



BOARD OF TRADE

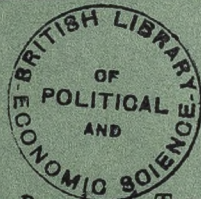
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[HA 251]

THE REPORT  
on the  
CENSUS OF PRODUCTION  
FOR 1951

Volume 4

Trade C

MACHINE TOOLS



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1956

TWO SHILLINGS NET



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\* Not applicable to this trade

26.6.56

MACHINE TOOLS

4/C/1

MACHINE TOOLS TRADE

THIS REPORT on the Machine Tools Trade relates to establishments engaged wholly or mainly in the manufacture of metal-working machine tools, engineers' small tools for use with machine tools, and welding machinery of all descriptions.

This trade corresponds to minimum list heading 54 in the Standard Industrial Classification. There were no larger establishments in Northern Ireland in the register for this trade.

IMPORTANT NOTES and definitions appear on the inside of the back cover of this report. In interpreting the data in the following tables, it is essential to bear these in mind.



## MACHINE TOOLS TRADE

## Summary

## Larger establishments (a)

TABLE 1

|                                                | Great Britain |            |            |            |            |            |            |
|------------------------------------------------|---------------|------------|------------|------------|------------|------------|------------|
|                                                | 1951          | 1950       | 1949       | 1948       | 1946       | 1937       | 1935       |
|                                                | £'000         | £'000      | £'000      | £'000      | £'000      | £'000      | £'000      |
| Gross output (production) (b)                  | 113,097       | 83,409     | 74,999     | 69,819     | 49,146     | 16,355     | 10,303     |
| Cost of materials and fuel used (c)            | 46,521        | 32,591     | 29,234     | 25,931     | 18,159     | 5,680      | 3,376      |
| Payment for work done on materials given out   | 1,871         | 1,507      | 1,354      | 1,164      | 863        | 165        | 54         |
| Transport payments (d)                         | 984           | ..         | ..         | ..         | ..         | ..         | ..         |
| Net output                                     | 63,721        | 49,311     | 44,411     | 42,724     | 30,124     | 10,510     | 6,873      |
| Wages and salaries of persons employed         | 36,092        | 29,598     | 27,607     | 25,877     | 20,350     | ..         | ..         |
| Average number of persons employed (e)         | No. 87,072    | No. 78,994 | No. 77,633 | No. 76,531 | No. 70,051 | No. 33,658 | No. 26,168 |
| Net output per person employed (e)             | £ 732         | £ 624      | £ 572      | £ 558      | £ 430      | £ 312      | £ 263      |
| Stocks at end of year                          | £'000         | £'000      | £'000      | £'000      | £'000      | £'000      | £'000      |
| Products on hand for sale and work in progress | 23,452        | 17,656     | 16,521     | 14,359     | 9,714      | 3,299(f)   | 2,305(f)   |
| Materials and fuel                             | 11,436        | 7,628      | 7,474      | 6,836      | 4,341      | ..         | ..         |
| Number of establishments                       | No. 681       | No. 645    | No. 627    | No. 616    | No. ..     | No. ..     | No. 195    |

The values of gross output and of materials and fuel used are derived in the following way:-

|                                                | £'000   | £'000  | £'000   | £'000   | £'000   | £'000    | £'000    |
|------------------------------------------------|---------|--------|---------|---------|---------|----------|----------|
| Output of firms in this trade (g)              |         |        |         |         |         |          |          |
| Principal products (h)                         | 94,666  | 83,027 | 73,835  | 60,483  | 48,085  | 14,900   | 8,950    |
| Other output (i)                               | 13,877  |        |         |         |         |          |          |
| Changes in stocks and work in progress (j)     | + 4,555 | + 883  | + 1,550 | + 1,858 | + 1,061 | + 532(f) | + 643(f) |
| Less payment for transport outwards (d)        | 113,097 | 83,910 | 75,385  | 70,185  | 49,146  | 16,355   | 10,303   |
| Gross output (production)                      | 113,097 | 83,409 | 74,999  | 69,819  | 49,146  | 16,355   | 10,303   |
| Materials and fuel used by firms in this trade |         |        |         |         |         |          |          |
| Purchases                                      | 50,019  | 32,640 | 29,815  | 26,732  | 18,697  | 5,680    | 3,376    |
| Changes in stocks (j)                          | - 3,498 | - 48   | - 581   | - 801   | - 538   |          |          |
| Materials and fuel used                        | 46,521  | 32,591 | 29,234  | 25,931  | 18,159  | 5,680    | 3,376    |

- (a) For small firms' summary see Table 2.  
 (b) Gross output for 1951 includes payments to other firms and undertakings and to firms' own separate transport organisations for transport services. For other years payments for transport services outwards on finished goods sold are excluded.  
 (c) Amounts paid for delivery services are excluded for 1951 but included for other years.  
 (d) Payments to other firms and undertakings and to firms' own separate transport organisations. For 1951 they cover payments for transport of both goods sold and materials and fuel purchased. For other years payments cover only transport outwards of finished goods sold.  
 (e) Excluding outworkers but including working proprietors. For an estimate of the total numbers of persons employed in this trade see Table 3.  
 (f) Work in progress only.  
 (g) Total value of sales (1951, 1950, 1949, 1948 and 1946) or production for sale (1937 and 1935).  
 (h) For details for 1951 and 1948 see Table 8.  
 (i) For details for 1951 and 1948 see Table 10.  
 (j) For details for 1951 see Table 21.

## Summary

## Small firms (a)

TABLE 2

|                                        | Great Britain |       |       |       |
|----------------------------------------|---------------|-------|-------|-------|
|                                        | 1951          | 1950  | 1949  | 1948  |
| Number of returns                      | 306           | 302   | 264   | 261   |
| Average number of persons employed (b) |               |       |       |       |
| Males                                  | 1,721         | 1,671 | 1,505 | 1,467 |
| Females                                | 294           | 254   | 221   | 254   |
| Total                                  | 2,015         | 1,925 | 1,726 | 1,721 |

- (a) Small firms (employing on the average ten or fewer persons) that made satisfactory returns.  
 (b) Including working proprietors.

## Estimated average employment (a)

## All firms

TABLE 3

|                                                                       | Great Britain |        |        |        |
|-----------------------------------------------------------------------|---------------|--------|--------|--------|
|                                                                       | 1951          | 1950   | 1949   | 1948   |
| As returned by firms                                                  |               |        |        |        |
| Employing on the average more than ten persons (b)                    | 87,072        | 78,994 | 77,633 | 76,531 |
| Employing on the average ten or fewer persons (c)                     | 2,015         | 1,925  | 1,726  | 1,721  |
| Estimated average employment in firms not making satisfactory returns | 89,087        | 80,919 | 79,359 | 78,252 |
| Estimated average employment in all firms                             | 281           | 82     | 80     | 751    |
| Estimated average employment in all firms                             | 89,368        | 81,001 | 79,439 | 79,003 |

- (a) Including working proprietors.  
 (b) See Tables 13(iv) and 14.  
 (c) See Table 2.

## Analysis by size, 1951

## Larger establishments in Great Britain

TABLE 4

| Average number employed | Establishments | Gross output | Net output | Persons employed | Remuneration |                     |        | Net output per person employed |
|-------------------------|----------------|--------------|------------|------------------|--------------|---------------------|--------|--------------------------------|
|                         |                |              |            |                  | Operatives   | Other employees (a) | Total  |                                |
|                         | No.            | £'000        | £'000      | No.              | £'000        | £'000               | £'000  | £                              |
| 11 - 24                 | 180            | 3,427        | 2,035      | 3,149            | 946          | 300                 | 1,246  | 646                            |
| 25 - 49                 | 168            | 6,864        | 4,069      | 5,846            | 1,824        | 566                 | 2,389  | 696                            |
| 50 - 99                 | 139            | 12,331       | 6,953      | 9,884            | 3,081        | 1,031               | 4,111  | 703                            |
| 100 - 199               | 92             | 19,395       | 10,202     | 13,519           | 4,246        | 1,436               | 5,681  | 755                            |
| 200 - 299               | 34             | 10,352       | 6,341      | 8,072            | 2,493        | 880                 | 3,373  | 786                            |
| 300 - 399               | 21             | 10,069       | 5,769      | 7,166            | 2,301        | 790                 | 3,092  | 805                            |
| 400 - 499               | 11             | 5,455        | 3,322      | 4,887            | 1,508        | 540                 | 2,048  | 680                            |
| 500 - 749               | 16             | 14,685       | 7,275      | 10,119           | 3,139        | 1,078               | 4,217  | 719                            |
| 750 - 999               | 10             | 8,908        | 5,556      | 8,498            | 2,560        | 1,003               | 3,563  | 654                            |
| 1,000 - 1,499           | 6              | 11,308       | 6,116      | 7,221            | 2,008        | 651                 | 2,659  | 847                            |
| 1,500 and over          | 4              | 10,303       | 6,083      | 8,711            | 2,824        | 889                 | 3,713  | 698                            |
| Total                   | 681            | 113,097      | 63,721     | 87,072           | 26,929       | 9,163               | 36,092 | 732                            |

- (a) Administrative, technical and clerical employees.



## ENGINEERING, SHIPBUILDING AND ELECTRICAL GOODS

Analysis by standard region, 1951

Larger establishments in Great Britain

TABLE 5

| Region                      | Estab-<br>lish-<br>ments | Gross<br>output | Net output |                             | Persons<br>employed | Remuneration |                           |        | Net output<br>per person<br>employed |
|-----------------------------|--------------------------|-----------------|------------|-----------------------------|---------------------|--------------|---------------------------|--------|--------------------------------------|
|                             |                          |                 | Value      | Percent-<br>age of<br>total |                     | Operatives   | Other<br>employees<br>(a) | Total  |                                      |
|                             | No.                      | £'000           | £'000      |                             | No.                 | £'000        | £'000                     | £'000  | £                                    |
| England                     |                          |                 |            |                             |                     |              |                           |        |                                      |
| Northern                    | 6                        | 1,689           | 991        | 1.5                         | 1,449               | 452          | 137                       | 589    | 684                                  |
| East and West<br>Ridings    | 114                      | 27,646          | 15,330     | 24.1                        | 19,235              | 5,643        | 1,632                     | 7,275  | 797                                  |
| North Midland               | 30                       | 5,608           | 3,175      | 5.0                         | 4,741               | 1,411        | 513                       | 1,925  | 670                                  |
| Eastern                     | 27                       | 3,997           | 2,285      | 3.6                         | 3,001               | 934          | 319                       | 1,254  | 761                                  |
| London and South<br>Eastern | 175                      | 19,693          | 11,082     | 17.4                        | 15,534              | 4,982        | 1,696                     | 6,678  | 713                                  |
| Southern                    | 20                       | 1,854           | 1,072      | 1.7                         | 1,359               | 411          | 173                       | 584    | 789                                  |
| South Western               | 21                       | 2,186           | 1,002      | 1.6                         | 1,673               | 458          | 221                       | 679    | 599                                  |
| Midland                     | 185                      | 36,543          | 20,850     | 32.6                        | 28,124              | 9,087        | 3,353                     | 12,440 | 741                                  |
| North Western               | 72                       | 9,439           | 5,523      | 8.7                         | 8,441               | 2,542        | 800                       | 3,343  | 654                                  |
| Total England               | 650                      | 108,655         | 61,309     | 96.2                        | 83,557              | 25,921       | 8,846                     | 34,766 | 734                                  |
| Wales                       | 10                       | 1,131           | 704        | 1.1                         | 832                 | 295          | 58                        | 353    | 846                                  |
| Scotland                    | 21                       | 3,312           | 1,708      | 2.7                         | 2,683               | 713          | 260                       | 973    | 637                                  |
| Great Britain               | 681                      | 113,097         | 63,721     | 100.0                       | 87,072              | 26,929       | 9,163                     | 36,092 | 732                                  |

(a) Administrative, technical and clerical employees.

TABLE 6 - Analysis according to specialisation within the trade, 1951

Larger establishments in Great Britain

No specialisation within this trade was distinguished.

