SOCIAL AND ECONOMIC CONDITIONS OF ENGLAND ON THE EVE OF THE INDUSTRIAL REVOLUTION

PART II.

INDUSTRY AND COMMERCE.
PART II.

CHAPTER I

INTRODUCTORY. DISTRIBUTION OF INDUSTRY AND POPULATION.
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INTRODUCTORY. DISTRIBUTION OF POPULATION AND INDUSTRY.

Probably no part of England was affected by the Revolution to so great an extent as the industrial part of Lancashire. The growth of Liverpool during the eighteenth and nineteenth century, the rise of the cotton area, centering in the town of Manchester, and the development of the coal and iron areas of the county, made it in the course of less than a century and a half the largest centre of population outside the metropolitan area. The story of that transformation belonged to the history of the Industrial Revolution and the long social struggle in which labour has sought to emancipate itself from the fetters forged by the laissez faire theories of the later eighteenth and a great part of the nineteenth period.

The present concern, however, is to show to what extent the ground was prepared up to 1760 for the tremendous growth that marks the next hundred years.

Modern Lancashire is no doubt the product of the changes of the century between 1760 and 1860, but evidence had been given before the former date that the southern part of the county was destined to fill a large place in the industrial and commercial life of the county, even if there had been no radical change in the technique or economic structure of industry and commerce. The population of the county was 166,200 in 1700, but this had by 1750 reached 297,400, an increase of nearly 79 per cent. 1. Butterworth, Statistical sketch of Lancashire. 1841.
The increase until 1801 was only 125 per cent, and this half century included at least a decade of increasing population under the old system. Moreover, this increase of population took place almost entirely in the southern and eastern parts of the county; so it represents a very considerable advance in industry and trade, although there were no notable improvements in the producing power of industry. This will be seen when the county is considered more in detail.

INDUSTRY
S. & E. Lancs. The bulk of the industry of Lancashire, then as now, was concentrated in the hundreds of Blackburn, Salford, and West Derby. That portion in West Derby was south of a line drawn from Liverpool to Wigan. The main industries of the county are those connected with wool, cotton, coal and iron. The mineral wealth of Lancashire was becoming well known by the middle of the century. "Here is plenty of timber, coal and cannel coal pits, with mines of lead, iron, and copper, antimony, blacklead, lapis calaminaris, besides alum, brimstone and green vitriol found in some of the coal pits". In these words a writer in 1756 sums up the mineral resources of the county.

COAL. The coal area was divided into two parts. The northern section was that narrow strip extending from

Blackburn through Burnley up to Colne in the hills. The other and more important is broader at the Western end where it extends from south of Prescot to the north western corner of the field in the neighbourhood of Chorley, from this broad section the field gradually narrows to the east including Wigan, Bolton, Bury, and extending as far as Rochdale. Cannel coal was mostly found in the neighbourhood of Wigan, and the ordinary coal over the whole area.

Some of the iron was smelted near Garstang, east of the road from Preston to Lancaster, "on account of the great plenty of wood" in the district. The principal iron mines were in the Furness district, south of the Abbey of Furness. About 1750, there were seven different iron mines in that area and we are told that there were three main kinds of ore. The finest was the kidney ore, the second was found in shoots, and the third sort is of a bluish hue, but all are of a red colour. Besides the iron and coal produced in the county there were copper mines at Crampton, and lead at Anglezark, though the lead was not important. There was a copper smelting work at Warrington where ore from Cornwall was smelted because of the proximity of the coal fields. When finished and cast into pigs it was sent to Holywell to be beaten into plates, or to Staffordshire for the brass manufactories there.

2. Ibid I.p.14
The slag or dross was cast into building and paving blocks. There were important potteries in Liverpool, eight being the number given by Pococke, who says the produce was reckoned among the best in England.

The earliest seat of the metal industries in Lancashire was in Wigan where there were pewterers and braziers from very early times. A bell industry had flourished there in the seventeenth century but was extinct before the Industrial Revolution. There was an extensive pin manufactory at Warrington, which in Young's time employed between two and three hundred children. The extent of the industry is shown by the fact that wills of pin makers are registered in 1700, 1712, 1718, 1726, 1735, 1738, 1744, 1747, 1756, and three wills during the seventies. Another metal industry of importance in Lancashire was that of watch making. This was centred mostly in Liverpool and Prescot although it existed also at West Derby, Wavertree Ormskirk, and Warrington. To judge from the number of wills of watch-makers and watch-tool makers during the first twenty years of the second half of the century, it must have been a flourishing industry in the fifties.

2. V.C.H. II. 365
3. Northern Tour. III. 165.
It was during our period also that the engineering trade arose in Lancashire. Three millwrights who were believed by the Victoria County History writer on this subject to have been machine engineers died at Manchester, and one at Bury between 1736 and 1762. The early iron foundries were mostly in Liverpool, where their wills occur in the last quarter of the century. It would seem that the development of this industry took place about the end of the period under consideration.

**POTTERIES.** It has been mentioned above that there were potteries in Liverpool about 1750. This industry, so slight in Lancashire now, being confined mostly to such coarse produce as sewage and chimney pots, was in the eighteenth century a flourishing industry in the south west of the county, mostly in Liverpool. When Young visited Liverpool in 1769, the porcelain workers were receiving 7/- to 9/- a week, which was a very good wage for artisans at that time. In 1756, a Liverpool advertisement says that a certain firm was making all sorts of sugar molds and drips, chimney moulds, large jars for water, black mugs, crucibles and melting pots. The records of wills show that the Liverpool makers had rivals at Rainford, Bickerstaffe, Windle, Eccleston, Sutton, Whiston, and a large number at Prescot, where six wills of potters were registered at Chester, between 1731 and 1766.

1. Enfield, Essay toward the history of Liverpool 1774. He mentions porcelain, but says that round 1770 it was declining owing to the competition from Staffordshire.
An industry not usually associated with the first half of the eighteenth century in Lancashire is that of paper-making. Baines ascribes the introduction of paper and sail-cloth manufacture as well as that of silk to the refugee Protestants from France and Germany. The first mill was established about 1674 by the Crompton's near Bolton. The will of a paper maker named Warburton occurs at Heap, near Heywood in 1721. Wills of the Cromptons occur at Farnworth in 1737, and at Little and Great Lever in 1739 and 1760, while that of another paper maker named Grundy occurs at Little Lever in 1787. Later wills of paper makers are at Stretford and Manchester. These names would seem to dispose effectually of Baines' theory that the industry was brought by the French, unless of course they brought only their secrets, and worked for English masters.

The chemical industries were represented by a small copperas plant at Wigan in the fifties of the century, and by the development of soap works and bleaching works as subsidiary industries to the cloth trade. The soap making probably commenced about the end of the seventeenth century, as there are wills of soap makers recorded from Ormskirk in 1709, Manchester in 1724 and 1751, while they are of later development at Chorley and Liverpool.

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1. V.C.H. Lancs. II. 403-6. There were also glass makers at Liverpool, Sutton, Brockton, Prescot, the latter closed about 1750. Reference is made in the Manch. Merc. May 7, 1754 to the opening of a new glass works at Leigh.

In 1773 there were five soap boilers and chandlers at Manchester. After the Industrial Revolution this industry gradually passed to Liverpool. The record of wills would indicate that the bleaching industry began in the last quarter of the 17th century. They were seldom found in the town of Manchester itself, but were scattered round it in the smaller places. In 1772, the distribution of crofters or whitsters, as they were called, is given by a recent writer. There were 76 altogether in the Manchester area; of these 48 were east of the road running north from Northenden through Manchester to a point somewhat north of Blackley, where the road swings north eastward to Rochdale. Twelve were located at Newton, just east of Manchester, and eight at Blackley, with six at Levenhulme. There were ten at Pendleton, just west of Manchester, and eight in the vicinity of Bolton, and four at Prestwich. The remainder were in small numbers in the villages included in the above areas.

This area round Manchester, and in the town itself, was in the main textile area of the county. According to the writer quoted above, there were 106 men engaged in the fustian manufacture, 64 in the making of checks, 49 making the Manchester small wares, and 50 making silks and linens. These figures include a few dyers and printers, as well as some finishers, or drapers of woollen goods, 26 yarn and cotton merchants, and 60 engaged in miscellaneous trades.

1. V.C.H. Lancs. II. 402 - 2. Ibid. II. 396. Earliest wills were from Gorton in 1690, Manchester 1693, Prestwich 1694, and Crumpsall 1697.

such as hatters, velvet and cloth dressers and others making various articles necessary in the cloth trade. A list of country tradesmen with warehouses in Manchester shows that there were 77 fustian manufacturers in the area outside of Manchester, 21 of whom were in Bolton; there were 26 check manufacturers, and 12 miscellaneous, such as yarn merchants, cotton merchants and woollen and linen merchants.

