use on those occasions when the need for those processes arises. Further, the capacity measurement which firms were

instructed to state was the effective horse-power which their engines could develop and this measurement does not necessarily represent the capacity at which the engines were normally operated. For these reasons, the figures given below should not be taken as providing more than a rough indication of the actual amount of power employed by any trade or of the degree of its electrification.

*Power in use in 1930 and in 1924*

| Trade | | Power applied mechanically | Power applied electrically | Total power | Per head of average number of operatives employed |
|---|---|---|---|---|---|
| | | Th. H.P. | Th. H.P | Th. H.P. | H.P. |
| Iron and Steel (Blast Furnaces and Smelting and Rolling) ... ... | 1930 | 1,058·3 | 927·7 | 1,986·0 | 14·01 |
| | *1924* | *1,137·8* | *764·3* | *1,902·1* | *11·13* |
| Iron and Steel Foundries† | 1930 | 7·7 | 138·3 | 146·0 | 1·76 |
| | *1924* | *12·4* | *100·5* | *112·9* | *1·47* |
| Tinplate ... ... ... | 1930 | 76·3 | 35·6 | 111·9 | 4·58 |
| | *1924* | *84·5* | *16·2* | *100·7* | *3·72* |
| Hardware, Hollow-ware, etc.† ... ... ... | 1930 | 7·7 | 61·1 | 68·8 | 0·93 |
| | *1924* | *11·9* | *33·2* | *45·1* | *0·75* |
| Chain, Nail, Screw, etc.... | 1930 | 15·0 | 71·5 | 86·5 | 2·03 |
| | *1924* | *16·0* | *32·2* | *48·2* | *1·41* |
| Wrought Iron and Steel Tubes ... ... ... | 1930 | 10·7 | 99·2 | 109·9 | 4·82 |
| | *1924* | *12·1* | *71·2* | *83·3* | *3·80* |
| Wire ... ... ... | 1930 | 14·9 | 80·0 | 94·9 | 4·81 |
| | *1924* | *20·8* | *65·2* | *86·0* | *3·83* |
| Tool and Implement† ... | 1930 | 11·9 | 39·2 | 51·1 | 2·69 |
| | *1924* | *14·5* | *33·3* | *47·8* | *2·19* |
| Cutlery† ... ... ... | 1930 | 1·6 | 10·9 | 12·5 | 1·38 |
| | *1924* | *3·4* | *7·1* | *10·5* | *1·19* |
| Needle, Pin, Fish-hook, etc. ... ... ... | 1930 | 1·4 | 4·5 | 5·9 | 0·69 |
| | *1924* | *2·2* | *2·9* | *5·1* | *0·54* |
| Small Arms ... ... | 1930 | * | 1·3 | 1·3 | 1·10 |
| | *1924* | *0·2* | *1·5* | *1·7* | *0·91* |
| Iron and Steel Trades (Northern Ireland)‡ ... | 1930 | 0·3 | 0·1 | 0·4 | 1·37 |
| | *1924* | *0·2* | *0·2* | *0·4* | *0·99* |
| TOTAL ... ... ... | 1930 | 1,205·8 | 1,469·4 | 2,675·2 | 5·99 |
| | *1924* | *1,316·0* | *1,127·8* | *2,443·8* | *5·36* |

† Great Britain. * Less than 50 H.P.
‡ See footnote (*) to table on page 1.

These calculations indicate that there was an increase of about 30 per cent. in 1930 in power applied electrically but a decrease of over 8 per cent. in power applied mechanically, resulting in an increase of about 9·5 per cent. in the total power capacity in use. Power capacity per operative increased in every trade and for the group as a whole was greater than in 1924 by about 12 per cent. The latter figure is, however, governed to a large extent by the amount of power used in the heavy Iron and Steel Trades, for which a combined figure is given in the table, this being in 1930 about three-quarters of the total power used by all trades in the group. If these two trades are excluded, the power used per operative would be reduced to 1·90 horse power in 1924 and 2·26 horse-power in 1930, an increase in the later year of about 19 per cent.



## Consumption of fuel

**Coal and coke.**—At the 1930 Census, all firms were required to state the total quantity of coal and coke used for generating power (i.e., for driving engines), and were also requested to furnish particulars of the amounts used for other purposes on a voluntary basis, as the provisions of the Census of Production Act do not enable the latter to be obtained compulsorily. In the iron and steel industries, where heat is required for process purposes as well as for power, many firms found difficulty in furnishing a trustworthy figure of the quantities used for these two categories separately, and, as appears from the table below, it was necessary to accept a certain number of inclusive quantity statements without distinction as to purpose. The following particulars relate only to firms in Great Britain.