Total make of certain intermediate products

Larger establishments in Great Britain in the trade

TABLE 7

|                                         | 1951     |         | 1948     |
|-----------------------------------------|----------|---------|----------|
|                                         | Quantity | Entries | Quantity |
| Other than principal products           | Th.tons  | No.     | Th.tons  |
| Castings                                |          |         |          |
| Of iron, including malleable iron (a)   | 28       | 26      | 23       |
| Of non-alloy steel (b)                  | -        | -       | -        |
| Of alloy steel (b)                      | 1        | ..      | -        |
|                                         | Th.cwts. |         | Th.cwts. |
| Of brass and other alloys of copper (c) | 2        | 6       | 1        |
| Of aluminium (d)                        | 1        | 6       | -        |

(a) For total output returned in all trades see the Iron Foundries Trade (Volume 3, Trade C).

(b) For total make returned in all trades see the Iron and Steel (Melting and Rolling) Trade (Volume 3, Trade B).

(c) For total output returned in all trades see the Brass Manufactures Trade (Volume 5, Trade F).

(d) For total output returned in all trades see the Non-Ferrous Metals (Smelting, Rolling, etc.) Trade (Volume 3, Trade G).

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## MACHINE TOOLS

Sales of the principal products of the trade including sales of these products by establishments classified to other trades

Larger establishments in Great Britain (a)

TABLE 8

| Kind of output                                                      | (i) Complete machines<br>(ii) Parts | 1951     |       |         | 1948     |       |
|---------------------------------------------------------------------|-------------------------------------|----------|-------|---------|----------|-------|
|                                                                     |                                     | Quantity | Value | Entries | Quantity | Value |
|                                                                     |                                     | No.      | £'000 | No.     | No.      | £'000 |
| Machine tools, metal-working, new (other than portable power tools) |                                     |          |       |         |          |       |
| Boring                                                              |                                     |          |       |         |          |       |
| Vertical, including vertical fine boring machines and boring mills  | (i) 684                             | 1,079    | 12    | 1,162   | 927      |       |
|                                                                     | (ii) ..                             | 82       | 15    | ..      | 84       |       |
| Other                                                               | (i) 2,204                           | 1,578    | 22    | 956     | 958      |       |
|                                                                     | (ii) ..                             | 100      | 16    | ..      | 2        |       |
| Drilling                                                            |                                     |          |       |         |          |       |
| Vertical (pillar and bench types)                                   | (i) 19,052                          | 1,527    | 30    | 22,052  | 943      |       |
|                                                                     | (ii) ..                             | 85       | 32    | ..      | 311      |       |
| Radial                                                              | (i) 2,050                           | 1,801    | 12    | 1,797   | 1,327    |       |
|                                                                     | (ii) ..                             | 90       | 11    | ..      | 55       |       |
| Multi-spindle, not included above                                   | (i) 945                             | 669      | 16    | 527     | 472      |       |
|                                                                     | (ii) ..                             | 29       | 9     | ..      | 8        |       |
| Other                                                               | (i) 321                             | 569      | 17    | 578     | 256      |       |
|                                                                     | (ii) ..                             | 20       | 15    | ..      | 9        |       |
| Gear cutting                                                        | (i) 406                             | 873      | 12    | 306     | 474      |       |
|                                                                     | (ii) ..                             | 136      | 9     | ..      | 21       |       |
| Grinding, other than threading                                      |                                     |          |       |         |          |       |
| Centreless                                                          | (i) 274                             | 383      | 9     | 176     | 275      |       |
|                                                                     | (ii) ..                             | 65       | 5     | ..      | 19       |       |
| Plain                                                               | (i) 421                             | 918      | 8     | 1,714   | 673      |       |
|                                                                     | (ii) ..                             | 170      | 8     | ..      | 59       |       |
| Surface                                                             | (i) 1,606                           | 1,065    | 20    | 932     | 657      |       |
|                                                                     | (ii) ..                             | 104      | 18    | ..      | 2        |       |
| Universal                                                           | (i) 371                             | 418      | 5     | 216     | 248      |       |
|                                                                     | (ii) ..                             | 43       | 6     | ..      | 10       |       |
| Other                                                               | (i) 18,835                          | 1,630    | 84    | 6,799   | 1,013    |       |
|                                                                     | (ii) ..                             | 257      | ..    | ..      | 96       |       |
|                                                                     | (iii) ..                            | 149      | 53    | ..      | 103      |       |
| Unclassified                                                        | (i) -                               | -        | -     | 204     | 5        |       |
|                                                                     | (ii) -                              | -        | -     | ..      | 72       |       |
|                                                                     | (iii) -                             | -        | -     | ..      | 12       |       |
| Lathes                                                              |                                     |          |       |         |          |       |
| Fully automatic (automatics)                                        | (i) 1,633                           | 2,468    | 16    | 1,144   | 1,749    |       |
|                                                                     | (ii) ..                             | 989      | 22    | ..      | 249      |       |
| Capstan and turret                                                  | (i) 3,284                           | 2,903    | 12    | 2,928   | 2,169    |       |
|                                                                     | (ii) ..                             | 506      | 16    | ..      | 34       |       |
| Centre                                                              | (i) 14,047                          | 5,275    | 56    | 12,084  | 4,101    |       |
|                                                                     | (ii) ..                             | 425      | 58    | ..      | 7        |       |
| Tool room                                                           | (i) ..                              | 471      | 10    | 310     | 325      |       |
|                                                                     | (ii) ..                             | ..       | ..    | ..      | 10       |       |
| Multi-tool or production                                            | (i) 604                             | 584      | 12    | 308     | 355      |       |
|                                                                     | (ii) ..                             | 82       | 11    | ..      | 29       |       |
| Other                                                               | (i) 1,817                           | 821      | 36    | 1,337   | 626      |       |
|                                                                     | (ii) ..                             | 110      | 32    | ..      | 9        |       |
|                                                                     | (iii) ..                            | ..       | ..    | ..      | 69       |       |

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TABLE 8 (contd.)

| Kind of output                                                                           | (i) Complete machines<br>(ii) Parts | 1951         |          |              | 1948         |       |
|------------------------------------------------------------------------------------------|-------------------------------------|--------------|----------|--------------|--------------|-------|
|                                                                                          |                                     | Quantity     | Value    | Entries      | Quantity     | Value |
|                                                                                          |                                     | No.          | £'000    | No.          | No.          | £'000 |
| Machine tools, metal-working, new (other than portable power tools) (contd.)             |                                     |              |          |              |              |       |
| Milling, other than threading                                                            |                                     |              |          |              |              |       |
| Vertical                                                                                 | { (i) 875<br>(ii) ..                | 636<br>48    | 14<br>10 | 210<br>..    | 247<br>25    |       |
| Plain horizontal                                                                         | { (i) 1,204<br>(ii) ..              | 894<br>87    | 11<br>12 | 953<br>..    | 379<br>21    |       |
| Universal                                                                                | { (i) 1,218<br>(ii) ..              | 1,152<br>124 | 9<br>12  | 985<br>..    | 844<br>44    |       |
| Manufacturing                                                                            | { (i) ..<br>(ii) ..                 | 745          | 9        | 215          | 391          |       |
| Other                                                                                    | { (i) 331<br>(ii) ..                | 831<br>52    | 24<br>20 | 567<br>..    | 426<br>8     |       |
| Unclassified                                                                             | { (i) 271<br>(ii) ..                | 66<br>15     | ..       | ..           | ..           |       |
| Planing                                                                                  | { (i) 124<br>(ii) ..                | 661<br>58    | 11<br>11 | 123<br>..    | 516<br>6     |       |
| Sawing                                                                                   | { (i) 5,285<br>(ii) ..              | 656<br>60    | 31<br>25 | 6,994<br>..  | 494<br>81    |       |
| Shaping                                                                                  | { (i) 2,757<br>(ii) ..              | 837<br>25    | 20<br>16 | 2,016<br>..  | 611<br>16    |       |
| Slotting                                                                                 | { (i) 151<br>(ii) ..                | 182<br>8     | 8<br>5   | 149<br>..    | 173<br>7     |       |
| Presses                                                                                  |                                     |              |          |              |              |       |
| Hydraulic                                                                                |                                     |              |          |              |              |       |
| Extrusion                                                                                | { (i) 49<br>(ii) ..                 | 428<br>76    | 9<br>16  | 31<br>..     | 172<br>57    |       |
| Other                                                                                    | { (i) 2,099<br>(ii) ..              | 1,906<br>298 | 57<br>54 | 1,448<br>..  | 811<br>14    |       |
| Other descriptions                                                                       | { (i) 6,321<br>(ii) ..              | 3,311<br>484 | 45<br>45 | 11,005<br>.. | 2,089<br>165 |       |
| Forging machinery, other than presses                                                    | { (i) 526<br>(ii) ..                | 853<br>202   | 19<br>22 | 472<br>..    | 527<br>47    |       |
| Funching and shearing                                                                    | { (i) 7,212<br>(ii) ..              | 934<br>106   | 56<br>44 | 7,093<br>..  | 470<br>238   |       |
| Tin box and can making                                                                   | { (i) 2,130<br>(ii) ..              | 678<br>225   | 15<br>18 | 1,038<br>..  | 394<br>65    |       |
| Straightening rolls, and plate and sheet-metal working machines, not elsewhere specified | { (i) 6,726<br>(ii) ..              | 1,255<br>160 | 35<br>33 | 7,272<br>..  | 570<br>97    |       |
| Screwing                                                                                 | { (i) 1,254<br>(ii) ..              | 263<br>62    | 13<br>8  | 1,475<br>..  | 264<br>43    |       |
| Threading                                                                                | { (i) 553<br>(ii) ..                | 406<br>86    | 16<br>12 | 308<br>..    | 255<br>20    |       |
| Other new metal-working machine tools                                                    |                                     |              |          |              |              |       |
| Complete                                                                                 | { ..<br>..                          | 1,799<br>457 | 121      | 4,491        | 897<br>345   |       |
| Parts                                                                                    | { ..<br>..                          | 437          | 89       | ..           | 295          |       |
| Unclassified                                                                             | { ..<br>..                          | ..           | ..       | ..           | 86           |       |
| Unclassified new metal-working machine tools                                             | { (i) ..<br>(ii) ..                 | 102<br>211   | 15<br>11 | 218<br>..    | 28<br>242    |       |

(7781)

TABLE 8 (contd.)