The woollen manufacture was in the main confined to the district lying on the eastern borders of the county, from Rochdale as far north as Colne and Clitheroe. This district was really part of the clothing area of the West Riding of Yorkshire and part of Rochdale parish was in that county. It will be remembered that one of the earliest roads turnpiked in Lancashire was the road from Rochdale to Halifax, a silent witness to the connection Rochdale had with the great woollen areas of the West Riding. There was little manufacture for outside sale north of the upper reaches of the Ribble. Defoe remarks of Preston, that it is pretty full of people, "but not like Liverpool or Manchester, for we now come beyond the trading part of the county". The only industry of note in the north of the county was the mining of iron in the Furness district and copper near Coniston.

The main commercial centre was Liverpool. In 1776 Postlethwayte speaks of the rapid growth of Liverpool which was

1. Daniels, Cited above Pages 67-69. These tables were compiled from the first Manchester Directory in 1772.
2. See sketch of turnpiked roads, Chapter III - Part I.
then the most flourishing sea-port in these parts, "pretending rival, if not to excel Bristol, its customs being increased 8 or ten fold within these forty years past. The inhabitants are universally merchants, and notwithstanding their out of the way situation, drive an incredible trade, with great success and very large stocks to all the northern parts of the world so that there is no trade but that to Turkey, Greenland, and the East Indies in which they are not concerned." Liverpool's share in the slave trade began in 1709, and by 1760 there were 74 vessels cleared for Africa with a total tonnage of 6176. He also emphasises the inland trade arising from its imports of foreign goods; The share of the Irish trade which it enjoys, taking most of the Northern trade, while Bristol takes the southern; and the shipping of salt from the Cheshire salt works, and the cheese from the same county. All these go to show the importance that Liverpool had attained by the opening of the Industrial Revolution. This was due in some measure to the gradual filling of the mouth of the Dee with sand, so that Chester lost her old importance as the leading port of the kingdom, and partly to the growing industrial importance of Southern Lancashire. The writer quoted above remarks that on the occasion of his visit in 1764, there were lying in the harbour of Liverpool."31 ships, 27 snows, 67 brigs, 6 schooners, 3 doggers or ketches, 141 MIV sloop, and only one ship and four brigs sailed which reduced

2. A. Aikin Descri. of Manchester 1795 p. 364-5
number to 351 vessels lying in the harbour at the same time, an instance not to be equalled by any port belonging to Great Britain except the mother Port of London, especially when we consider that none of the merchant ships were accidentally forced into the harbour by contrary winds."  

Warrington was also of some commercial importance, besides the trade caused by the manufactures of copper, pins, and sail-cloth established there. Pococke says that this town was "chiefly supported by being a great thoroughfare, and by the merchandizes that are brought to it from Liverpool in large flat-bottomed boats". After the improvement of the Mersey from Runcorn up to Warrington about 1694 the river trade increased so that half the goods carried between Liverpool and Warrington, which was of course the point where the Liverpool inland trade joined the route to London went by water. Manchester, as the centre of the cotton and fustian manufactures was a close second to Liverpool in commercial importance; and we read of the markets of Bolton, and Rochdale, where cloth was bought from the makers by dealers who traded with it all over the country. "Manchester men" were prominent figures in the markets and fairs of importance in the kingdom, through all our period and for some time afterwards. The only flicker of commercial importance enjoyed by the county-town was during the first half of the 18th century. In Blome's Survey in 1673, Lancaster is passed with the comment that there is not much trade here.

1. Postlethwayte. Univ. Dict. of Trade and Commerce. Art. on Lancs  
4. Ibid. II. 21
In 1700 Dr. Leigh speaks of the trade "that is now blooming at Lancaster", a trade that was concerned with America and the West Indies. From Lancaster was exported hardware and woollens, while it was a point of import for sugars, and tobacco. But its period of prosperity was brief, and it soon gave way before the rapid progress of South Lancashire, partly because the country round about was too sparsely settled to make a good market for imports, and partly because the port could only accommodate ships of inconsiderable burthen.

Inland Routes

One of the principal checks to increase of trade in England was the expensive inland transport. The usual charge for the conveyance of goods between Lancashire and London was from 100 shillings per ton up to nearly double that. Obviously only those goods which had a high value in proportion to their bulk could be carried with profit at these rates. All heavy goods were carried as much as possible by sea; but this method was liable to frequent interruption in time of war. When the wars with France between 1665 and 1713 made the coasting trade very precarious, merchants began to turn their attention to the roads, but little progress was made before the first quarter of the 18th century was passed.

The principal land route through Lancashire was the north and south road from London to Scotland. It entered the county at Warrington and passing by way of Wigan, Preston, and Lancaster, left it near Burton in the north.

2. Baines. Cited above. II. p. 46, 80. Liverpool to Manchester 40s. per ton. The usual charge was 1s. per ton per mile carried, a prohibitive charge.
This was one of the two main routes from the South to Scotland. The Kendal carriers mentioned by Pococke sent part of their pack-trains by Lancashire and part of them by Yorkshire. Wagons were used as far North as Wigan, returning laden with coal, but north of Wigan "nearly all the trade was carried on either by strings of pack-horses or by carts. Kendal was the principal pack-horse station on this route. No paved road passable for coach or carriage existed between Warrington and Liverpool. Such was the state of the main road of the county at the opening of the 16th century. Matters were somewhat improved by the middle of the century. But in 1756 a postmaster in Liverpool is advertising that he has "two good double horses on the road for the convenience of ladies travelling between Liverpool and Lancaster"

These were horses carrying pillions, so that they each carried two ladies. It was not till after 1727 that a coach line began to run to Liverpool, and then it was only a heavy coach-waggon which took ten or eleven days to do the journey to London.

Liverpool was connected with this main north and south route by a road to Prescot, one of the earliest roads to be turnpiked in the county the Act being secured in 1725, a year before the Act for improving the southern section of the road from Warrington north to Lancaster and Burton.

The other important route was that connecting Manchester and the surrounding area with the clothing districts of Yorkshire.

2. Ibid. p. 50
The connecting link was the ancient road over Blackstone Edge from Rochdale to Halifax, and this was turnpiked in 1734. In the fifties this was one of the transport routes to London, because it was connected with Hull, and part of the way was water carriage. A subsidiary route was that from the north eastern part of the county into Yorkshire and linking up the Blackburn and Colne district with the woollen cloth areas.

But the main feature of the first half of the century is not the improvements on roads, but the development of inland water routes, the cost of transport intimated above at a shilling per mile per ton was an effective check on inland trade. Cheaper means, and more effective means, must be designed, for example in 1701, hogsheads of tobacco had to be broken up at Liverpool, and made up into canvas packs for pack-horses for the journey to the eastern counties. The obvious improvement was the navigable streams. The Mersey was improved in 1694 up as far as Warrington, but the rest of the way to Manchester was blocked by weirs for fishing. As soon as the benefit of the improvement as far as Warrington was seen, an agitation was begun to have the river made navigable all the way to Manchester. In 1720 an act was finally secured for "improving the Mersey, Irwell, Douglas and Weaver rivers" passing through Parliament "in the midst of a multitude of bubbles, most of which burst and were forgotten in a few months, except by their unfortunate dupes. This improvement owing to the small amount of capital available for public works, and the lack

1. Baines. II. 83
2. Ibid. x. II. 85
of experience in co-operating in such undertakings, was not com-
pleted till nearly 1740; when it was finished it almost at once
reduced the cost of carriage between Manchester from 40s per ton
to from 10 to 12 shillings. Within the next thirty years after
the peace of XYZ 1713, Baines asserts, all the rivers in Lancashire
and Cheshire that were capable of being improved were rendered
navigable and the cost of carriage was reduced to a quarter of
what it had been. The Act of 1720 provided for the impro-
ing of the Weaver, and the Douglas as well as the main route up the Mersey. The Weaver navigation provided water transport for the salt produced in Cheshire, and for the coal needed as fuel in the manufacture. The Douglas navigation tapped the Wigan coal area, and although it had the disadvantage of reaching the sea where there was neither harbour nor town (in the Ribble some miles from Preston), yet it so reduced the carriage of coal from the Wigan area that it was used till the Leeds-Liverpool canal was constructed at the end of the century. This improvement also proved the begin-
ing of the prosperity of Preston. In 1755 the Sankey canal as it was called was begun and this tapped the coal area round St. Helens. So great was the improvement effected that on its completion there was an auction of the pack-horses formerly used to carry the coal to the Mersey. The Sankey canal is notable because it is the first instance in England, according to Baines, of a truly artificial canal; that is to say, one which was not merely the improvement of the course of a stream.

2. Ibid. II. 69
In 1737 the canal on the Worsley brook was begun, and is called by Aikin the parent of the Duke of Bridgewater's canal. In 1756-9 was begun the canal from Worsley to Salford, and from Worsley across the Irwell to Manchester, through the township of Stretford. In 1761 was commenced the larger undertaking, the canal through Cheshire parallel to the Mersey, a distance of 29 miles. This reduced the transport charges again and made them 6s. per ton as against 10d. up till nearly 1740. Another project initiated in the fifties but not carried through till the seventies was that of the Grand Trunk canal through Chester and Staffordshire to join the Weaver and The Trent. This is mentioned here because the first surveys were made on behalf of the corporation of Liverpool with a view to getting connection between that town and Hull.