*Coal and Coke used*

*Note.*—The figures in italics below the name of the trade indicate respectively (1) the percentage of the total capacity of steam engines in use represented by the firms that furnished separate particulars of coal and coke used for power and (2) the percentage of the total net output represented by the firms that furnished separate particulars of coal and coke used for other purposes.

| Trade | For power | | For other purposes | | Unclassified | |
|---|---|---|---|---|---|---|
| | Coal | Coke | Coal | Coke | Coal | Coke |
| Iron and Steel (Blast Furnaces and Smelting and Rolling)— | Th. tons | Th. tons | Th. tons | Th. tons | Th. tons | Th. tons |
| (1) *97·3*; (2) *88·9* ... | 2,097·0 | 399·6 | 4,283·4 | 6,273·3 | 253·0 | 555·7 |
| Iron and Steel Foundries— | | | | | | |
| (1) *100·0*; (2) *95·3* ... | 56·7 | 1·3 | 227·2 | 257·8 | — | — |
| Tinplate— | | | | | | |
| (1) *100·0*; (2) *85·4* ... | 382·7 | — | 352·3 | 0·1 | — | — |
| Hardware, Hollow-ware, etc.— | | | | | | |
| (1) *98·4*; (2) *97·6* ... | 11·7 | 0·3 | 83·0 | 40·5 | 0·1 | — |
| Chain, Nail, Screw, etc.— | | | | | | |
| (1) *98·0*; (2) *94·1* ... | 56·8 | 0·4 | 144·4 | 56·1 | 3·4 | 0·9 |
| Wrought Iron and Steel Tubes— | | | | | | |
| (1) *100·0*; (2) *88·0* ... | 72·8 | 2·5 | 215·1 | 31·3 | 0·2† | 0·8† |
| Wire— | | | | | | |
| (1) *99·5*; (2) *97·1* ... | 82·8 | * | 105·3 | 28·7 | — | 1·0 |
| Tool and Implement— | | | | | | |
| (1) *96·1*; (2) *95·7* ... | 32·2 | 0·6 | 50·6 | 26·5 | 0·6 | 0·2 |
| Cutlery— | | | | | | |
| (1) *100·0*; (2) *100·0* ... | 2·3 | — | 2·2 | 3·9 | — | — |
| Needle, Pin, Fish-hook, etc.— | | | | | | |
| (1) *100·0*; (2) *93·7* ... | 2·3 | * | 4·9 | 2·7 | 0·2† | * |
| Small Arms— | | | | | | |
| (1) — ; (2) *100·0* ... | — | — | 0·8 | 0·3 | — | — |
| TOTAL— | | | | | | |
| (1) *97·6*; (2) *92·7* ... | 2,797·3 | 404·7 | 5,469·2 | 6,721·2 | 257·5 | 558·6 |

* Less than 50 tons.
† In so far as any part of this coal or coke was used for power purposes, it was used for engines other than steam engines.

By far the largest consumers of coal and coke in this group were the heavy Iron and Steel Trades (Blast Furnaces and Smelting and Rolling) which used 78 per cent. of the total quantity of coal, and nearly 94 per cent. of the total quantity of coke returned. The Tinplate Trade consumed about 9 per cent. of the aggregate amount of coal used in the group. Separate particulars of fuel consumption for power purposes (driving engines) were received in respect of 97·6 per cent. of the total capacity of steam engines in use in these trades, and on the basis of this large proportion the total quantities of coal and coke consumed in 1930 for power purposes may be calculated at approximately 2,850,000 tons of coal and 410,000 tons of coke.

No particulars of oil, gas or other fuel were ascertained for the year 1930. At the Census of 1924 a voluntary inquiry was made as to the amounts of coal, coke, heavy and light oils, and gas consumed, and reference should be made to the Final Report on that Census for particulars of the partial information supplied by each of the Iron and Steel Trades.

**Electricity.**—Particulars of the quantity of electricity used were required from all firms, electricity produced by their own generating plant being distinguished from that purchased from outside sources. No separate record of the purpose for which the current was used was obtained.

The following table shows for each of the Iron and Steel Trades the total quantities of electricity used in 1930 and relates to firms in Great Britain only :—

*Electricity used*

| Trade | Electricity purchased | Electricity generated | | Number of units generated per kilowatt of generators in use |
|---|---|---|---|---|
| | | In same works | In other works owned by the firm | |
| | B.T.U. (Kw.-hrs.) '000 | B.T.U. (Kw.-hrs.) '000 | B.T.U. (Kw.-hrs.) '000 | B.T.U. per Kw. |
| Iron and Steel (Blast Furnaces and Smelting and Rolling) ... | 282,771 | 510,343 | 122,598 | 2,146 |
| Iron and Steel Foundries ... | 70,192 | 12,713 | 23,703 | 1,151 |
| Tinplate ... ... ... ... | 15,994 | 22,110 | 9,920 | 1,553 |
| Hardware, Hollow-ware, etc. ... | 42,144 | 2,493 | 652 | 1,099 |
| Chain, Nail, Screw, etc. ... | 53,906 | 3,358 | 200 | 1,116 |
| Wrought Iron and Steel Tubes... | 69,979 | 4,736 | — | 2,307 |
| Wire ... ... ... ... | 46,776 | 13,913 | 4,504 | 1,459 |
| Tool and Implement ... ... | 25,482 | 1,556 | — | 1,100 |
| Cutlery ... ... ... ... | 7,189 | 345 | — | 1,584 |
| Needle, Pin, Fish-hook, etc. ... | 3,109 | 1,847 | — | 1,942 |
| Small Arms ... ... ... | 1,091 | 62 | — | 2,080 |
| TOTAL ... ... ... | 618,633 | 573,476 | 161,577 | 2,029 |

The figures shown for current generated represent only the amounts generated *and used*, and fall short of the total output of current in cases where electricity was sold to outside consumers.