| Kind of output                                                                                                                                    | (i) Complete machines<br>(ii) Parts | 1951           |       |         | 1948     |       |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|----------------|-------|---------|----------|-------|
|                                                                                                                                                   |                                     | Quantity       | Value | Entries | Quantity | Value |
|                                                                                                                                                   |                                     | No.            | £'000 | No.     | No.      | £'000 |
| Machine tools, metal-working, reconditioned                                                                                                       |                                     |                |       |         |          |       |
|                                                                                                                                                   | { (i) 4,836<br>(ii) ..              | 2,167<br>825   | 97    | 2,704   | 1,047    |       |
|                                                                                                                                                   | { ..<br>..                          | 185            | 31    | ..      | 101      |       |
| Total machine tools, metal-working (other than portable power tools), including parts                                                             |                                     |                |       |         |          |       |
|                                                                                                                                                   |                                     | 54,453         | ..    |         | 35,654   |       |
| Welding and cutting machinery and equipment, other than tube making                                                                               |                                     |                |       |         |          |       |
| Electric                                                                                                                                          |                                     |                |       |         |          |       |
| Arc welding                                                                                                                                       | { (i) 12,629<br>(ii) ..             | 2,246          | 30    | 9,069   | 1,521    |       |
|                                                                                                                                                   | { ..<br>..                          | 244            | 27    | ..      | 436      |       |
| Resistance welding                                                                                                                                |                                     |                |       |         | 125      |       |
| Spot and projection                                                                                                                               | { (i) 1,968<br>(ii) ..              | 537            | 24    | 1,003   | 198      |       |
|                                                                                                                                                   | { ..<br>..                          | 203            | 18    | ..      | 250      |       |
| Other                                                                                                                                             | { (i) 871<br>(ii) ..                | 520            | 16    | 128     | 154      |       |
|                                                                                                                                                   | { ..<br>..                          | 155            | 17    | ..      | 94       |       |
| Welding and cutting torches and equipment                                                                                                         | { (i) ..<br>(ii) ..                 | 823            | 12    | ..      | 676      |       |
|                                                                                                                                                   | { ..<br>..                          | 528            | 15    | ..      | 341      |       |
| Other descriptions, including parts                                                                                                               |                                     | 1,049          | 39    | ..      | 372      |       |
| Electrodes for arc welding                                                                                                                        |                                     | 4,765          | 24    | ..      | 2,752    |       |
| Engineers' small tools and parts                                                                                                                  |                                     | Th.doz.        |       | Th.doz. |          |       |
| Hard metal tipped tools                                                                                                                           | { 309<br>..                         | 1,503<br>1,620 | 58    | 138     | 1,670    |       |
|                                                                                                                                                   | { ..<br>..                          | 522            | 33    | ..      | 214      |       |
| Hard metal tips and inserts, sold separately                                                                                                      | { 572<br>..                         | 1,914          | 33    | 226     | 560      |       |
|                                                                                                                                                   | { ..<br>..                          | 385            | 31    | ..      | 404      |       |
| Hard metal dies and die pellets, sold separately                                                                                                  | { 27<br>..                          | 249            | 31    | ..      | 388      |       |
| Other than hard metal                                                                                                                             |                                     |                |       |         |          |       |
| Drills, cylindrical, helically grooved, commonly known as twist drills, bit stock drills and machine bits for wood (but not including auger bits) |                                     | 3,996          | 40    | 1,590   | 2,034    |       |
|                                                                                                                                                   |                                     | 537            | 12    | 55      | 334      |       |
| Slitting saws                                                                                                                                     | { 62<br>..                          | 125            | 12    | ..      | 61       |       |
| Milling cutters                                                                                                                                   | { 48<br>..                          | 1,389          | 69    | 69      | 904      |       |
|                                                                                                                                                   | { ..<br>..                          | 997            | ..    | ..      | 394      |       |
| Reamers, end mills and similar shank tools                                                                                                        | { 164<br>..                         | 1,218          | 63    | 80      | 714      |       |
|                                                                                                                                                   | { ..<br>..                          | 390            | ..    | ..      | 406      |       |
| Lathe and planer tools                                                                                                                            | { 303<br>..                         | 1,449          | 46    | 167     | 585      |       |
|                                                                                                                                                   | { ..<br>..                          | 94             | ..    | ..      | 81       |       |
| Broaches                                                                                                                                          | { 10<br>..                          | 350            | 14    | 2       | 328      |       |
|                                                                                                                                                   | { ..<br>..                          | 94             | ..    | ..      | ..       |       |
| Hacksaws and hacksaw blades                                                                                                                       | { ..<br>..                          | 3,206          | 25    | ..      | 1,537    |       |
| Cut and ground thread screwing tackle                                                                                                             | { ..<br>..                          | 4,521          | 43    | ..      | 3,021    |       |
| Other metal cutting tools, except saws and saw blades                                                                                             | { ..<br>..                          | 1,968          | 71    | 154     | 891      |       |
|                                                                                                                                                   | { ..<br>..                          | 931            | ..    | ..      | 639      |       |
| Press tools                                                                                                                                       | { 3<br>..                           | 2,369          | 286   | 3       | 661      |       |
|                                                                                                                                                   | { ..<br>..                          | 1,694          | 181   | ..      | 2,012    |       |
| Moulds and dies                                                                                                                                   | { ..<br>..                          | 1,257          | 21    | ..      | 883      |       |
| Lathe chucks                                                                                                                                      | { ..<br>..                          | 531            | 18    | ..      | 251      |       |
| Drill chucks                                                                                                                                      | { ..<br>..                          | 5,685          | 414   | ..      | 3,929    |       |
| Jigs and fixtures                                                                                                                                 | { ..<br>..                          | 1,871          | 98    | ..      | 463(b)   |       |
| Other tool and work holders                                                                                                                       | { ..<br>..                          | ..             | ..    | ..      | ..       |       |

(7781)



TABLE 8 (contd.)

|                                                                      | 1951     |                |                | 1948     |                |
|----------------------------------------------------------------------|----------|----------------|----------------|----------|----------------|
|                                                                      | Quantity | Value<br>£'000 | Entries<br>No. | Quantity | Value<br>£'000 |
| Engineers' small tools and parts (contd.)                            |          |                |                |          |                |
| Unclassified engineers' small tools and parts                        | ..       | 4,332          | 72             | ..       | 3,956          |
| Waste products other than scrap metals                               | ..       | 236            | 37             | ..       | 47             |
| Repair and jobbing work (c)                                          |          | 965(d)         | 115            |          | 662            |
| Other work done for the trade or on commission (c)                   |          | 960            | 123            |          | 608            |
| Total                                                                |          | 114,639        | ..             |          | 75,116         |
| Sales in other trades (see Table 9)                                  |          | 19,973         | ..             |          | 14,632         |
| Principal products of this trade sold by establishments in the trade |          | 94,666         | 629            |          | 60,483         |

(a) Including, for 1951, a small amount of production by establishments in Northern Ireland classified to other trades.

(b) So far as recorded separately.

(c) Amount charged.

(d) Exclusive of the value of goods made and recorded as output.

Sales of principal products of the trade by establishments  
classified to other trades

Larger establishments in Great Britain (a)

TABLE 9

| Kind of output                                                      | (i) Complete machines<br>(ii) Parts | 1951            |                |                | 1948                 |                |
|---------------------------------------------------------------------|-------------------------------------|-----------------|----------------|----------------|----------------------|----------------|
|                                                                     |                                     | Quantity<br>No. | Value<br>£'000 | Entries<br>No. | Quantity<br>No.      | Value<br>£'000 |
| Machine tools, metal-working, new (other than portable power tools) |                                     |                 |                |                |                      |                |
| Boring                                                              |                                     |                 |                |                |                      |                |
| Vertical, including vertical fine boring machines and boring mills  | { (i) ..<br>(ii) ..                 | 357<br>..       | 23<br>9        | ..<br>6        | { (i) 449<br>(ii) .. | 85<br>2<br>14  |
| Other                                                               | { (i) ..<br>(ii) ..                 | 111<br>..       | 26<br>11       | 6<br>..        |                      |                |
| Drilling                                                            |                                     |                 |                |                |                      |                |
| Vertical (pillar and bench types)                                   | { (i) ..<br>(ii) ..                 | 1,459<br>..     | 27<br>7        | 6<br>10        | { 1,715<br>..        | 17<br>3<br>13  |
| Radial                                                              | { (i) ..<br>(ii) ..                 | 13<br>..        | 8<br>3         | ..<br>..       |                      | ..<br>2        |
| Multi-spindle, not included above                                   | { (i) ..<br>(ii) ..                 | 279<br>..       | 31<br>5        | 6<br>..        | 5                    | 2              |
| Other                                                               | { (i) ..<br>(ii) ..                 | 13<br>..        | 9<br>4         | 5<br>7         | { 291<br>..          | 33<br>9<br>9   |
| Gear cutting                                                        | { (i) ..<br>(ii) ..                 | 38<br>..        | 34<br>3        | ..<br>..       | { 122<br>..          | 47<br>2        |
| Grinding other than threading                                       |                                     |                 |                |                |                      |                |
| Centreless                                                          | (i)                                 | 62              | 27             | ..             | -                    | -              |
| Plain                                                               | (i)                                 | ..              | 1              | ..             | 6                    | 3              |
| Surface                                                             | { (i) ..<br>(ii) ..                 | 108<br>..       | 29<br>5        | 5<br>5         | { 99<br>..           | 24<br>1        |

TABLE 9 (contd.)

| Kind of output                                                                           | (i) Complete machines<br>(ii) Parts | 1951            |                  |                | 1948                 |                  |
|------------------------------------------------------------------------------------------|-------------------------------------|-----------------|------------------|----------------|----------------------|------------------|
|                                                                                          |                                     | Quantity<br>No. | Value<br>£'000   | Entries<br>No. | Quantity<br>No.      | Value<br>£'000   |
| Machine tools, metal-working, new (other than portable power tools) (contd.)             |                                     |                 |                  |                |                      |                  |
| Grinding other than threading (contd.)                                                   |                                     |                 |                  |                |                      |                  |
| Other                                                                                    | { (i) ..<br>(ii) ..                 | 11,063<br>..    | 283<br>134<br>41 | 32<br>20       | { 1,448<br>..<br>..  | 118<br>17<br>19  |
| Unclassified                                                                             | { (i) ..<br>(ii) ..                 | -<br>-          | -<br>-           | -<br>-         | { 204<br>..          | 5<br>72<br>12    |
| Lathes                                                                                   |                                     |                 |                  |                |                      |                  |
| Fully automatic (automatics) and capstan and turret                                      | { (i) ..<br>(ii) ..                 | 129<br>..       | 56<br>28<br>18   | 5<br>10        | { 136<br>..          | 51<br>82         |
| Centre                                                                                   | { (i) ..<br>(ii) ..                 | 313<br>..       | 231<br>64        | 11<br>19       | { 626<br>..          | 373<br>7<br>43   |
| Other, including multi-tool or production                                                | { (i) ..<br>(ii) ..                 | 1,148<br>..     | 138<br>33        | 17<br>15       | { 447<br>..          | 118<br>6<br>21   |
| Milling, other than threading                                                            |                                     |                 |                  |                |                      |                  |
| Vertical, and plain horizontal                                                           | { (i) ..<br>(ii) ..                 | 167<br>..       | 37<br>3          | ..<br>5        | { (i) 389<br>(ii) .. | 167<br>1<br>21   |
| Other, including manufacturing (i) and (ii)                                              |                                     | ..              | 80               | 9              |                      | -                |
| Unclassified                                                                             | { (i) ..<br>(ii) ..                 | ..<br>..        | 15<br>7          | ..<br>..       | -<br>-               | -<br>-           |
| Sawing                                                                                   | { (i) ..<br>(ii) ..                 | 1,578<br>..     | 198<br>28        | 14<br>11       | { 2,412<br>..        | 163<br>30<br>19  |
| Shaping                                                                                  | { (i) ..<br>(ii) ..                 | 125<br>..       | 49<br>6          | 6<br>..        | { 153<br>-           | 54<br>-          |
| Presses (b)                                                                              |                                     |                 |                  |                |                      |                  |
| Hydraulic                                                                                | { (i) ..<br>(ii) ..                 | 480<br>..       | 777<br>188       | 36<br>47       | { 146<br>..          | 176<br>14<br>45  |
| Other descriptions                                                                       | { (i) ..<br>(ii) ..                 | 790<br>..       | 1,320<br>137     | 19<br>26       | { 2,005<br>..        | 596<br>1<br>41   |
| Forging machinery, other than presses (b)                                                | { (i) ..<br>(ii) ..                 | 202<br>..       | 204<br>47        | 12<br>15       | { 312<br>..          | 245<br>12<br>172 |
| Punching and shearing                                                                    | { (i) ..<br>(ii) ..                 | 2,669<br>..     | 138<br>33        | 33<br>25       | { 1,042<br>..        | 64<br>8<br>29    |
| Tin box and can making                                                                   | { (i) ..<br>(ii) ..                 | 130<br>..       | 65<br>30         | 9<br>12        | { 61<br>..           | 35<br>1<br>9     |
| Straightening rolls, and plate and sheet-metal working machines, not elsewhere specified | { (i) ..<br>(ii) ..                 | 54<br>..        | 81<br>12         | 9<br>11        | { 5,034<br>..        | 64<br>20<br>14   |
| Screwing                                                                                 | { (i) ..<br>(ii) ..                 | 81<br>..        | 18<br>62<br>2    | 7<br>..        | { 151<br>..          | 13<br>38<br>16   |
| Threading                                                                                | { (i) ..<br>(ii) ..                 | 122<br>..       | 65<br>16         | 6<br>6         | { 193<br>..          | 109<br>20<br>3   |
| Other new metal-working machine tools including planing and slotting machines            |                                     |                 |                  |                |                      |                  |
| Complete                                                                                 |                                     | 2,086           | 384<br>91        | 62             | { 1,991<br>..        | 358<br>135       |
| Parts                                                                                    |                                     | ..              | 180              | 50             | ..                   | 98               |
| Unclassified                                                                             |                                     | -               | -                | -              | ..                   | 17               |



TABLE 9 (contd.)