Enough has been said to show that the main channels of trade on the eve of the Industrial Revolution were the great road crossing the county on the way to Scotland, the traffic between Liverpool and Manchester and intermediate towns, and the connection between the industrial area of Lancashire and the clothing area of Yorkshire and the ports of the east coast, notably Hull. Lancashire was not so vitally interested in the land route to London because of:

1. Aikin. Descr. of Manchester. 1795. Much of the information in the paragraph is based jointly on Aikin and Baines.
2. Aikin. See above.
The growing importance of Liverpool as a seaport and the easy sea-carriage to the metropolitan market - the traffic by flat-bottomed boats up the Mersey to Warrington may furnish some explanation of the very late improvement of the road from Warrington to Liverpool for although the portion to Prescot was turnpiked as early as 1725 the remaining portion was not improved till 1752.

POPULATION. It has been noted that the population of the county increased from 166,200 about 1700 to 297,400 in 1750. The bulk of this increase was concentrated in the commercial and industrial area of South Lancashire. The growth of Manchester and Liverpool were matters of note to travellers throughout the century. Liverpool in 1565 had only 136 cottagers and householders, and it was not till 1699 that an Act was passed separating Liverpool from the rural parish of Walton and erecting it into a new parish. The following year its population is estimated to have been 5,714. The growth during the next seventy years is best seen in a table from an early history of Liverpool written in 1774. In this table the original writer gives the population as:-

2. Enfield, Essay toward the History of Liverpool 1774.
3. Enfield, p. 26. These figures are accepted by Aikin, except those of 1700 which he makes under 5000. In that case the percentage increase would be 400 instead of 350.
<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>Incr.</th>
<th>Rate of Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1700</td>
<td>5,714</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1710</td>
<td>6,168</td>
<td>245</td>
<td>42 per cent.</td>
</tr>
<tr>
<td>1720</td>
<td>10,416</td>
<td>227</td>
<td>26 per cent.</td>
</tr>
<tr>
<td>1730</td>
<td>12,099</td>
<td>162</td>
<td>15 ½ per cent.</td>
</tr>
<tr>
<td>1740</td>
<td>13,086</td>
<td>601</td>
<td>50 per cent.</td>
</tr>
<tr>
<td>1750</td>
<td>22,099</td>
<td>401</td>
<td>22 per cent.</td>
</tr>
<tr>
<td>1760</td>
<td>25,767</td>
<td>368</td>
<td>16 per cent.</td>
</tr>
<tr>
<td>1770</td>
<td>31,004</td>
<td>522</td>
<td>32 per cent.</td>
</tr>
</tbody>
</table>

The greatest numerical growth was in the last decade quoted, but the greatest percentage increase was in the last ten or eleven years of Walpole's long peace when the town increased 50 per cent in ten years. In the period up to 1760 there is an increase of more than 350 percent, a remarkable increase for those days, though it would not be notable to-day, unless it occurred in some already large city.

**MANCHESTER.** The growth of Manchester had not been great from the latter part of the sixteenth century till the beginning of the eighteenth, scarcely doubling in that time. A record of the burials in the parish shows an average of 164 per annum from 1560 to 1587, and in the years from 1720 to 1727 this was only 359. An account of the inhabitants in 1717 puts the total at about 6,000 but from that time the increase was rapid. In 1757 on the occasion of a Petition to Parliament to be relieved from the duty of having all corn ground at the school mills both sides to the controversy made an enumeration of the population and were within a thousand of each other. The estimate accepted by both Percival and Akin was 19,839
By 1773 the town and parish of Manchester and Salford had a population of 42,927, or the towns alone of 27,246. Although this is not so great an increase as that of Liverpool in the same time yet it is a considerable growth, and we note that the population was more than doubled in forty years and another 35 per cent added in the next sixteen years.

The manufacturing districts shared in the growth of the two principal towns. Figures are not easy to obtain but the following record of births, deaths and marriages in Rochdale point to a considerable increase. In 1700 there were 266 births, 177 burials, and 91 marriages. In 1760 the figures were 355, 255, and 160 respectively, increases of 34, 44, and 77 per cent. The higher marriage rate, characteristic of the middle of the century probably means that many young people were coming into the district and afterwards marrying there.

Baines in his history gives the gist of a survey of the bishopric of Chester in the reign of George the First, and this is perhaps the most reliable evidence on population setting five as the average number in a family. It shows the bulk of the population residing in the three deaneries of Warrington, Manchester, and Blackburn corresponding roughly to the hundreds of West Derby, Salford and Blackburn.

In the Deanery of Warrington, the principal towns outside of Liverpool were Wigan and Leigh with about 5,000 each, then Winwick with about 4,500 while Ormskirk, Warrington and Prescot each have between 3,500 and 4,000. In the Deanery of Manchester which includes most of the clothing districts Bolton-le-Moors had 6,500, Bury about 6,000, including some 1,200 Dissenters, the town and Chapelry of Oldham had about 4,000 people, and Rochdale had nearly 5,000 in the town and 6,000 in other parts of the large parish, probably slightly over 10,000 altogether. In the Deanery of Blackburn that parish and Colne were the only considerable ones. Blackburn had some 9,000 people—three or four thousand of each were in the town itself. Such figures show how industry was dispersed over the country districts when less than half the population was gathered in the town. Colne was a flourishing district with about 3,000 people. The other places with from 1,500 down to 1,000 were Clitheroe, Newchurch, (Rossendale) Haslingden, Burnley, Padiham, Lawchurch, and Whitewell. Accrington at that time had only about 500. In the Deanery of Leyland with sixteen parishes only three places exceeded a thousand people. These were Croston with about three thousand, Standish with about 2,330 and Eccleston with about 1,400. The Deanery of Aughtonandness which contained Preston and Lancaster.
does not give the number of families. Preston had however about five or six thousand people throughout the centuries of 1660 to 1760 and did not begin to grow until about the end of our period when the Douglas River navigation began to lay a supply of coal at her doors. In the Deanery of Lonsdale, the survey gives no particulars of population. There is almost as great a lack of detail about the Deanery of Furness but we do learn that Ulverstone had a population of about 2,500 and was therefore the most considerable place north of Lancaster.

**INDUSTRIAL DISTRIBUTION.** The distribution of industry at the opening of the eighteenth century is well illustrated by two maps appended to Westerfield's work on "Middleman in English Business." The first of these shows the mineral trade, and the second the textile. The coal trade had developed in the principal areas of to-day: Cumberland, which sent most of its coal to Ireland and was largely in the hands of the Lowther Family; Durham and Northumberland were the principal sources of supply for the East Coast and London, shipping from Newcastle-on-Tyne, South Shields, and Sunderland; the areas of Yorkshire, Derby, Shropshire, and Worcester as well as those of Lancashire and Cheshire furnished coal for the Inland Districts; the coals of South...
Wales went up the Severn to help supply the thickly populated clothing areas of the South West. The southern counties received their supplies by sea from Durham and Northumberland chiefly through the port of Southampton. Coal was not at this time however the chief fuel of England. It was not extensively used in industry but was mostly for domestic consumption. Iron was still smelted with wood or charcoal as fuel. The industries where coal was used were those like Glass Works, and Salt Works, in which heat was being supplied for the boiling of vats or crucibles. Even in houses it was making its way but slowly. The iron deposits of Durham and Northumberland were being worked to some extent also those in the North-East corner of Derby but apart from the North Eastern Counties the main Iron Areas were those in Hereford, Gloucester and Monmouth and Weald of Sussex. About 1737 there were 59 furnaces in eighteen different counties producing 17,350 tons annually. In 1755 an ironmaster got a 99 years' lease of an iron area 8 miles by 5 at Merthyr Tydvil.

Lead was being mined in Derbyshire, North Yorkshire, and in Somerset, while the tin mines of South-west Devon and Cornwall were growing in production fairly rapidly.

There was little change in this distribution of the mineral trades before the opening of the Industrial Revolution. The mines in the Furness District were becoming important, and we have seen that by 1750 there were seven of them in operation. Some of the blast furnaces for this area were located in the area between Lancaster and Preston because of the plentiful supply of wood in that district. The growing scarcity of wood in the country was causing a slight decline in the Forest of Dean Iron Workings and the need for some other method of smelting iron was being increasingly felt but up to the close of our period the problem had not been solved. For the rest of the first half of the century only accentuated the distribution of mineral trades then in existence. The Lancashire fields shared in this growth, particularly when the development of the river navigation solved the problem of easy transport to the neighbouring manufacturing districts. Reference has been made to the impetus given to the supply of coal by the opening of the Mersey and Weaver


2. e.g. Postlethwayte. *Gloucestershire*. The Forest of Dean which was formerly covered with wood for the space of 20 by 10 miles has not only reduced to narrower compass but many towns and villages.
navigation, that of the Douglas, and the Sankey canal.