| Kind of output                                                                                                                                                                                                                                                        | (i) Complete machines<br>(ii) Parts | 1951            |                  |                | 1948                |                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-----------------|------------------|----------------|---------------------|------------------|
|                                                                                                                                                                                                                                                                       |                                     | Quantity<br>No. | Value<br>£'000   | Entries<br>No. | Quantity<br>No.     | Value<br>£'000   |
| Machine tools, metal-working, new<br>(other than portable power tools) (contd.)                                                                                                                                                                                       |                                     |                 |                  |                |                     |                  |
| Unclassified new metal-working<br>machine tools                                                                                                                                                                                                                       | { (i)<br>(ii)                       | ..<br>..        | 102<br>102       | 11<br>11       | { 151<br>..<br>..   | 14<br>134<br>209 |
| Machine tools, metal-working<br>reconditioned                                                                                                                                                                                                                         | { (i)<br>(ii)                       | 521<br>..       | 171<br>589<br>47 | 43<br>15       | { 182<br>..<br>..   | 46<br>346<br>38  |
| Total machine tools, metal-working<br>(other than portable power tools),<br>including parts                                                                                                                                                                           |                                     |                 | 6,570            | ..             |                     | 4,805            |
| Welding and cutting machinery and<br>equipment, other than tube making                                                                                                                                                                                                |                                     |                 |                  |                |                     |                  |
| Electric                                                                                                                                                                                                                                                              |                                     |                 |                  |                |                     |                  |
| Arc welding                                                                                                                                                                                                                                                           | { (i)<br>(ii)                       | 7,748<br>..     | 970<br>164       | 21<br>21       | { 5,375<br>..<br>.. | 591<br>15<br>73  |
| Resistance welding                                                                                                                                                                                                                                                    |                                     |                 |                  |                |                     |                  |
| Spot and projection                                                                                                                                                                                                                                                   | { (i)<br>(ii)                       | 553<br>..       | 126<br>107       | 13<br>11       | { 406<br>..<br>..   | 90<br>126<br>13  |
| Other                                                                                                                                                                                                                                                                 | { (i)<br>(ii)                       | 494<br>..       | 78<br>90         | 9<br>12        | { 35<br>..<br>..    | 21<br>18<br>9    |
| Other descriptions and parts<br>(including gas cutting machines and<br>welding and cutting torches and<br>equipment)                                                                                                                                                  |                                     |                 |                  |                |                     |                  |
| Electrodes for arc welding                                                                                                                                                                                                                                            |                                     | ..              | 623              | 41             | ..                  | 69               |
| Engineers' small tools and parts                                                                                                                                                                                                                                      |                                     |                 |                  |                |                     |                  |
| Hard metal tipped tools                                                                                                                                                                                                                                               |                                     | Th.doz.<br>25   | 216<br>57        | 17             | Th.doz.<br>..       | 382              |
| Hard metal dies and die pellets,<br>sold separately                                                                                                                                                                                                                   |                                     | ..              | 199              | 12             | ..                  | 40               |
| Hard metal tips and inserts, sold<br>separately                                                                                                                                                                                                                       |                                     | 20              | 83<br>511        | 13             | 17<br>..            | 216              |
| Other than hard metal                                                                                                                                                                                                                                                 |                                     |                 |                  |                |                     |                  |
| Milling cutters                                                                                                                                                                                                                                                       |                                     | 13              | 184<br>16        | 12             | 8<br>..             | 24<br>21         |
| Reamers, end mills and similar<br>shank tools                                                                                                                                                                                                                         |                                     | 15              | 151<br>9         | 11             | 1<br>..             | 7<br>25          |
| Lathe and planer tools                                                                                                                                                                                                                                                |                                     | 25              | 117              | 14             | 22<br>..            | 71<br>2          |
| Hacksaws and hacksaw blades                                                                                                                                                                                                                                           |                                     | ..              | 988              | 11             | ..                  | 410              |
| Cut and ground thread screwing tackle                                                                                                                                                                                                                                 |                                     | ..              | 255              | 9              | ..                  | 223              |
| Other metal cutting tools (except<br>saws and saw blades), including<br>drills, cylindrical, helically<br>grooved, commonly known as twist<br>drills, bit stock drills and machine<br>bits for wood (but not including<br>auger bits); slitting saws, and<br>broaches |                                     |                 |                  |                |                     |                  |
|                                                                                                                                                                                                                                                                       |                                     | ..              | 913              | 36             | ..                  | 993              |
| Press tools                                                                                                                                                                                                                                                           |                                     | 2               | 164<br>533       | 108            | 2<br>..             | 119<br>534       |
| Moulds and dies                                                                                                                                                                                                                                                       |                                     | ..              | 526              | 71             | ..                  | 977              |

TABLE 9 (contd.)

|                                                  | 1951     |                |                | 1948     |                |
|--------------------------------------------------|----------|----------------|----------------|----------|----------------|
|                                                  | Quantity | Value<br>£'000 | Entries<br>No. | Quantity | Value<br>£'000 |
| Engineers' small tools and parts (contd.)        |          |                |                |          |                |
| Other than hard metal (contd.)                   |          |                |                |          |                |
| Lathe chucks                                     | ..       | 19             | ..             | ..       | 12             |
| Drill chucks                                     | ..       | 9              | ..             | ..       | 2              |
| Jigs and fixtures                                | ..       | 1,142          | 171            | ..       | 1,129          |
| Other tool and work holders                      | ..       | 481            | 39             | -        | -              |
| Unclassified engineers' small tools<br>and parts | ..       | 4,005          | 56             | ..       | 3,158          |
| Total                                            |          | 19,973         | ..             |          | 14,632         |

(a) Including, for 1951, a small amount of production by establishments classified to other trades in Northern Ireland.

(b) Forging presses are included with forging machinery, for 1948.

Sales in the trade of other than principal products  
Larger establishments in Great Britain

TABLE 10

|                                                                                   | 1951           | 1948           |
|-----------------------------------------------------------------------------------|----------------|----------------|
|                                                                                   | Value<br>£'000 | Value<br>£'000 |
| Machinery and plant and parts                                                     |                |                |
| Food preparation, processing and sterilising<br>machinery                         | 76             | 130            |
| Internal combustion engines, except marine<br>engines and engines for locomotives | 273            | 92             |
| Printing, bookbinding, paper-working, etc.<br>machinery                           | 356            | 80             |
| Pumps, other than petrol and oil measuring and<br>hand pumps                      | 266            | 158            |
| Textile machinery                                                                 | 340            | 114            |
| Wood working machine tools, other than<br>portable power tools                    | 312            | 115            |
| Gears and gear wheels                                                             | 229            | 177            |
| Other descriptions                                                                | 2,879          | 1,604          |
| Tools and implements (other than engineers'<br>small tools)                       |                |                |
| Edge and similar tools                                                            | 36             | 90             |
| Gauges, other than pressure gauges                                                | 664            | 391            |
| Saws and saw blades, other than hacksaws and<br>hacksaw blades                    | 848            | 610            |
| Spanners and wrenches                                                             | 53             | 135            |
| Other hand tools and implements, including<br>files and rasps                     | 1,755          | 866            |
| Castings, forgings, stampings and pressings of<br>iron and steel                  | 689            | 490            |
| Cutting tools for use on wood-working machines,<br>other than saws and saw blades | 112            | 2,402          |
| Other goods                                                                       | 4,014          |                |
| Scrap iron and steel sold                                                         | 840            | 292            |
| Work done (a)                                                                     | 135            | 98             |
| Total                                                                             | 13,877         | 7,844          |

(a) Amount charged.



## Production, exports, and imports of certain principal products (a)

Note - In the returns of exports and imports for 1937, parts of metal-working machine tools are not distinguished separately from complete machines, or used machines from new machines. For 1948 and 1951, particulars of new machines, of used machines and of parts are shown separately, but detail as to type is available only in respect of complete new machines.

TABLE 11

|                                                                     | Production (b) (c)                       |                               | Exports (d)              |                               | Retained imports (e) |                                |
|---------------------------------------------------------------------|------------------------------------------|-------------------------------|--------------------------|-------------------------------|----------------------|--------------------------------|
|                                                                     | No.                                      | £'000                         | No.                      | £'000                         | No.                  | £'000                          |
| Machine tools, metal-working, new (other than portable power tools) |                                          |                               |                          |                               |                      |                                |
| Boring, complete                                                    |                                          |                               |                          |                               |                      |                                |
| Vertical, including fine boring machines and boring mills           | { 1951 684<br>1948 1,170(f)              | { 1,079<br>933                | { 219<br>268             | { 220<br>277                  | { ..<br>..           | { ..<br>..                     |
| Other                                                               | { 1951 2,204<br>1948 958(f)              | { 1,578<br>960                | { 833<br>620             | { 472<br>551                  | { ..<br>..           | { ..<br>..                     |
| Total boring                                                        |                                          |                               |                          |                               |                      |                                |
| Complete                                                            | { 1951 2,888<br>1948 2,128(f)<br>1937 .. | { 2,657<br>1,893<br>676       | { 1,052<br>888<br>..     | { 691<br>827<br>110(h)        | { 309<br>206<br>..   | { 1,254(g)<br>223(g)<br>409(h) |
| Parts                                                               | 1937 ..                                  | 17                            |                          |                               |                      |                                |
| Drilling                                                            |                                          |                               |                          |                               |                      |                                |
| Complete                                                            | { 1951 22,368<br>1948 ..<br>1937 ..      | { 4,566<br>3,326<br>1,047     | { 8,464<br>9,948<br>..   | { 1,421<br>1,371<br>237       | { 447<br>150<br>..   | { 392<br>29<br>164             |
| Parts                                                               | 1937 ..                                  | 48                            |                          |                               |                      |                                |
| Gear cutting, complete                                              | { 1951 406<br>1948 306                   | { 873<br>474                  | { 46<br>119              | { 121<br>123                  | { 193<br>..          | { 632<br>..                    |
| Grinding, other than threading                                      |                                          |                               |                          |                               |                      |                                |
| Complete                                                            | { 1951 ..<br>1948 ..<br>1937 ..          | { 4,841<br>3,052<br>1,107     | { 10,128<br>10,762<br>.. | { 1,551<br>1,516(j)<br>296(j) | { 961<br>448<br>..   | { 2,073(i)<br>449(i)<br>789(j) |
| Parts                                                               | 1937 ..                                  | 34                            |                          |                               |                      |                                |
| Lathes                                                              |                                          |                               |                          |                               |                      |                                |
| Fully automatic (automatics)                                        | { 1951 ..<br>1948 1,144                  | { 3,457<br>1,749              | { 1,602<br>1,074         | { 1,491(k)<br>896(k)          | { 1,204<br>472       | { 2,779(k)<br>603(k)           |
| Capstan and turret                                                  | { 1951 3,284<br>1948 ..                  | { 2,903<br>2,203              | { 1,722<br>1,623         | { 1,776<br>1,280              | { ..<br>(l)          | { ..<br>60                     |
| Other                                                               | { 1951 ..<br>1948 ..                     | { 7,151(m)<br>5,423           | { 5,314<br>4,836         | { 2,293<br>2,081              | { ..<br>145          | { ..<br>104                    |
| Total lathes                                                        |                                          |                               |                          |                               |                      |                                |
| Complete                                                            | { 1951 ..<br>1948 ..<br>1937 ..          | { 13,511(m)<br>9,375<br>3,452 | { 8,638<br>..<br>..      | { 5,560<br>4,256<br>710       | { ..<br>610<br>..    | { 3,838<br>766<br>1,740        |
| Parts                                                               | 1937 ..                                  | 261                           |                          |                               |                      |                                |
| Milling, other than threading (n)                                   |                                          |                               |                          |                               |                      |                                |
| Complete                                                            | { 1951 ..<br>1948 2,940(f)<br>1937 ..    | { 4,339(o)<br>2,295<br>1,288  | { 1,271<br>1,432<br>..   | { 1,261<br>1,032<br>140       | { 1,064<br>486<br>.. | { 2,306<br>926<br>982          |
| Parts                                                               | 1937 ..                                  | 42                            |                          |                               |                      |                                |
| Planing, complete                                                   | { 1951 124<br>1948 ..                    | { 661<br>522                  | { 68<br>217              | { 199<br>197                  | { ..<br>..           | { ..<br>..                     |
| Shaping, complete                                                   | { 1951 2,757<br>1948 2,016               | { 837<br>611                  | { 1,595<br>1,560         | { 629<br>476                  | { ..<br>..           | { ..<br>..                     |
| Total planing and shaping                                           |                                          |                               |                          |                               |                      |                                |
| Complete                                                            | { 1951 2,881<br>1948 ..<br>1937 ..       | { 1,499<br>1,133<br>609       | { 1,663<br>1,777<br>..   | { 828<br>673<br>110           | { 231<br>27<br>..    | { 559(p)<br>63(p)<br>178       |
| Parts                                                               | 1937 ..                                  | 6                             |                          |                               |                      |                                |

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TABLE 11 (contd.)

| Machine tools, metal-working, new (other than portable power tools) (contd.)                                                                      | Production (b) (c)                 |                         | Exports (d)            |                         | Retained imports (e)       |                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-------------------------|------------------------|-------------------------|----------------------------|---------------------|
|                                                                                                                                                   | No.                                | £'000                   | No.                    | £'000                   | No.                        | £'000               |
| Sawing                                                                                                                                            |                                    |                         |                        |                         |                            |                     |
| Complete                                                                                                                                          | { 1951 5,285<br>1948 ..<br>1937 .. | { 656<br>575<br>152     | { 1,178<br>1,549<br>.. | { 185<br>236<br>25      | { ..<br>135<br>..          | { ..<br>7<br>56     |
| Parts                                                                                                                                             | 1937 ..                            | 5                       |                        |                         |                            |                     |
| Slotting, complete                                                                                                                                | { 1951 151<br>1948 149             | { 182<br>173            | { 68<br>131            | { 115<br>105            | { ..<br>..                 | { ..<br>..          |
| Presses, complete                                                                                                                                 |                                    |                         |                        |                         |                            |                     |
| Hydraulic                                                                                                                                         |                                    |                         |                        |                         |                            |                     |
| Extrusion                                                                                                                                         | { 1951 49<br>1948 31               | { 428<br>172            | { 25<br>22             | { 124<br>82             | { ..<br>..                 | { ..<br>..          |
| Other                                                                                                                                             | { 1951 2,099<br>1948 ..            | { 1,906<br>825          | { 375<br>299           | { 727<br>392            | { (1951) 338<br>(1948) 210 | { 407<br>296        |
| Other descriptions                                                                                                                                | { 1951 6,321<br>1948 ..            | { 3,311<br>2,254        | { 1,355<br>1,089       | { 1,198<br>414          | { ..<br>..                 | { ..<br>..          |
| Punching and shearing, complete                                                                                                                   | { 1951 7,212<br>1948 ..            | { 934<br>708            | { 3,082<br>6,300       | { 397<br>432            | { ..<br>..                 | { ..<br>..          |
| Straightening rolls, and plate and sheet-metal working machines (including tin box and can making) not elsewhere specified, complete              | { 1951 8,856<br>1948 ..            | { 1,933<br>1,126        | { 619<br>947           | { 460<br>305            | { (1951) 84<br>(1948) 51   | { 120<br>52         |
| Screwing, complete                                                                                                                                | { 1951 ..<br>1948 ..               | { 325<br>307            | { 424<br>445           | { 293<br>202            | { ..<br>..                 | { ..<br>..          |
| Threading, complete                                                                                                                               | { 1951 553<br>1948 ..              | { 406<br>275            | { 233<br>135           | { 244<br>56             | { ..<br>..                 | { ..<br>..          |
| Other new metal-working machine tools, complete                                                                                                   | { 1951 ..<br>1948 ..               | { 3,211(q)<br>2,172(q)  | { 4,074<br>4,193       | { 1,263<br>987          | { 1,029<br>712             | { 1,825<br>809      |
| Reconditioned metal-working machine tools, complete (r)                                                                                           | { 1951 5,020(f)<br>1948 ..         | { 2,992<br>4,544        | { 904<br>4,752         | { 452<br>1,655          | { 324<br>412               | { 287<br>223        |
| Welding and cutting machinery and equipment, other than tube making (including parts)                                                             |                                    |                         |                        |                         |                            |                     |
| Electric                                                                                                                                          |                                    |                         |                        |                         |                            |                     |
| Arc welding                                                                                                                                       | { 1951 ..<br>1948 ..               | { 2,490<br>2,082        | { ..<br>..             | { 562<br>762            | { ..<br>..                 | { ..<br>..          |
| Resistance welding                                                                                                                                | { 1951 ..<br>1948 ..               | { 1,414<br>874          | { ..<br>..             | { 126<br>48             | { (1951) ..<br>(1948) ..   | { 191<br>265        |
| All other descriptions                                                                                                                            | { 1951 ..<br>1948 ..               | { 2,400<br>1,389        | { ..<br>..             | { 935<br>633            | { ..<br>..                 | { ..<br>..          |
| Electrodes for arc welding                                                                                                                        | { 1951 ..<br>1948 ..               | { 4,765<br>2,752        | { ..<br>..             | { 1,091<br>526          | { ..<br>..                 | { ..<br>..          |
| Engineers' small tools and parts, other than hard metal                                                                                           |                                    |                         |                        |                         |                            |                     |
| Drills, cylindrical, helically grooved, commonly known as twist drills, bit stock drills and machine bits for wood (but not including auger bits) | Th.doz.                            |                         | Th.doz.                |                         | Th.doz.                    |                     |
| Complete                                                                                                                                          | { 1951 3,996<br>1948 ..<br>1937 .. | { 5,844<br>3,694<br>613 | { 926<br>801<br>259    | { 1,476<br>1,193<br>167 | { 222<br>4<br>655          | { 134(s)<br>2<br>72 |
| Parts                                                                                                                                             | { 1951 ..<br>1948 ..<br>1937 ..    | { 3,206<br>1,537<br>494 | { ..<br>..<br>..       | { 984<br>530<br>166     | { ..<br>..<br>..           | { 17<br>6<br>19     |

(a) Figures of sales (or production) refer only to larger establishments. All recorded exports from and imports into the United Kingdom are given in the table. The figures, therefore, are not strictly comparable.

(b) Sales in 1951 and 1948, and production for sale in 1937.

(c) Including production (or sales) by establishments classified to other trades.

(d) Valued f.o.b.

(e) Valued c.i.f.

(f) Partly estimated.

(g) Including broaching machines.

(h) Described as 'boring mills'.

(i) Including lapping and honing machines, but not specifically excluding thread grinding machines.

(j) Not specifically excluding, thread grinding machines.

(k) Described as 'automatic'.

(l) Re-exports in excess of imports.

(m) Including parts of tool-room lathes.

(n) Except for 1951 exports, the overseas trade figures do not specifically exclude thread milling machines: the retained imports for 1948 also include gear cutting machines.

(o) Including parts of manufacturing milling machines.

(p) Including slotting machines.

(q) Including unclassified sales of machine tools (£102,000 in 1951 and £270,000 in 1948) and, in 1948, parts of lapping and honing machines.

(r) The overseas trade figures relate to used machines, whether reconditioned or not.

(s) Including straight flute drills, hollow and combination centre drills, reamers and countersinks.

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Usage of certain specified purchased materials, 1951  
Larger establishments in Great Britain

TABLE 12

| Materials used                                                                                                                                                          | Quantity  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|                                                                                                                                                                         | Th. tons  |
| Iron                                                                                                                                                                    |           |
| Pig iron                                                                                                                                                                | 19.2      |
| Iron castings, in the rough                                                                                                                                             | 92.2      |
| Wrought iron in all forms, except finished parts                                                                                                                        | 0.7       |
| Non-alloy steel                                                                                                                                                         |           |
| Ingots, billets, blooms and slabs                                                                                                                                       | 8.2       |
| Angles, shapes and sections                                                                                                                                             | 3.3       |
| Girders, joists, beams and pillars (not fabricated)                                                                                                                     | 0.6       |
| Bars and rods                                                                                                                                                           | 35.9      |
| Hoop and strip (including tape)                                                                                                                                         | 0.6       |
| Tin-, terne- and black-plates and sheets                                                                                                                                | 1.3       |
| Other plates and sheets                                                                                                                                                 |           |
| 1/8 in. thick and over                                                                                                                                                  | 7.1       |
| Under 1/8 in. thick                                                                                                                                                     | 3.1       |
| Tubes and fittings                                                                                                                                                      | 1.0       |
| Wire (single wire)                                                                                                                                                      | 29.4      |
| Forgings, in the rough, other than drop forgings, including tyres, wheels and axles (railway and tramway)                                                               | 5.5       |
| Drop forgings                                                                                                                                                           | 1.2       |
| Castings, in the rough                                                                                                                                                  | 5.2       |
| Alloy steel (including high speed steel)                                                                                                                                |           |
| Ingots, billets, blooms and slabs                                                                                                                                       | 1.5       |
| Bars, rods, angles, shapes, sections, girders, joists and pillars (not fabricated)                                                                                      | 16.4      |
| Plates, sheets and strip                                                                                                                                                |           |
| 1/8 in. thick and over                                                                                                                                                  | 0.7       |
| Under 1/8 in. thick                                                                                                                                                     | 1.8       |
| Tubes and fittings                                                                                                                                                      | 0.2       |
| Wire (single wire)                                                                                                                                                      | 1.1       |
| Forgings, in the rough, other than drop forgings                                                                                                                        | 2.0       |
| Drop forgings                                                                                                                                                           | 1.1       |
| Castings, in the rough                                                                                                                                                  | 0.7       |
| Non-ferrous metals in all forms, except finished parts                                                                                                                  | Th.cwts.  |
| Aluminium and aluminium alloys                                                                                                                                          | 62.9      |
| Brass and other copper alloys, including nickel silver but excluding other nickel alloys                                                                                | 85.6      |
| Copper                                                                                                                                                                  | 16.3      |
| Lead and alloys of lead                                                                                                                                                 | 1.6       |
| Tin                                                                                                                                                                     | 0.1       |
| Zinc and alloys of zinc                                                                                                                                                 | 4.0       |
| Timber (other than reclaimed), including that used for packing or packing case manufacture but excluding joinery, other fabricated woodwork and purchased packing cases | Th.cu.ft. |
| Hardwood                                                                                                                                                                | 87.2      |
| Softwood                                                                                                                                                                | 326.7     |

Employment in September  
Larger establishments (a)  
(i) Operatives

|          | Great Britain |         |         |         |         |         |
|----------|---------------|---------|---------|---------|---------|---------|
|          | 1951(b)       | 1950(b) | 1949(b) | 1948(c) | 1937(c) | 1935(c) |
| Males    |               |         |         |         |         |         |
| Under 18 | 4,164         | 3,637   | 3,411   | 3,660   | 5,004   | 3,530   |
| All ages | 60,680        | 55,416  | 53,826  | 53,571  | 27,038  | 20,657  |
| Females  |               |         |         |         |         |         |
| Under 18 | 447           | 440     | 340     | 469     | 771     | 562     |
| All ages | 9,132         | 8,205   | 7,785   | 8,478   | 1,828   | 1,395   |
| Total    |               |         |         |         |         |         |
| Under 18 | 4,611         | 4,077   | 3,751   | 4,129   | 5,775   | 4,092   |
| All ages | 69,812        | 63,621  | 61,611  | 62,049  | 28,866  | 22,052  |

(ii) Administrative, technical and clerical employees (d)

|          | Great Britain |           |           |           |       |       |
|----------|---------------|-----------|-----------|-----------|-------|-------|
|          | 1951          | 1950      | 1949      | 1948      | 1937  | 1935  |
| Males    |               |           |           |           |       |       |
| Under 18 | 391           | 393       | 337       | 371       | 394   | 290   |
| All ages | 11,039        | 10,167    | 9,782     | 9,103     | 3,406 | 2,975 |
| Females  |               |           |           |           |       |       |
| Under 18 | 1,101         | 948       | 869       | 876       | 373   | 238   |
| All ages | 6,285         | 5,724     | 5,424     | 5,300     | 1,386 | 1,141 |
| Total    |               |           |           |           |       |       |
| Under 18 | 1,492         | 1,341     | 1,206     | 1,247     | 767   | 528   |
| All ages | 17,324(e)     | 15,891(e) | 15,206(e) | 14,403(e) | 4,792 | 4,116 |

(iii) Total employees

|          | Great Britain |           |           |           |        |        |
|----------|---------------|-----------|-----------|-----------|--------|--------|
|          | 1951          | 1950      | 1949      | 1948      | 1937   | 1935   |
| Males    |               |           |           |           |        |        |
| Under 18 | 4,555         | 4,030     | 3,748     | 4,031     | 5,398  | 3,820  |
| All ages | 71,719        | 65,583    | 63,608    | 62,674    | 30,444 | 23,632 |
| Females  |               |           |           |           |        |        |
| Under 18 | 1,548         | 1,388     | 1,209     | 1,345     | 1,144  | 800    |
| All ages | 15,417        | 13,929    | 13,209    | 13,778    | 3,214  | 2,536  |
| Total    |               |           |           |           |        |        |
| Under 18 | 6,103         | 5,418     | 4,957     | 5,376     | 6,542  | 4,620  |
| All ages | 87,136(e)     | 79,512(e) | 76,817(e) | 76,452(e) | 33,658 | 26,168 |

(a) Excluded employees. The following persons were employed at the larger establishments in this trade in 1951 but are not included in the above tables or in any other Census of Production report (e.g., employees engaged in merchanting):-

|                 |     |       |     |         |
|-----------------|-----|-------|-----|---------|
| Canteen workers | 68  | Males | 997 | Females |
| Other workers   | 822 | Males | 751 | Females |

(b) In week ended September 22, 1951, September 30, 1950, and September 24, 1949.