At the beginning of the sixteenth century the clothing areas were three. The portion of Lancashire previously mentioned formed with West Yorkshire the northern woollen district drawing its supplies mostly from the local sheep farms, and those of Cumberland and Westmoreland to the north. This district imported very little wool from the south at this time. The eastern district was centred in the eastern part of Norfolk and Suffolk with large parts of Essex and Kent. The third great clothing district was that of the South West and covered most of the counties of Gloucester, Wiltshire, Berks, Somerset, with parts of Worcester, Warwick, Oxford, Bucks, Hants, and Dorset. This was a rich district for the supply of wool, but this area and the eastern district drew supplies also from parts of Wales, Sussex, Hertfordshire and the Lincoln Sheep Area. The Lincoln area included also Leicester, Northants, Nottingham and Huntingdon, but the only manufacturing of wool in this extensive area was that of Hosiery in Nottingham. Linen was made only in two areas of importance, those of south Lancashire and a portion of Durham.

There was already a considerable amount of specialization in the different districts. Wilts, 1. Westerfield. Map iv at the end of the work. "Distribu-
tion of Textiles at the end of the Seventeenth
Gloucester and Worcester specialized in broadcloths and druggets while Devon and Somerset made serges. Shalloons were the product of Northampton, Berks, Oxford, Southampton and York. Norfolk made women's stuffs, Hiddersminster made linsey woolseys, Salisbury made flannels, as did Wales to some extent. Dimities and cotton wares were the speciality of Manchester. The northern area generally made a coarser and inferior quality of cloth; Yorkshire being known as the centre of the "narrow cloths" while the Kerseys, half thicks, plains, and coarser things were made in Lancashire and Westmoreland. The silk industry usually associated with Spitalfields in London, was also established in Manchester. In 1657 Thomas Bailey of Deansgate, Manchester is described in the Court Leet records as a silk weaver, and the family carried on the industry till about the beginning of the eighteenth century when we find them as merchants. That the industry did not die out is shown by the fact that the first Manchester directory names 50 manufacturers of silks and linens.

By 1760 there is discernible the tendency of industry to shift to the north, and this is noticeable in textiles particularly. It is marked by the growing ascendency of Yorkshire woollens, and the comparative decline of Norfolk and the clothing districts of the south-west. In 1744 a pamphleteer who is typical of many others deplored the decline of the woollen trade and described the decay of the woollen towns in recent years. Another in 1765 notes as one of the symptoms of the decline the starving condition of the poor in the clothing counties and mentions the numerous petitions to Parliament complaining of the decline of the woollen manufacture. But these were speaking of the older clothing areas. The national expansion in woollens from 1700-1760 was only about thirty percent; but most of the increase was in Yorkshire; there was a decline in Norfolk and the South West. Yorkshire broadcloths increased from 28,000 pieces in 1727 to 54,000 in 1765; and narrows from 58,000 pieces in 1740 to 77,400 in 1765. By 1774 Yorkshire was providing more than half of England's textile exports. This ascendency of Yorkshire and the north was emphasized


by the rise of the worsted manufacture in Yorkshire in the first half of the century, and was assured when, after the Industrial Revolution, coal and iron became basic needs of the textile as of other industries. The northward movement of industry is also marked by the increasing use of cotton goods. In this direction the energy and initiative of the Manchester manufacturer and merchant, and, as America assumed the dominant place in the supply of raw material, the proximity of Liverpool, marked Lancashire as the centre of the cotton trade. The silk mills of Derby were by the end of our period one of the sights of the town for visitors. Reference has already been made to the silk industry in Lancashire. Early in the century there were said to be 40,000 silk throwers in London alone.

The linen industry of England was mostly in Lancashire. Postlethwayte advocates the encouragement of the manufacture in the counties of Cumberland and Northumberland, where it might employ the women and children of the colliers' families. He says a little linen is made at Darlington, but that is too near the woollen area, and he does not approve of mixing the industries. In Lancashire there is not the same objection, because "it does not interfere with

2. Hewins; Eng. Trade and Fin. p. 139-40. Petitions filed in opposition to the commercial clauses of the Peace of Utrecht claimed that 60,000 were employed in linen manufacture in Lancashire, and 40,000 in silk throwing in London.
3. Ibid.
the cotton and because the warp of all their fastens and several other cotton goods are made of linen yarn."

Although the quantity woven in Ireland was reduced by the Manchester demand for linen yarn, yet the main seats of the industry in Great Britain were Scotland and Ireland. There was an Irish Linen Board in Dublin during the forties and fifties of the century, and in both countries there was a general policy of premiums and bounties to encourage and improve both quantity and quality. The existence of the "British Linen Bank" in Scotland is one survival of this period when the linen trade was being publicly fostered. The distribution of the lace manufacture is illustrated by the prizes given by the Anti-Gallican Society in 1752 and 1753. These prizes went to a male worker in Bucks, and female workers in Salisbury, Hereford, London, to Moniton in Devon, and Lyme Regis in Somerset.

The hosiery manufacture was already fairly well concentrated in the Midlands. In 1750, it is estimated that there were 14,000 knitting frames in the country; of these 1500 were in Nottingham, and 1,000 in Leicester, and another 7,300 in other towns and cities in the Midlands. London had 1,000 with another 350 in the adjacent county of Surrey. There were 200 frames at Derby and in all other

2. Ibid. Art. Foreign Trade. Linen is the staple of both Ireland and Scotland. Linen stamped in Scotland from Nov. 1746-Nov. 1747-6,661,773 yds.
English and Scottish towns there were about 1850, with a further 600 frames in Ireland. Thus 7/10 of the industry was centred in the Midlands, chiefly in the two towns of Leicester and Nottingham.

The trade of Britain in the eighteenth century was in every county influenced by the London market. In the metropolitan area was concentrated more than one tenth of the whole population, and it was not a food producing section of the population. Not only was it a great food-consuming market, it was the collecting and distributing centre for a great deal of the inland trade of the country, and it was the most important point of importation and export. So it may truly be said of England that "all roads led to London." This was the opinion of contemporaries. A writer says, "It is an observation grounded on experience that every county in England is more or less employed in carrying goods of some sort or other for the supply of the city of London, as well the produce of the farm, as of manufactures."

One of the features of our period is the assertion of independence by merchants in places which had formerly been under the control of one of the London companies. Heaton tells of the struggle between the northern branch of the Eastland Company, and the headquarters in London. This process of shaking off the fetters of the

1. Toynbee. Industrial Revolution. p. 25
metropolitan trading companies was facilitated by the growth of ports like Liverpool whose merchants had built up their trade free from such tutelage. It was not till the end of the first quarter of the century that cross posts were instituted in England. Up till the twenties letters had to go up to London, and thence be sent to their destination, unless the sender were fortunate enough to find some traveller going direct to the town with which communication was desired. Their value was quickly realized, and their originator was considered a benefactor to the business part of the community. In 1755 there was a post three times a week from Manchester to London and bye-towns; there was also a thrice weekly post to Warrington, Chester, Worcester and Ireland. There was a daily post to Rotherham, Sheffield and Berby, and one thrice weekly to Rochdale, York, and Edinburgh. About this time the thrice weekly posts, not only to London, but the cross posts as well, began to be run daily, an eloquent tribute to the rapid commercial growth of the country.

By sea there was a large coasting trade, in addition to the foreign trade. Harwich had a rapid passenger service to Holland, but it had also had "three to four hundred sail of colliers riding in safety at one time," most of them destined for London. Yarmouth had a large export trade in corn, and in woollens from the northern district as well as from the adjacent eastern

counties. Lynn Regis and Boston, were also important ports from which there was an inland trade by river to parts of at least seven counties. Grimsby was a considerably port at the time. The chief ports of the northern section of the east coast were Hull, Sunderland and Newcastle. Hull at the mouth of the Ouse and Trent received the trade of a great part of the north, including York, Lincoln, Notts, Derby, Sheffield, Warwick and even trade from the western counties, such as Cheshire cheese for London. Fleets of 50, 60, and in time of war even 100 sail at a time were employed. Sunderland and Newcastle were engaged in the shipping of coal, and we are told that Sunderland might have equalled Newcastle but that it had no good harbour and the ships had to load in the open roads, a slow and sometimes perilous operation. Going south from London, the chief ports were Sandwich, Ramsgate, Rye, Deal, Portsmouth, then as now a naval centre, Southampton, Pool, Exeter, Dartmouth, Falmouth, Penzance. On the west coast were the chief ports of the country after London for foreign trade. Bristol and Liverpool shared the Irish trade, and competed in the trade to Africa and America; while Chester struggled with the sand that was gradually closing up the mouth of the Dee. From Parkhead she still retained much of the passenger trade to Ireland, but by the middle of the century.

she was completely overshadowed by her more fortunate rival at the mouth of the Mersey whose growth in the previous half century (before 1766) was the admiration of the country. The same writer says that about 1760, there were 413 vessels sailing out of Liverpool 136 in the trade to West Indies and America, 67 in the slave trade, 102 in the Coasting and Irish Trade, 20 in the carrying of cheese to London, and 80 river sloops in the river navigation. These were the vessels belonging to the port, and there would be considerable numbers trading into the port from other places. North of Liverpool the chief port was Whitehaven, engaged in the coal trade to Ireland, 150 to 200 sail at a time departing for Ireland in time of war. He estimates that there were 1500 sail engaged in the coasting trade in coal in England — many from Lancashire and Cheshire with rock and other salt, from Cornwall with tin — from the ports on the south coast of Devon and Somerset there were 300 sail carrying bale goods, and returning with heavy goods.