(c) Average for the year.

(d) In week ended September 22, 1951, September 30, 1950, September 24, 1949, September 25, 1948, October 16, 1937 and October 12, 1935.

(e) Working proprietors. In addition working proprietors, shown in Table 13 (iv) below, were engaged in this trade in larger establishments. The 1937 and 1935 figures include working proprietors.

(iv) Working proprietors

|         | Great Britain |      |      |      |
|---------|---------------|------|------|------|
|         | 1951          | 1950 | 1949 | 1948 |
| Males   | 77            | 68   | 66   | 77   |
| Females | 6             | 3    | 4    | 2    |
| Total   | 83            | 71   | 70   | 79   |



Average employment  
Larger establishments (a)

|                                                  | Great Britain |        |        |           |          | Number   |
|--------------------------------------------------|---------------|--------|--------|-----------|----------|----------|
|                                                  | 1951          | 1950   | 1949   | 1948      | 1937     | 1935     |
| Operatives                                       | 69,811        | 63,213 | 62,436 | 62,049    | 28,866   | 22,052   |
| Administrative, technical and clerical employees | 17,178        | 15,710 | 15,127 | 14,403(b) | 4,792(b) | 4,116(b) |
| Total                                            | 86,989        | 78,923 | 77,563 | 76,452    | 33,658   | 26,168   |

(a) For employment in small firms (employing on the average ten or fewer persons) that made satisfactory returns, see Table 2.  
(b) In week ended September 25, 1948, October 16, 1937, and October 12, 1935. The 1937 and 1935 figures include working proprietors.

Outworkers. In addition to the employees shown above the firms in this trade employed outworkers whose numbers are shown below.

|         | Great Britain |      |      |      |      |      |
|---------|---------------|------|------|------|------|------|
|         | 1951          | 1950 | 1949 | 1948 | 1937 | 1935 |
| Males   | 12            | 5    | 5    | 13   | ..   | ..   |
| Females | 6             | 45   | 31   | 1    | ..   | ..   |
| Total   | 18            | 50   | 36   | 14   | ..   | ..   |

Shift working, 1951 (a)  
Larger establishments in Great Britain

|                                                                     | Total number of man-shifts worked in the week | Total number of shift-hours worked in the week | Number of returns showing the systems stated |
|---------------------------------------------------------------------|-----------------------------------------------|------------------------------------------------|----------------------------------------------|
| Continuous 3 shift systems per 24 hours averaging 8 hours per shift | 1,984                                         | 16,953                                         | 5                                            |
| Continuous 4 shift systems per 24 hours averaging 6 hours per shift | -                                             | -                                              | -                                            |
| All 2 shift systems                                                 | 103,015                                       | 1,019,494                                      | 89                                           |
| Other shift systems                                                 | 1,215                                         | 13,105                                         | 4                                            |
| Total                                                               | 106,214                                       | 1,049,552                                      | (b)                                          |

(a) Shift working during week ended September 22, 1951.  
(b) The number and percentage of returns showing shift working and of operatives on shift-work were as follows:-

|                                                   | Returns        |                    | Operatives     |                                     |                               |
|---------------------------------------------------|----------------|--------------------|----------------|-------------------------------------|-------------------------------|
|                                                   | Total in trade | Showing shift-work | Total in trade | Total on returns showing shift-work | Number employed on shift-work |
| Number                                            | 629            | 97                 | 69,812         | 28,147                              | 21,097                        |
| Percentage of total in trade                      | 100.0          | 15.4               | 100.0          | 40.3                                | 30.2                          |
| Percentage of total on returns showing shift-work |                |                    |                | 100.0                               | 75.0                          |

Wages and salaries and employers' National Insurance contributions paid during the year

Larger establishments

|                                                                                       | Great Britain |        |        |        | £'000 |
|---------------------------------------------------------------------------------------|---------------|--------|--------|--------|-------|
|                                                                                       | 1951          | 1950   | 1949   | 1948   |       |
| Wages and salaries (a) of Operatives Administrative, technical and clerical employees | 26,929        | 22,012 | 20,528 | 19,617 |       |
| Total                                                                                 | 9,163         | 7,586  | 7,079  | 6,260  |       |
| Employers' contributions to all National Insurance Schemes                            | 36,092        | 29,598 | 27,607 | 25,877 |       |
|                                                                                       | 867           | 782    | 766    | 604    |       |

(a) Including bonus and commission payments, but excluding payments to outworkers shown below.

| £'000         |      |      |      |
|---------------|------|------|------|
| Great Britain |      |      |      |
| 1951          | 1950 | 1949 | 1948 |
| 2             | 3    | 3    | 2    |

Plant, machinery and vehicles - acquisitions and disposals, and capital expenditure on new building work

Larger establishments

|                                                                                                                                       | Great Britain |       |       | £'000 |
|---------------------------------------------------------------------------------------------------------------------------------------|---------------|-------|-------|-------|
|                                                                                                                                       | 1951          | 1949  | 1948  |       |
| Plant, machinery and vehicles Acquisitions                                                                                            |               |       |       |       |
| Plant and machinery                                                                                                                   |               |       |       |       |
| New                                                                                                                                   | 3,083         | 1,845 | 1,601 |       |
| Second-hand                                                                                                                           | 306           | 320   | 498   |       |
| Vehicles                                                                                                                              |               |       |       |       |
| New                                                                                                                                   | 378           | 245   | 148   |       |
| Second-hand                                                                                                                           | 126           | 63    | 43    |       |
| Total acquisitions                                                                                                                    | 3,893         | 2,473 | 2,190 |       |
| Disposals                                                                                                                             |               |       |       |       |
| Plant and machinery                                                                                                                   |               |       |       |       |
| Vehicles                                                                                                                              | 327           | 189   | 208   |       |
| Plant and machinery                                                                                                                   | 112           | 75    | 43    |       |
| Total disposals                                                                                                                       | 439           | 264   | 251   |       |
| New building work                                                                                                                     |               |       |       |       |
| Capital expenditure on new building and other constructional work of a capital nature (excluding site values and development charges) | 694           | 530   | 415   |       |



## MACHINE TOOLS TRADE

1951

Summary  
Larger establishments

TABLE 18

|                                                | England | Wales | Scotland | Great Britain |
|------------------------------------------------|---------|-------|----------|---------------|
|                                                | £'000   | £'000 | £'000    | £'000         |
| Gross output (production)                      | 108,655 | 1,131 | 3,312    | 113,097       |
| Cost of materials and fuel used                | 44,599  | 417   | 1,505    | 46,521        |
| Payment for work done on materials given out   | 1,813   | 5     | 52       | 1,871         |
| Transport payments                             | 933     | 5     | 46       | 984           |
| Net output                                     | 61,309  | 704   | 1,708    | 63,721        |
| Wages and salaries of persons employed         | 34,766  | 353   | 973      | 36,092        |
|                                                | No.     | No.   | No.      | No.           |
| Average number of persons employed (a)         | 83,557  | 832   | 2,683    | 87,072        |
|                                                | £       | £     | £        | £             |
| Net output per person employed (a)             | 734     | 846   | 637      | 732           |
|                                                | £'000   | £'000 | £'000    | £'000         |
| Stocks at end of year                          |         |       |          |               |
| Products on hand for sale and work in progress | 22,588  | 155   | 709      | 23,452        |
| Materials and fuel                             | 10,935  | 125   | 376      | 11,436        |
|                                                | No.     | No.   | No.      | No.           |
| Number of establishments                       | 650     | 10    | 21       | 681           |

The values of gross output and of materials and fuel used are derived in the following way:-

|                                                       | £'000   | £'000 | £'000 | £'000   |
|-------------------------------------------------------|---------|-------|-------|---------|
| Output of firms in this trade                         |         |       |       |         |
| Total value of sales (see Table 20)                   | 104,205 | 1,080 | 3,258 | 108,542 |
| Changes in stocks and work in progress (see Table 21) | + 4,450 | + 51  | + 54  | + 4,555 |
| Gross output (production)                             | 108,655 | 1,131 | 3,312 | 113,097 |
| Materials and fuel used by firms in this trade        |         |       |       |         |
| Purchases                                             | 47,935  | 472   | 1,612 | 50,019  |
| Changes in stocks (see Table 21)                      | - 3,336 | - 55  | - 107 | - 3,498 |
| Materials and fuel used                               | 44,599  | 417   | 1,505 | 46,521  |

(a) Excluding outworkers but including working proprietors.

Summary  
Small firms (a)

TABLE 19

|                                        | England | Wales | Scotland | Great Britain |
|----------------------------------------|---------|-------|----------|---------------|
| Number of returns                      | 295     | 4     | 7        | 306           |
| Average number of persons employed (b) |         |       |          |               |
| Males                                  | 1,653   | 23    | 45       | 1,721         |
| Females                                | 283     | 3     | 8        | 294           |
| Total                                  | 1,936   | 26    | 53       | 2,015         |

(a) Small firms (employing on the average ten or fewer persons) that made satisfactory returns.  
(b) Including working proprietors.

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## Sales in the trade

## Larger establishments

TABLE 20

| Kind of output {<br>(i) Complete machines<br>(ii) Parts             | England and Wales      |                  | Scotland |                  | Great Britain |       |
|---------------------------------------------------------------------|------------------------|------------------|----------|------------------|---------------|-------|
|                                                                     | Quantity               | Value            | Quantity | Value            | Quantity      | Value |
|                                                                     | No.                    | £'000            |          | £'000            | No.           | £'000 |
| Principal products                                                  |                        |                  |          |                  |               |       |
| Machine tools, metal-working, new (other than portable power tools) |                        |                  |          |                  |               |       |
| Boring                                                              |                        |                  |          |                  |               |       |
| Vertical, including vertical fine boring machines and boring mills  | { (i) ..<br>(ii) ..    | (a) ..<br>(a) .. | ..       | (a) ..<br>(a) .. | 327           | 1,057 |
| Other                                                               | { (i) 2,093<br>(ii) .. | 1,552<br>89      | -        | -                | 2,093         | 1,552 |
| Drilling                                                            |                        |                  |          |                  |               |       |
| Vertical (pillar and bench types)                                   | { (i) ..<br>(ii) ..    | (a) ..<br>(a) .. | ..       | (a) ..<br>(a) .. | 17,593        | 1,500 |
| Radial                                                              | { (i) ..<br>(ii) ..    | (a) ..<br>87     | ..       | (a) ..           | 2,037         | 1,793 |
| Multi-spindle, not included above                                   | { (i) 666<br>(ii) ..   | 638<br>24        | -        | -                | 666           | 638   |
| Other                                                               | { (i) ..<br>(ii) ..    | (a) ..<br>(a) .. | ..       | (a) ..<br>(a) .. | 308           | 560   |
| Gear cutting                                                        | { (i) ..<br>(ii) ..    | (a) ..<br>133    | ..       | (a) ..           | 368           | 839   |
| Grinding, other than threading                                      |                        |                  |          |                  |               |       |
| Centreless                                                          | { (i) 212<br>(ii) ..   | 356<br>65        | -        | -                | 212           | 356   |
| Plain                                                               | { (i) ..<br>(ii) ..    | (a) ..<br>(a) .. | ..       | (a) ..<br>(a) .. | 421           | 918   |
| Surface                                                             | { (i) 1,498<br>(ii) .. | 1,037<br>99      | -        | -                | 1,498         | 1,037 |
| Universal                                                           | { (i) 371<br>(ii) ..   | 418<br>43        | -        | -                | 371           | 418   |
| Other                                                               | { (i) ..<br>(ii) ..    | (a) ..<br>(a) .. | ..       | (a) ..<br>(a) .. | 7,772         | 1,347 |
| Lathes                                                              |                        |                  |          |                  |               |       |
| Fully automatic (automatics) and capstan and turret                 | { (i) ..<br>(ii) ..    | (a) ..<br>(a) .. | ..       | (a) ..<br>(a) .. | 4,788         | 5,315 |
| Centre                                                              | { (i) ..<br>(ii) ..    | (a) ..<br>(a) .. | ..       | (a) ..<br>(a) .. | 13,734        | 5,045 |
| Tool room                                                           | (i) and (ii) ..        | 471              | -        | -                | ..            | 471   |
| Other, including multi-tool or production                           | { (i) ..<br>(ii) ..    | (a) ..<br>(a) .. | ..       | (a) ..<br>(a) .. | 1,273         | 1,267 |
| Milling, other than threading                                       |                        |                  |          |                  |               |       |
| Vertical, and plain horizontal                                      | { (i) 1,912<br>(ii) .. | 1,492<br>131     | -        | -                | 1,912         | 1,492 |
| Universal                                                           | { (i) 1,218<br>(ii) .. | 1,152<br>124     | -        | -                | 1,218         | 1,152 |
| Other, including manufacturing (i) and (ii)                         | ..                     | (a) ..           | ..       | (a) ..           | ..            | 1,548 |
| Unclassified                                                        | { (i) 271<br>(ii) ..   | 66<br>50         | -        | -                | 271           | 66    |
| Sawing                                                              | { (i) ..<br>(ii) ..    | (a) ..<br>(a) .. | ..       | (a) ..<br>(a) .. | 3,707         | 458   |
| Shaping                                                             | { (i) ..<br>(ii) ..    | (a) ..<br>19     | ..       | (a) ..           | 2,632         | 788   |
| Presses                                                             |                        |                  |          |                  |               |       |
| Hydraulic                                                           | { (i) ..<br>(ii) ..    | (a) ..<br>(a) .. | ..       | (a) ..<br>(a) .. | 1,668         | 1,557 |
| Other descriptions                                                  | { (i) ..<br>(ii) ..    | (a) ..<br>(a) .. | ..       | (a) ..<br>(a) .. | 5,531         | 1,991 |