1. Postlethwayte notes — that Bristol merchants trade with less dependence on London than any other town in Britain except Liverpool.

John Wesley usually crossed from Parkhead when he travelled to Ireland once or twice a year.

2. See note on previous page.
groceries, oil, lead and iron. Between Bristol and London there was a trade in glassware, and some West Indian goods, sugars, cottons, etc. There was a continual throng of vessels to London with corn from all the southern and eastern counties. This writer computes the number of people engaged in the coasting trade as 100,000 including the fisheries.

**RIVER TRADE.** The river navigation was becoming more important as the century advanced. The main routes were the Thames, carrying the corn of that rich farming region, the Severn, the Mersey and the Trent. One of the routes from the Lancashire clothing area to London was over the hills to Wakefield, down the stream to Hull, and thence by sea to London. In 1753 the Airmin Company were engaged in carrying goods from Manchester to London via Wakefield and Hull and they advertise as an extension of their business that they are opening a packing establishment in Manchester to meet the convenience of their customers. The network of rivers in the low-lying parts of the eastern counties has been mentioned.

**LAND CARRIAGE.** But great as the river and the coasting trade was and bad as the bulk of the roads were, there was still a vast commerce carried on by the land routes.

Not only the local trade in produce but a great deal of the longer carrying was by pack-horses and waggons and carts. There were 42 carriers engaged in the trade out of Manchester, going to 31 different places, including London, Birmingham, Bristol, Doncaster, Halifax, Leeds, Liverpool, Newcastle, Nottingham, Sheffield and York in 1772. The number of carriers' horses was even disturbing a school in Wheat Sheaf Court, Dean's Gate, Manchester in 1752, and the schoolmaster had to get the carriers to change their rendezvous, before parents would permit their children to come to his school.

The principal land routes were, the northern routes from London to Scotland, one by Yorkshire; and the other by Lancashire; the route between London and Bristol; between London and the Midlands; and between Lancashire and the Midlands; and the routes over the hills connecting the industrial areas of Lancashire and West Yorkshire.

The northward trend of industry is confirmed by the distribution of population. Toynbee in his

1. Defoe. Complete Eng. Tradesman. 1726. p. 335-6. "This carriage of goods in England from those places is chiefly managed by horses and waggons, the number of which is not to be guessed at--in a word, our river navigation is not to be named for carriage with the vast bulk of carriage by packhorses and by waggons nor must the carriage by pedlars on their backs be omitted." Goes on to say that the cloth is usually carried by land from the S.W. and from the northern area.


lectures on the Industrial Revolution accepts the population estimates by Finlaison, in the preface to the Census Returns of 1831. According to them the population of England in 1700 was 5,134,516; and by 1750 this had reached 6,039,664 and increase of 905,168.

But of this increase Lancashire, West York and Durham alone provided more than 295,000 or nearly a third of the total increase of the country. The greatest increases in population during that time were recorded by Lancashire, 78 per cent, West York, 52 per cent, Warwick 45 per cent, Durham 41 per cent, Stafford 36 per cent, and Gloucester 34 per cent. From the figures of Finlaison, Toynbee makes up a table of the twelve most populous counties of England in 1700, 1750 and 1761. Reference to this table will show that the chief counties in 1700 after Middlesex and Surrey were those of the clothing area of the south-west, Gloucester, Northampton, and Somerset follow immediately after the metropolitan area, while Wilts is only 6 per square mile less than Somerset. The other counties in the list are Worcester, Herts, Bucks, Rutland, Warwick and Oxford - all of them in the central block of counties - some of them in the rich agricultural valley of the Thames.

1. Toynbee. "Industrial Revolution". p.6
2. Ibid. ibid.
Not one of the twelve is north of the Trent; but by 1750 there is a change noticeable. Lancashire has moved into the list and takes third place after Middlesex and Surrey, while West York and Durham have moved into the list with a density almost the same as Somerset; Durham being one more and West York two fewer per square mile. Somerset, however, has fallen from fifth to tenth place in the list; while Gloucester has yielded third place to Warwick and is being closely followed by Lancashire; Northampton, Wilts, Rutland, Bucks, and Oxford have dropped out of the list and their places have been taken by Lancashire, Stafford, Durham, West York and Berkshire.

To that extent is the northward movement of population to be discerned by 1750, that four of the five new counties in the list of twelve most densely populated counties are north of the Trent, and as noted above one third of the total increase in the country was in three of the northern counties. It is worthy of note that by 1661 the counties of Somerset, Herts, and Berks have dropped out of the first twelve and have been replaced by Kent, Cheshire and Nottingham. Gloucester has dropped to twelfth place and Warwick

has given way before Lancashire, Durham and Stafford.

A similar table of the principal provincial towns shows that from 1665 to about 1760 there was a similar shifting of the balance of growth from the southern to the northern centres. Liverpool had increased about tenfold, Manchester five to seven fold, Birmingham sevenfold, Sheffield about sixfold, while Nottingham had a little more than doubled. Of the southern and eastern towns Norwich had scarcely doubled in the same time, Bristol had increased about $3\frac{1}{2}$ times, but the growth of the rest had been incon siderable in comparison. In the period from 1760 to 1861 it is the northern towns again which have had the greatest growth. Liverpool, Manchester, Birmingham, Sheffield, have all grown about tenfold or more while Norwich has less than doubled, and Bristol a little more than doubled. It will be seen therefore that the new grouping of the population was not only faintly traceable by 1750 as one writer suggests, but was distinctly marked, and the

1. Toynbee. Industrial Revolution. p.10
2. Ibid. p.11
3. S. Grant Robertson. England under the Hanoverians p.337
This writer takes two maps from Paul Mantoux. La Revolution Industrielle. p.360 353, showing the comparative distribution the population in 1700 and 1801. Mantoux gives the distribution per sq. kilometre, and Robertson repeats it as per sq. mile, thus making the population seem much less dense than it really was. Lancashire in 1700 is given as between 20 and 40, when it should be more than 90. In 1801, according to the census returns, it was 379 per sq. mile, but in Robertson's book, it was still under 150.
only effect of the Industrial Revolution was to accentuate and complete the change.

It would be of considerable interest to enquire why this movement of population toward the north took place, or, to put it in another way, why did industry leave its older haunts of the east and south west for a new home on the north? If, as is contended above, the change had already made considerable progress by 1760, other causes than the new inventions and chemical discoveries must have been operative. Only tentative suggestions can be offered here as the problem is worthy of much fuller treatment. First one may ask if there was greater natural ability amongst the manufacturers and merchants of the north than among those of the older districts?; and this suggests an enquiry into the racial characteristics of both north and south, and possibly ......

1. Cartier. History of English Agriculture. (17th Cent.) "The population was rapidly growing - by 1668 the returns of the hearth tax prove that the northern counties were nearly as thickly populated as the southern.

2. Defoe.III. 212. Explains the growth of Liverpool: -
(a) Traders are frugal in management and can sell at the cheapest rate.
(b) They admit all degrees of people, even their own servants to employ the smallest stock in Trade by which they become interested in the event.
(c) Surprising public spirit in advancing money for public works and forwarding everything of public interest.

also: - Newins Eng. Trade and Finance p. 113-125 Gloucester Clothiers say Yorkshire has won part of this trade due to the better economic management of the manufacturers.
some study of climatic and geographical conditions. Another possible cause might be found in the greater freedom from mediæval gilds and monopolistic associations that prevailed in the north and thus gave greater play to individual initiative, and allowed the business world to draw its leaders from a wider range of men. Still another element worthy of consideration in this connection is the presence of the small farmer manufacturer in such large numbers in Lancashire and West Yorkshire as compared with other clothing districts. How far did his independence, due in some measure to his possession of a few acres of land, contribute to a steady increase of the small capitalists who, under the new conditions, became factory owners and merchants to so great an extent in the north? The lowest cost of living in the north may also have played its part while amongst the influences must be reckoned the depopulating tendencies of the enclosures and engrossing of farms in the south. But a chemical agent when put into a mixture can operate only on the elements it finds already there, and so, the new conditions arising out of the mechanical and chemical discoveries of the later eighteenth century did not create new forces so much as intensify and give greater play to those already in being.

1. Would one reason be the scarcity of fuel which was as plentiful in the north as the coal mines began to be developed? This would hardly apply to Gloucester but would to Wilts or Devon. It would not affect the East as much as they could get coal by sea from Newcastle and Sunderland.
CHAPTER II.  INDUSTRIAL TECHNIQUE.

In the eighteenth century before the Industrial Revolution, apart from miners, blacksmiths, weaving hucksters, and the like, where the nature of the operations or the high cost of the fixed capital required the gathering of a number of persons together, industry was on the domestic basis. New yarn capitalists provided the raw material in whole or in part, or where they had organized the collection and marketing of a commodity on a large scale, the gathering of a large number of workers at the plant was accomplished. Perhaps the most notable exception to this rule was the silk-worming mill of Bombyx. The reeling and operations were still operations on the home scale. The work was hand-work and the power was in many cases human power. Until the invention of machinery and the application to them of non-human power made possible a great multiplication of the output per worker, the economies effected by such a concentration of work-people as the factory system implies were mainly those due to a closer supervision of the work, and a saving of time in the collection and distribution of material. These, in turn, have been insufficient to encourage the necessary expenditure, especially in the field of the apparatus that would come from these the constabularies or slides tools for working at home.
CHAPTER II. INDUSTRIAL TECHNIQUE.

In the eighteenth century before the Industrial Revolution, apart from mines, blast furnaces, smelting houses, and the like, where the nature of the operations or the high cost of the fixed capital required the gathering of a number of workmen together; industry was on the domestic basis. Even where capitalists provided the raw material in whole or in part, or where they had organised the collection and marketing of a commodity on a large scale the gathering of a large number of workmen at one plant was comparatively rare. Perhaps the most notable exception to this rule was the silk-throwing mill at Derby. In the main the actual operations were still carried on in the homes of the workers. The work was hand-work and the power was in most cases human power. Until the invention of machines and the application to them of non-human power made possible a great multiplication of the output per worker, the economies affected by such a concentration of work-peop[e as the factory system implies were mainly those due to a closer supervision of the work, and a saving of time in the collection and distribution of material. These seem to have been insufficient to encourage the necessary expenditure, especially in the face of the opposition that would come from those who owned looms or other tools for working at home.
It will be well to consider the technique of industry under two main heads: — mines and metal industries on the one hand and textiles on the other. The great engineering industries of later days had not arisen, and the chemical industries, where developed at all, were subsidiary to one of the others.

**LEAD.**

In Derbyshire the persistence of the ancient custom and law provided a remarkably free system of mining. Anyone who discovered a vein of ore could work it unless it were found in an orchard or garden. He was granted a certain plot of ground for his shaft and on payment of certain fees for roadways, etc., could begin operations without further title than that granted by the Barmoor Court which consisted of a Master and 24 jurors. The payment of the King's Royalty of every 13th penny was compounded for an annual payment of £1,000 in the district of Wirksworth alone so that the mineral raised must have been considerable — yet the methods were crude. Wherever it was possible an adit was run into the side of a hill but elsewhere shafts were sunk just large enough for a man to get down.


2. Lead in Derbyshire was found in rakes or fissure seams, nearly vertical, and in pipe works a horizontal stratum of ore between other rock strata. The rakes were, however, the chief sort. *V.C.H.* Derby II.
Set in the corners of this "groove", as it was called were pieces of timber that made the steps of a rough ladder. The miner supported himself against the walls of the groove in ascending and descending and carried his tools up and down on his back. In the same way he brought the ore to the surface. Defoe gives a lively picture of an encounter with one of these workmen, whom he saw emerging from one of these holes. "When this subterranean creature was come quite out he afforded us new matter for wonder and satisfied our curiosity without venturing down ourselves. For the man was a most uncouth spectacle; he was clothed all in leather - had a cap of the same without brims and some tools in a little basket which he drew up with him.....Besides his basket of tools he brought up with him about three quarters of a hundredweight of lead ore which was no small load considering the manner of his coming up..... and it seems he was at work 60 fathoms deep, but there were five men of his party two of whom were eleven fathoms and three fifteen fathoms deeper. The man seemed to regret he was not one of these last because they have a way out at the side of the hill"

When the ore had been raised there were two principal methods of smelting it. In Derbyshire it was smelted with wood as a fuel and in Flintshire it was

smelted with pit-coal. When smelting with pit-coal the furnace was a chamber like an oven with an open fireplace at one end and a chimney at the other. The ore was let down through a hopper in the top of the oven into the space between the fireplace and the chimney and the draft drew the flames across the ore and smelted it. The ore was usually pounded in stampers or by hand with sledges before going into the hopper and some burnt lime was used as a flux to separate the dross and in order to prevent the lead vitrifying some charcoal or billet wood was thrown into it. From this oven the lead was drawn off through a tap-hole and run into pigs. If it carried sufficient silver it was first refined for the silver and again smelted into lead pigs. The method of smelting with wood was somewhat similar but the furnaces were open and the blast was provided by bellows instead of a chimney. While in the furnace the fuel and the ore were laid in alternate layers in the furnace, more like the method of smelting iron. Derbyshire lead was considered to be somewhat better in quality because the smelting was done with wood fuel.

IRON.

There were iron forges and "bloomeries" - the

1. The above description is based on the description given by Postlethwaytes "Universal Dictionary of Trade and Commerce - Article - lead. Reverberatory furnaces introduced by the Quakers' Coy. into Derbyshire in 1747 V.C.H. Derby II."
earlier name for the blast furnaces, in Lancashire before the eighteenth century but it was not until the period before the Industrial Revolution that the industry began to develop to any extent. In 1710 the Backbarrow furnaces were begun by Machall and Sandy. In 1726 these works were producing 16 tons of iron annually. In 1736 Isaac Wilkinson settled there and commenced the business of manufacturing flat smoothing irons, drawing his molten iron from the local furnace. Ten years later he purchased the furnace and forge at Wilson House in Cartmel and experimented with peat-moss for smelting the hematite ore but was unsuccessful and had to adopt the charcoal method. Meantime the works at Backbarrow were developing for in 1750 they produced 260 tons of bar-iron. In the southern part of Lancashire there is mention of iron mines in Rochdale where, according to Baines, iron-mines had been wrought since 1744 - but the main points in Lancashire in the eighteenth century were Wigan, Rossendale, and Furness.

1. Information on the earlier iron industry in Lancashire is taken from the Victoria County History of Lancs. II. pp. 359-63. The authorities quoted in that work are noted.
It is in connection with the latter district that the following description of 16th century bloomery or blast furnace occurs having been written about the end of the first quarter of the century. "It is built like most others against the side of a hill, in a square form, the sides descending obliquely about six yards and drawing nearer one another towards the bottom like the hopper of a mill. These oblique walls terminate at the top of a perpendicular square called the hearth whose side is about 47 feet and which is lined with fire-stone to take off the force of the fire from the walls and to hold the fluid metal which drops into it as it melts. The top of the furnace is covered with a thick iron plate in the middle of which is a hole where they throw in the fuel and the ore. According to this writer they usually took about three weeks to get the furnace to the required heat before they began to run iron, but once kindled they could be used for years burning day and night. Before being put into the blast furnace the ore was burned in a kiln much like an ordinary lime-kiln to burn away the worst of the dross. It was then broken into small pieces with sledge-

hammers before being put into the blast furnace which has been first charged with a quantity of charcoal and turf. Mixed with it was some limestone or old cinders to act as a flux. This went into a lump in the upper part of the furnace and as the iron melted it dropped down into the hearth or reservoir where the scum was cleared from it before it was run off. A hard black turf from the mosses was mixed with the fuel to save charcoal and it was also thought to improve the quality of the iron. The necessary blast was provided by two bellows each about 22 feet long, and 4 feet wide, worked by water wheels with buttons on the side to act on the bellows and weights were hung on the bellows to open them again when released from the buttons. They were so arranged that they worked alternately and so produced a continuous blast. The iron was run off into sand moulds much as it is to-day. The main channel from the door of the hearth was called the sow and the small side ones were the pigs. With such primitive arrangements an output of 260 tons of bar-iron in a year is a creditable showing.

But there were other furnaces with a larger yield than that. There were the famous Rotherham works in Yorkshire producing 1400 tons annually about 1740.

1. Toynbee. Industrial Revolution. p. 25
In the Weald of Sussex there were 10 furnaces with an annual yield of 1400 tons - Gloucester, Shropshire and Yorkshire had altogether 6 furnaces each; and there were others in different parts amounting in all about 1737 to fifty-nine furnaces with an output of 17,350 tons a year. This seems a small amount but England at that time was an iron-importing country, paying Sweden, Spain and Russia some three to four hundred pounds annually for iron. This moves the writer quoted to suggest that the nation offer a Parliamentary reward to any who shall discover the secret of making bar-iron by means of the pit-coal fuel. It must be remembered too that there was comparatively little iron machinery being made. Farm implements were shod only with iron where necessary. So far as possible wood was used in the construction of tools and machines. In the looms of the textile industries little iron was used so that the small production with some importation satisfied the needs of the country.