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TABLE 20 (contd.)

| Kind of output                                                                                     | (i) Complete machines<br>(ii) Parts | England and Wales |             | Scotland |            | Great Britain |                |
|----------------------------------------------------------------------------------------------------|-------------------------------------|-------------------|-------------|----------|------------|---------------|----------------|
|                                                                                                    |                                     | Quantity          | Value       | Quantity | Value      | Quantity      | Value          |
|                                                                                                    |                                     | No.               | £'000       |          | £'000      | No.           | £'000          |
| Principal products (contd.)                                                                        |                                     |                   |             |          |            |               |                |
| Machine tools, metal-working, new (other than portable power tools) (contd.)                       |                                     |                   |             |          |            |               |                |
| Forging machinery, other than presses                                                              | { (i)<br>(ii)                       | 324<br>..         | 649<br>155  | -<br>-   | -<br>-     | 324<br>..     | 649<br>155     |
| Punching and shearing                                                                              | { (i)<br>(ii)                       | ..<br>..          | (a)<br>(a)  | ..<br>.. | (a)<br>(a) | 4,543<br>..   | 796<br>73      |
| Tin box and can making                                                                             | { (i)<br>(ii)                       | 2,000<br>..       | 612<br>195  | -<br>-   | -<br>-     | 2,000<br>..   | 612<br>195     |
| Straightening rolls, and plate and sheet-metal working machines, not elsewhere specified           | { (i)<br>(ii)                       | ..<br>..          | (a)<br>123  | ..<br>.. | (a)<br>24  | 6,672<br>..   | 1,175<br>147   |
| Screwing                                                                                           | { (i)<br>(ii)                       | 1,173<br>..       | 246<br>31   | -<br>-   | -<br>-     | 1,173<br>..   | 246<br>31      |
| Threading                                                                                          | { (i)<br>(ii)                       | ..<br>..          | (a)<br>70   | ..<br>-  | (a)<br>-   | 431<br>..     | 341<br>70      |
| Other new metal-working machine tools including planing and slotting machines                      | { (i)<br>(ii)                       | ..<br>..          | (a)<br>(a)  | ..<br>.. | (a)<br>(a) | 15,146<br>..  | 2,258<br>366   |
| Unclassified                                                                                       | (ii)                                | ..                | 61          | ..       | 49         | ..            | 109            |
| Machine tools, metal-working, reconditioned                                                        | { (i)<br>(ii)                       | ..<br>..          | (a)<br>(a)  | ..<br>.. | (a)<br>(a) | 4,315<br>..   | 1,996<br>236   |
|                                                                                                    |                                     | ..                |             | ..       |            | ..            | 139            |
| Total machine tools, metal-working (other than portable power tools), including parts              |                                     |                   | 45,974      |          | 1,910      |               | 47,884         |
| Welding and cutting machinery and equipment, other than tube making                                |                                     |                   |             |          |            |               |                |
| Electric                                                                                           |                                     |                   |             |          |            |               |                |
| Arc welding                                                                                        | { (i)<br>(ii)                       | 4,881<br>..       | 1,276<br>80 | -<br>-   | -<br>-     | 4,881<br>..   | 1,276<br>80    |
| Resistance welding                                                                                 |                                     |                   |             |          |            |               |                |
| Spot and projection                                                                                | { (i)<br>(ii)                       | ..<br>..          | (a)<br>(a)  | ..<br>.. | (a)<br>(a) | 1,415<br>..   | 411<br>95      |
| Other                                                                                              | { (i)<br>(ii)                       | ..<br>..          | (a)<br>(a)  | ..<br>.. | (a)<br>(a) | 377<br>..     | 442<br>65      |
| Other descriptions (including gas cutting machines, and welding and cutting torches and equipment) |                                     | (i) and (ii)      | ..          | -        | -          | ..            | 1,777          |
| Electrodes for arc welding                                                                         |                                     | ..                | (a)         | ..       | (a)        | ..            | 4,103          |
| Engineers' small tools and parts thereof                                                           |                                     | Th.do.            |             |          |            | Th.do.        |                |
| Hard metal tipped tools                                                                            |                                     | ..                | (a)         | ..       | (a)        | 285<br>..     | 1,287<br>1,563 |
| Hard metal tips and inserts, sold separately                                                       | {                                   | 552<br>..         | 1,831<br>11 | -<br>-   | -<br>-     | 552<br>..     | 1,831<br>11    |
| Hard metal dies and die pellets, sold separately                                                   | {                                   | 27<br>..          | 384<br>49   | -<br>-   | -<br>-     | 27<br>..      | 384<br>49      |
| Other than hard metal                                                                              |                                     |                   |             |          |            |               |                |
| Milling cutters                                                                                    |                                     | ..                | (a)         | ..       | (a)        | 35<br>..      | 1,204<br>981   |
| Reamers, end mills and similar shank tools                                                         |                                     | ..                | (a)         | ..       | (a)        | 149<br>..     | 1,067<br>381   |
| Lathe and planer tools                                                                             |                                     | ..                | (a)         | ..       | (a)        | 278           | 1,332          |
| Hacksaws and hacksaw blades                                                                        |                                     | ..                | 2,218       | -        | -          | ..            | 2,218          |
| Cut and ground thread screwing tackle                                                              |                                     | ..                | (a)         | ..       | (a)        | ..            | 4,266          |

TABLE 20 (contd.)

|                                                                                                                                                                                                                                               | England and Wales |        | Scotland |       | Great Britain |        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------|----------|-------|---------------|--------|
|                                                                                                                                                                                                                                               | Quantity          | Value  | Quantity | Value | Quantity      | Value  |
|                                                                                                                                                                                                                                               | Th.do.            | £'000  |          | £'000 | Th.do.        | £'000  |
| Principal products (contd.)                                                                                                                                                                                                                   |                   |        |          |       |               |        |
| Engineers' small tools and parts thereof (contd.)                                                                                                                                                                                             |                   |        |          |       |               |        |
| Other than hard metal (contd.)                                                                                                                                                                                                                |                   |        |          |       |               |        |
| Other metal cutting tools (except saws and saw blades), including drills, cylindrical, helically grooved, commonly known as twist drills, bit stock drills, machine bits for wood (but not including auger bits); slitting saws; and broaches | ..                | (a)    | ..       | (a)   | ..            | 8,005  |
| Press tools                                                                                                                                                                                                                                   | 1                 | 755    | -        | 12    | 1             | 767    |
| Moulds and dies                                                                                                                                                                                                                               | ..                | 1,835  | ..       | 1     | ..            | 1,836  |
| Lathe chucks                                                                                                                                                                                                                                  | ..                | (a)    | ..       | (a)   | ..            | 1,168  |
| Drill chucks                                                                                                                                                                                                                                  | ..                | 1,239  | -        | -     | ..            | 1,239  |
| Jigs and fixtures                                                                                                                                                                                                                             | ..                | 522    | -        | -     | ..            | 522    |
| Other tool and work holders                                                                                                                                                                                                                   | ..                | 4,515  | ..       | 28    | ..            | 4,543  |
| Unclassified engineers' small tools and parts                                                                                                                                                                                                 | ..                | 1,390  | -        | -     | ..            | 1,390  |
| Waste products other than scrap metals                                                                                                                                                                                                        | ..                | 327    | -        | -     | ..            | 327    |
| Repair and jobbing work (b) (c)                                                                                                                                                                                                               | ..                | (a)    | ..       | (a)   | ..            | 236    |
| Other work done for the trade or on commission (b)                                                                                                                                                                                            | ..                | 931    | ..       | 34    | ..            | 965    |
|                                                                                                                                                                                                                                               | ..                | 926    | ..       | 34    | ..            | 960    |
| Total principal products                                                                                                                                                                                                                      |                   | 91,549 |          | 3,117 |               | 94,666 |
| Other output                                                                                                                                                                                                                                  |                   |        |          |       |               |        |
| Machinery and plant and parts                                                                                                                                                                                                                 |                   |        |          |       |               |        |
| Food preparation, processing and sterilising machinery                                                                                                                                                                                        | ..                | (a)    | ..       | (a)   | ..            | 76     |
| Internal combustion engines, except marine engines and engines for locomotives                                                                                                                                                                | ..                | 273    | -        | -     | ..            | 273    |
| Printing, bookbinding, paper-working, etc. machinery                                                                                                                                                                                          | ..                | 356    | -        | -     | ..            | 356    |
| Pumps, other than petrol and oil measuring and hand pumps                                                                                                                                                                                     | ..                | (a)    | ..       | (a)   | ..            | 266    |
| Textile machinery                                                                                                                                                                                                                             | ..                | (a)    | ..       | (a)   | ..            | 340    |
| Wood working machine tools, other than portable power tools                                                                                                                                                                                   | ..                | 312    | -        | -     | ..            | 312    |
| Gears and gear wheels                                                                                                                                                                                                                         | ..                | (a)    | ..       | (a)   | ..            | 229    |
| Other descriptions                                                                                                                                                                                                                            | ..                | 2,861  | ..       | 18    | ..            | 2,879  |
| Tools and implements (other than engineers' small tools)                                                                                                                                                                                      |                   |        |          |       |               |        |
| Edge and similar tools                                                                                                                                                                                                                        | ..                | 36     | -        | -     | ..            | 36     |
| Gauges, other than pressure gauges                                                                                                                                                                                                            | ..                | (a)    | ..       | (a)   | ..            | 664    |
| Saws and saw blades, other than hacksaws and hacksaw blades                                                                                                                                                                                   | ..                | 848    | -        | -     | ..            | 848    |
| Spanners and wrenches                                                                                                                                                                                                                         | ..                | 53     | -        | -     | ..            | 53     |



TABLE 20 (contd.)

|                                                                                | England and Wales |                | Scotland |                | Great Britain |                |
|--------------------------------------------------------------------------------|-------------------|----------------|----------|----------------|---------------|----------------|
|                                                                                | Quantity          | Value<br>£'000 | Quantity | Value<br>£'000 | Quantity      | Value<br>£'000 |
| Other output (contd.)                                                          |                   |                |          |                |               |                |
| Tools and implements (other than engineers' small tools) (contd.)              |                   |                |          |                |               |                |
| Other hand tools and implements (including files and rasps)                    | ..                | (a)            | ..       | (a)            | ..            | 1,755          |
| Castings, forgings, stampings and pressings of iron and steel                  | ..                | 689            | -        | -              | ..            | 689            |
| Cutting tools for use on wood-working machines, other than saws and saw blades | ..                | 112            | -        | -              | ..            | 112            |
| Other goods                                                                    | ..                | 3,988          | ..       | 26             | ..            | 4,014          |
| Scrap iron and steel sold                                                      | ..                | 833            | ..       | 7              | ..            | 840            |
| Work done (b)                                                                  |                   | 135            |          | -              |               | 135            |
| Total                                                                          |                   | 105,284        |          | 3,258          |               | 108,542        |

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

(b) Amount charged.