**CHARCOAL.** Since charcoal was used so largely for the smelting of iron the method of making it may be considered here. As in most other industries of the time the methods were rather crude but the results while small in quantity were quite satisfactory. The wood was cut in the winter and burnt in the summer. When

When the site of the hearth is chosen the turf is pared off and the sods laid aside. About ten cord of wood is laid on this site - the small pieces to the outside and the larger ones in the centre. With the larger blocks the pile is built up like an inverted bowl, leaving a chimney in the centre. The pile is then tiled with sods and "pointed" with pulverised loam. The chimney is then filled with short pieces of dry wood - near the top is placed a live coal and the rest of the chimney filled up with wood. The whole is capped closely with sod and the one coal fires the whole pile. Fresh fuel is added in the centre as required and in about 7 or 8 days in fine weather the fire begins to work out to the outer edges which is the signal that the whole is finished. The hearth is then drawn and "infernal business"; the men work among fire and phlogiston enough to suffocate Satan himself.

COPPER. Copper Ore came to Warrington from Cornwall to be smelted because of the plentiful supply of coal to be had there. It was burned for twelve hours, then cast and

3. (See last page) Galloway Annals of Coal Mining p.256. "Down to the Mid. 16th cent. iron continued to be scarce and dear - a sparingly used commodity....Even in the early steam engines the cylinders and pistons as well as the working barrel and buckets and valves of the pumps were of brass - The great beam or driving rod was of wood."

afterwards ground and burned twelve hours more and when melted the third time was cast into pigs, and sent away to other places. That from Warrington went chiefly to Holywell to be beat into plates and some to Cheddle in Staffordshire to make brass. The chief copper mines in Lancashire were those at Comiston Fells in the north. At Gouldscoop near Newlands there were veins of copper but no shafts were in being there or at Caldbeck. There is about the middle of the century an adit but the cost of finishing it was uncertain. The writer at that time reckoned £1,000 enough to begin with but by the time melting houses were built and copper could be ready for the market, "it will be six or seven years, and by that time £10,000 would be little enough." It was really the richness of the workings at Comiston Fells that caused Newlands and Caldbeck to be abandoned. There were ten workings altogether with seams ranging up to 27" in thickness. The takings were reckoned by the kibble - a measure about equal to a horse-load in weight.

Related to the copper mining and smelting was the trade of the brazier, many of which trade were found in Wigan in the period round the middle of the century.
As carried on in England it was a domestic manufacture practically and was usually combined with a general business in hardware. The brazier did not as a rule keep a forge except for the making of vessels out of copper and brass prepared rough to their hands. The export of copper and brass had been forbidden in Tudor days but under William and Mary export had been permitted and a duty imposed on import and about 1723 the free export of British brass was made legal.

A metal industry of the finer sort, that of watch and watch-tool making was centred in the Liverpool and Prescot district and in the former place were file cutters and watch-case makers about the middle of the century. Details are wanting of the technique of this industry; but it was organised on the domestic system and must have involved very fine craftsmanship. Work was given out by the manufacturer on Monday morning and was returned to him by the job-masters on Saturday. The manufacturer assembled the parts and despatched them to customers elsewhere.

1. Postlethwayte, Univ. Dict. Article Copper.
It was in Birmingham, however, that even in the eighteenth century the small metal wares trade settled. They made all sorts of tools, smaller utensils, toys, buckles and buttons — in iron, steel and brass.

Coal was being got in Lancashire as early as the 13th century in the neighbourhood of Colne. It was probably from this source that the monks of Bolton Abbey got their coal for their forge. During the succeeding centuries it continued to be got in small quantities in different parts of the county. In Tudor times the tunnel coal of the Wigan area was well known and the Padiham coal mines even in the fifteenth century were held at a rent of 20s per annum. Towards the close of the 16th century the importance of coal was so far recognised that some proprietors began to reserve the coal-getting rights when leasing the land for agricultural purposes. But even into the 16th century the right to dig coal was part of the ordinary lease, both copyhold and leases for lives.

2. ibid. p. 115.
The early methods of getting the coal were from the outcrops of seams at the surface. In some cases bell-like pits were sunk, the size of a shaft at the surface and widening in a bell-shape underneath as far as was consistent with safety. In other cases where the outcrop was on the side of a hill tunnels were run into the hill side and the coal brought to the open in that way. This system is at present in use in part of the new coal areas in Spitsbergen. In still other cases the vein was laid bare as far as possible and the coal dug as from a quarry or open cast. In modern coal disputes it is noticeable that miners are still ready to resort to this method in order to obtain small quantities for domestic use.

In the sixteenth century the coal was almost all obtained from shallow collieries above the level of free drainage by the pit and adit system - mines being opened out in elevated situations affording natural facilities for this arrangement. The system of open cast or quarry working persisted in Staffordshire into the middle of the seventeenth century but that is said to be the last district where it survived. During the first half of the eighteenth century the coal workings

1. V.C.H. Lancs. II. p. 359. Some sixty of these old workings have been discovered on the Coppice estate near Oldham.
2. Lecture by Mr. Mathieson F.R.G.S. Edinburgh, in command of the Geological Expedition to Spitzbergen in 1820.
of Lancashire were considerably extended as the improvement of river navigation made transport from the workings easier. The pillar system of working was that principally in use in the first half of the eighteenth century. This was the system whereby pillars of coal were left standing in the working to support the roof. The proportion of coal that could be removed varied with the character of the surrounding soil. Some examples of the contrary system whereby props, etc., were used and all the coal removed were to be found but even as late as 1662 this method was considered something of a novelty in the Lancashire fields.

In the eighteenth century where vertical shafts had been sunk the men were let down by a rope and windlass and the coal drawn up in buckets. The rather leisurely nature of the marketing is perhaps over-emphasised by Banford in his introduction to the 1850 edition of the works of Tim Bobbin but illustrates the crude methods to some extent. "The collier then brought his coal to daylight at the mouth of a tunnel ... If the road was accessible by carts, and one came to be

1. V.C.H. Lancs. II. 359.
filled, it was filled, the money paid, and the
carter got his tit and his load down the hill as
best he might - Or if a half dozen ponies or
galloways came to be loaded they were supplied if there
were coal enough got and if otherwise they would
probably have to wait at the place - or they went
browsing on the moors till it was ready. Or if the
mine were worked by means of a shaft, a windlass and a
couple of buckets, were generally deemed sufficient
1. machinery. Many of the mines however, were more ex-
tensive and more energetically worked. Pococke in
2. 1751 visited one of the mines at Wigan which he was
informed was 120 feet deep. The water was pumped up
and ran off down the hill-side. The coal which was
cannel coal was raised in lumps about 2 feet long
and four feet in girth and these large lumps were sold
for 3d a hundredweight while the broken lumps were sold
at a shilling a load of 1200 pounds. The workpeople
went down by means of a rope and the coal was drawn
up in buckets. The earliest reference to the use of
gunpowder for blasting in coal mines is 1719. Else-
where we learn that the maximum depth of pits at the
opening of the century was 400 feet.

1. Bamford, ed. of Tim Bobbin. Lancashire Dialect. 1850. introd-
tion.
But with the deepening of shafts the two problems that constantly demand the attention of the coal-miner became more pressing. These were the disposal of the water and the fire-damp that endangered the lives of the miners. Early in the 18th century occurred some of the great colliery explosions; one at Gateshead about 1765 and one in the Wigan district in 1768. Gas was a constant danger in the coal mines and various contrivances for averting the danger were in use. These were of three kinds - a test of the shaft before sending the workers down, burning out the fire-damp by setting fire to it, and lastly drawing it out of the working by some sort of ventilation.

Sometimes the test was made by sending a man down first with a lighted candle and if it was dangerous the flame would blaze up half a foot long. This had its disadvantages from the tester's point of view. Pocock mentions the case of a man who was so burned by it that he died. Sometimes if there was reason to think it was very bad they would let down a lighted candle to set fire to it and so get rid of it. When first they opened a pit they let down a round iron grate full of fire to draw out the damp by setting it on fire. These examples are from the coal pits near Wigan but such plans were no doubt commonly adopted. In small pits such as were

common in the 18th century it would be possible to
do this without serious danger to the workings.