(c) Exclusive of the value of goods made and recorded as output.

Stocks of products on hand for sale and work in progress,  
and stocks of materials and fuel

Larger establishments

|                                                      |                        | £'000             |          |               |
|------------------------------------------------------|------------------------|-------------------|----------|---------------|
|                                                      |                        | England and Wales | Scotland | Great Britain |
| Products on hand for sale                            | { at beginning of year | 5,003             | 161      | 5,164         |
|                                                      | { at end of year       | 5,894             | 191      | 6,084         |
| Work in progress                                     | { at beginning of year | 13,239            | 494      | 13,734        |
|                                                      | { at end of year       | 16,850            | 518      | 17,368        |
| Total products on hand for sale and work in progress | { at beginning of year | 18,242            | 655      | 18,897        |
|                                                      | { at end of year       | 22,743            | 709      | 23,452        |
| Materials and fuel                                   | { at beginning of year | 7,669             | 269      | 7,938         |
|                                                      | { at end of year       | 11,060            | 376      | 11,436        |

Employment in September

Larger establishments (a) (b)

|          |  | Number            |          |               |
|----------|--|-------------------|----------|---------------|
|          |  | England and Wales | Scotland | Great Britain |
| Males    |  |                   |          |               |
| Under 18 |  | 4,029             | 135      | 4,164         |
| All ages |  | 58,758            | 1,922    | 60,680        |
| Females  |  |                   |          |               |
| Under 18 |  | 437               | 10       | 447           |
| All ages |  | 9,028             | 104      | 9,132         |
| Total    |  |                   |          |               |
| Under 18 |  | 4,466             | 145      | 4,611         |
| All ages |  | 67,786            | 2,026    | 69,812        |

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TABLE 22 (contd.)

(ii) Administrative, technical and clerical employees

|              |  | Number            |          |               |
|--------------|--|-------------------|----------|---------------|
|              |  | England and Wales | Scotland | Great Britain |
| Males        |  |                   |          |               |
| Under 18     |  | 375               | 16       | 391           |
| All ages     |  | 10,617            | 422      | 11,039        |
| Females      |  |                   |          |               |
| Under 18     |  | 1,068             | 33       | 1,101         |
| All ages     |  | 6,073             | 212      | 6,285         |
| Total        |  |                   |          |               |
| Under 18     |  | 1,443             | 49       | 1,492         |
| All ages (c) |  | 16,690            | 634      | 17,324        |

(iii) Total employees

|              |  | Number            |          |               |
|--------------|--|-------------------|----------|---------------|
|              |  | England and Wales | Scotland | Great Britain |
| Males        |  |                   |          |               |
| Under 18     |  | 4,404             | 151      | 4,555         |
| All ages     |  | 69,375            | 2,344    | 71,719        |
| Females      |  |                   |          |               |
| Under 18     |  | 1,505             | 43       | 1,548         |
| All ages     |  | 15,101            | 316      | 15,417        |
| Total        |  |                   |          |               |
| Under 18     |  | 5,909             | 194      | 6,103         |
| All ages (c) |  | 84,476            | 2,660    | 87,136        |

(a) Excluded employees. The number of persons employed at the larger establishments in this trade but not included in the above tables or in any other Census of Production report (e.g., employees engaged in merchandising) are shown in Table 22(v) below.

(b) Number employed in the week ended September 22, 1951.

(c) Working proprietors. In addition working proprietors, shown in Table 22(iv) below, were engaged in this trade in larger establishments.

(iv) Working proprietors

|         |  | Number            |          |               |
|---------|--|-------------------|----------|---------------|
|         |  | England and Wales | Scotland | Great Britain |
| Males   |  | 75                | 2        | 77            |
| Females |  | 6                 | -        | 6             |
| Total   |  | 81                | 2        | 83            |

(v) Excluded employees

|                          |  | Number            |          |               |
|--------------------------|--|-------------------|----------|---------------|
|                          |  | England and Wales | Scotland | Great Britain |
| Canteen workers          |  |                   |          |               |
| Males                    |  | 68                | -        | 68            |
| Females                  |  | 984               | 13       | 997           |
| Total                    |  | 1,052             | 13       | 1,065         |
| Other workers            |  |                   |          |               |
| Males                    |  | (d)               | (d)      | 822           |
| Females                  |  | (d)               | (d)      | 751           |
| Total                    |  | (d)               | (d)      | 1,573         |
| Total excluded employees |  | (d)               | (d)      | 2,638         |

(d) Owing to the risk of disclosure of information relating to individual firms, separate particulars cannot be given.

Average employment: Larger establishments (a)

|                                                  |  | Number            |          |               |
|--------------------------------------------------|--|-------------------|----------|---------------|
|                                                  |  | England and Wales | Scotland | Great Britain |
| Operatives                                       |  | 67,756            | 2,055    | 69,811        |
| Administrative, technical and clerical employees |  | 16,552            | 626      | 17,178        |
| Total                                            |  | 84,308            | 2,681    | 86,989        |

(a) For employment in small firms (employing on the average ten or fewer persons) that made satisfactory returns see Table 19.

Outworkers. In addition to the employees shown above the firms in this trade employed 12 male and 6 female outworkers (all in England and Wales).

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Wages and salaries and employers' National Insurance contributions paid during the year

Larger establishments

|                                                            | England and Wales | Scotland | Great Britain |
|------------------------------------------------------------|-------------------|----------|---------------|
| Wages and salaries (a) of                                  |                   |          |               |
| Operatives                                                 | 26,216            | 713      | 26,929        |
| Administrative, technical and clerical employees           | 8,904             | 260      | 9,163         |
| Total                                                      | 35,120            | 973      | 36,092        |
| Employers' contributions to all National Insurance Schemes | 841               | 25       | 867           |

(a) Including bonus and commission payments but excluding payments amounting to £2,000, to outworkers in England and Wales.

Plant, machinery and vehicles - acquisitions and disposals, and capital expenditure on new building work

Larger establishments

|                                                                                                                                       | England and Wales | Scotland | Great Britain |
|---------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------|---------------|
| Plant, machinery and vehicles                                                                                                         |                   |          |               |
| Acquisitions                                                                                                                          |                   |          |               |
| Plant and machinery                                                                                                                   |                   |          |               |
| New                                                                                                                                   | 2,994             | 88       | 3,083         |
| Second-hand                                                                                                                           | 305               | 1        | 306           |
| Vehicles                                                                                                                              |                   |          |               |
| New                                                                                                                                   | 374               | 4        | 378           |
| Second-hand                                                                                                                           | 126               | -        | 126           |
| Total acquisitions                                                                                                                    | 3,799             | 94       | 3,893         |
| Disposals                                                                                                                             |                   |          |               |
| Plant and machinery                                                                                                                   | 321               | 6        | 327           |
| Vehicles                                                                                                                              | 111               | 2        | 112           |
| Total disposals                                                                                                                       | 432               | 7        | 439           |
| New building work                                                                                                                     |                   |          |               |
| Capital expenditure on new building and other constructional work of a capital nature (excluding site values and development charges) | 683               | 11       | 694           |

Payments for transport services for finished goods sold and materials and fuel purchased

Larger establishments

|                                                                        | England and Wales | Scotland | Great Britain |
|------------------------------------------------------------------------|-------------------|----------|---------------|
| Amounts paid to other firms and undertakings                           | (a)               | (a)      | 955           |
| Amount paid or credited to firms' own separate transport organisations | (a)               | (a)      | 29            |
| Total                                                                  | 938               | 46       | 984           |

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

GENERAL NOTES

The following brief notes refer to Great Britain and, unless otherwise stated, to the census of production for 1951. Reference should be made to the separate booklet in this series entitled 'The Report on the Census of Production for 1951: Introductory Notes' (price 1s.6d. net) for particulars of the minor differences in the Northern Ireland censuses and other details about the census of production.

**Trade classification:** Establishments are classified to trades according to the nature of their output. Certain products, called principal products, are identified as characteristic of the production of individual trades, the principal products for a given trade being of a similar nature or commonly associated in production. An establishment is classified to a trade if its output of principal products of that trade accounted for a greater proportion of the value of its output than did its output of principal products of any other trade.

**The establishment:** The basic unit for the collection of information is generally the establishment which in most cases comprises the whole of the premises under the same ownership or management at a particular address (e.g., a factory). Offices, warehouses and other ancillary places of business situated apart from the producing works are included in the return for the works.

**Larger establishments and small firms:** Larger establishments are those which employed more than 10 persons on the average during the year; small firms are those employing on the average 10 or fewer persons.

**Working proprietors** are proprietors of businesses other than limited companies, and include members of their families who work in the business without receiving fixed wages or salaries. Any persons working less than half the normal hours are excluded.

**Persons employed:** Administrative employees include directors other than those paid by fee only, managers, superintendents and works foremen; research, experimental, development, technical and design employees (other than operatives); draughtsmen and tracers; and travellers and office (including works office) employees. Operatives include all other classes of employees, that is, broadly speaking, all manual workers.

All these figures exclude canteen employees and persons engaged in merchandising or any other activity not covered by a firm's return who are shown separately as excluded employees.

Figures for employees include only persons on the pay-roll (that is whose National Insurance cards were held by the firm), whether full-time or part-time employees.

**Outworkers,** who are shown separately, are persons employed by the firm who work on materials supplied by the firm, but do not work on the premises; operatives directly employed who work out of doors (e.g., maintenance workers) and sub-contractors are not included as outworkers.

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

**Capital expenditure:** Expenditure on plant, machinery and vehicles relates to expenditure charged to capital account during the year of return, including transport and installation costs involved. Expenditure on new building work is similarly that charged to capital account during the year.

**Materials and fuel:** The cost of materials and fuel purchased includes all purchases during the year of materials for use in production and of fuel (including oil, gas, and electricity for all purposes, including heating and lighting); all packing materials, including the full cost of returnable containers when first purchased; workshop materials; office materials; water charges; materials for repairs to firms' own buildings, plant and vehicles when carried out by

their own work people included in the return; and consumable tools and parts for machinery purchased as replacement. Materials, components, etc. which were purchased and re-sold in the same state (that is, merchanted or factored goods) were excluded. For 1951 firms in many trades were required to state the quantities of certain purchased materials used.

**Stocks and work in progress:** Firms were instructed to give these at income tax value.

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

**Gross output** of a trade is the total value of goods made and other work done during the year; this means the value of sales and work done during the year adjusted for changes in the values of stocks.

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

**Customs and Excise Duty** paid on materials purchased is included in the cost of materials, but where it is especially important separate figures are shown.

**Later reports:** Reports will be published later summarising the main census results and giving information about power equipment and fuel consumption.

**Disclosure of information:** The report has been prepared in conformity with the disclosure provisions of the Statistics of Trade Act, 1947. Figures have been combined with others of a similar nature in certain cases where publication of separate details might disclose the operations of an individual firm.

**Symbols used:** '.' for 'Not available', '-' for 'Nil or negligible (less than half the final digit shown)'

The figures in the tables have been rounded off to the nearest final digit, and there may be an apparent slight discrepancy between the sums of the constituent items and the totals shown.

Tables 1 to 17 show figures for the United Kingdom (or Great Britain).

Tables 18 to 26 are country tables and give, where practicable, separate details for England and Wales, Scotland and Northern Ireland.

Table 6: Specialist producers refer to those establishments 50 per cent. or more of whose total output by value is accounted for by the groups of products specified.

Table 8 (or 8(i)) shows the total sales of principal products of the trade, and includes therefore the sales of these products returned by establishments whether classified to the trade or to other trades. Those produced by establishments in other trades are shown in Table 9.

Table 10 shows the sales by establishments in the trade of products other than those regarded as principal products of the trade.

Table 20 (or 20(i)) shows sales by establishments in the trade of products, whether principal products or not, and broadly the aggregates here are equal to the corresponding figures in Table 8 (or 8(i)) less those in Table 9, plus those in Table 10.



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