Ventilation of some kind was also attempted.
In some cases a fire was kept burning at the bottom of
the main shaft and the draft thus caused drew off the
noxious damp as it gathered. This was perhaps the
commonest method of attempting ventilation. Pococke
tells of some ingenious contrivances in use in the
Cumberland mines near Whitehaven. It is best described
in his own words. "The foul air is very common in
these pits and in order to carry it off they enclose a
shaft and place three or four wooden pipes in it about
four inches square which are carried up to the surface
and all the foul air going into the shaft is conveyed
up the pipes to which there are small funnels at the
top about two inches in diameter. On them they lay a
plate of iron with holes made through it. If they
put flame to it the air takes fire and continues burn-
ing but only some inches from the vent which proves
that it needs air to mix with it before it will burn.
He tells further of one pit so bad that they were
afraid to enter it with candles or lamps for fear of

of setting it on fire and they worked by the light made by a steel wheel and flint - but he says nothing of the hardships that must have been endured by the miners in a pit so full of gas. They had funnels like chimneys in many of the pits to convey away the air.

As stated above many of the mines were on the pit and adit system above the level of free drainage; but many others had been sunk below that level and it was necessary to find some means of clearing the workings of water. It was in trying to cope with this need in the tin mines that Newcomen produced the first steam engine. It was not a steam engine as we know it but simply an arrangement for driving steam into a cylinder where its presence drove out the air and when it condensed a vacuum was formed which drew up the water to fill it. When combined with Savery's scheme it made the first genuine steam engine about 1712. By 1729 it had been brought into use in a great many places and always with success. With its beam or driving rod of wood, literally the handle of the pump, because for the first sixty or seventy years the steam engine could perform only the seesaw motion of the pump handle. Its cylinder

and piston, as well as the working barrel of brass, and the top of its boiler made of lead, it was very unlike the modern steam engine. The only iron used in it was on the under part where it met the fire and in the chain connections with the great beam; but such as it was it went a great way toward solving the problem of pumping the mines. Lancashire was well to the front in point of engineering skill; although prior to 1750 there were few steam engines in the north. By 1755 the use of the steam engine to raise coal was suggested but was not applied to that use until after the opening end of our period. About 1753 Michael Menzies effected a contrivance for pumping water up and then sending it down in buckets to balance the weight of coal in buckets coming up. Ventilation and pumping are described as being combined in the mines of Whitehaven. Some of them in Defoe's time were sunk to 130 fathoms. "Those who descend into these mines find them most close and sultry in the middle parts that are most remote from the pits.

2. Defoe, Tour, iii, p. 281.  
and adits and perceive them to grow cooler the nearer they approach to those pits and adits that are sunk to the deepest parts of the mines down which pits large streams of fresh air are made to descend and up which the water is drawn out by means of fire engines. "It is hardly clear whether the air was forced down by the engines as well as the water drawn up. If so it is probably almost the only instance of air being pumped into the mines at that time.// A by-product of the coal mines of Cumberland was vitriol. Many of the coals contained a proportion of sulphur and vitriol. These coals were sorted and put in a yard with a stone floor and enclosed by a stone wall. Drains from the yard led to a reservoir and the rains carried the sulphur and vitriol off in solution. This solution was boiled in leaden vessels and when sufficiently concentrated iron dross from the forges was added and when the boiling was finished the product was let off into large cisterns. Then as it cooled it precipitated copperas which was packed in hogsheads for shipment abroad. The attraction of a plentiful supply of fuel is seen in the presence of glass and salt works in the neighbourhood of Newcastle, the glass works at the town itself, and the salt pans

further down stream at Shields. In Shropshire occurred the first manufacture of pitch tar, and oil, out of coal and shale. Patents were granted for these in 1681, 1694, and 1697.

Reference has been made to the progress in applying the power of steam to the pumping of water. During our period no further progress was made; the engine remained a "giant with only one idea", and it was not till the double acting engine was invented to give a rotary motion and thereby turn a shaft that steam could aid in other operations. As steam had its first industrial success in the coal industry, so it was here that the railroad had its birth. The first railways were constructed in the time of Charles II, but were not general till the eighteenth century. Mines were often in isolated positions and the cost of roads to stand the constant passing of heavy carts, with the cost of cartage in addition was a heavy drain on the profits of the less favourably situated mines. The rails were of wood, and were to make tracks for wagons from the pithead to river or canal. Attempts were also made to secure a uniform gradient, and there were fills as much as a hundred feet high in some

1. Defoe. Tour. iii. 225
of the valleys. In 1725 there was a railway at one of the Tyneside workings. The loaded tracks, with wooden brakes, went down the track by their own weight, and were drawn back empty by horses. There was one of five miles in length at Col. Iyddal's works at Tanfield. The same writer cites an extensive correspondence during the year 1745-6, with reference to the supply of wooden rails by a merchant. As the first wagons used were ordinary carts, the flange was on the rail, not on the wheel. The first application of iron rails was in 1757, when they were laid on a permanent way of stones and boulders, but this experiment was not successful, as the rails being of cast iron snapped too easily under the strain. Wrought iron rails did not become general till the nineteenth century when the rolling mill made it possible to produce them economically.

A third problem was the growing scarcity of wood for smelting iron and the consequent need for finding a method of using coal as a fuel for the purpose. Experiments to this end were made during the seventeenth century but were not permanently successful. In 1735, however, Abraham Darby succeeded in making coke.

2. Ibid. p. 256-8
3. An engraving made from a drawing of 1750 depicts Prior Park, the seat of Ralph Allen of Bath in that year. This engraving shows a railway on the public road with two flat trucks laden with boxes and each pushed...
Iron coal, and this fuel with the aid of a more powerful blast was made a substitute for charcoal. The next improvement came in 1766, when the Cranages introduced a reverberatory furnace in which coal thus could be used, and superseding the forges for making bar iron from the pig-iron. Cunningham says the turning point in the industry may be put at 1760, when the Carron Works at Falkirk were founded, and Roebuck's blast furnaces were built with a view to using coal, but the progress was slow till about 1790 when steam engines were applied for making a stronger blast, and resulted in a great economy in the use of coal, about one-third the former quantity being sufficient.

along by one man. This railway was evidently used for ordinary commercial transport.


4. The early coke was not the hard oven-made coke of today, but a softer fuel made by burning the coal in open furnaces, much as charcoal was made.

The tin-mining of Devon and Cornwall had
its birth in the little valleys of the streams running
down to the sea from the main ridge of hills. The
ores are described by writer in 1778 as "shode",
"stream", and "mine". The "shode" oars were those
found adjacent to and scattered from the mother lodes
in pebbles of various sizes. "Stream"ore was that
found deposited in soil of the valleys a considerable
distance from the loads, having been carried down by
floods at different times. "Mine" ore was that secured
from the original "lode" itself, and these lodes
were "buried in the rocky substances in the hills or
cliffs". Stream tin, as the easiest to get, was the
first to be worked to any extent, and it was a very rich
ore, some of it only needing to be washed to bring
1
13 parts in 20 at the melting house.

In the earlier days of the industry there were
several stages in the method of getting the ore from the
lode mines. There were pits open to the sky, and the
ore was shovelied out like gravel, or hewn out in blocks.
The next form is that of "coffins" so called. They
were trenches dug along the course of the lode. Another
development was that of "coasteaning". This consisted
in digging a series of pits along either side of the
lode.

1. V.C.H. Cornwall. II.540-541.
lode, and connecting them with drifts so as to intersect the lode itself. The transitional period was reached in the sixteenth and seventeenth centuries, and the method was that of the "Shamnel". This was a shaft sunk gradually leaving a series of ledges, so that a man could conveniently heave the ore from one up to another with a shovel. Regular shaft mining gradually succeeded to this method, and was the characteristic of the eighteenth century, the stream and shoode ores being comparatively worked out.

The first part of the eighteenth century saw in the tinw as in lead and iron, the introduction of coal for smelting purposes. At the opening of the century there was a differentiation of fuels for different ores. For the "stream" ores "charked" peat was used; for the lode ores, charcoal and peat; and for the slag charcoal alone. But the scarcity of fuel turned men's attention to coal, and in 1705 Riddall took out a patent for smelting black tin with fossil coal in an iron furnace. But his patent was quickly superseded by a reverberatory furnace of stone work, in which the ore could be smelted without actually coming in contact with the fire. Thus arose what has come to be known as

I. V.C.H. Cornwall II.544-545
the Cornish method of smelting, although blast furnaces of the old type persisted alongside the new furnaces for a long time.

The tools of the tin miner were much the same as to-day, except for the tamper and borer. The borer was called a beetle, and was a double-pointed tool, weighing 8 or 10 lbs. It lasted the miner for about six months with frequent repointing. The sledge was a hammer weighing about 10 to 20 lbs., and lasted for about seven years. Cads, or wedges, which were used for breaking off the rock, weighed about 2 pounds, and were well pointed with steel. The ubiquitous shovel and barrow completed the miner's equipment. The use of gunpowder for blasting the rock underground came into use about the end of the seventeenth century and the beginning of the eighteenth century. Throughout the eighteenth century and into the nineteenth, the method followed was a dangerous one. When the powder had been tamped down, an iron "needle" was thrust through the tamping, and a rush inserted. This rush was filled with powder to act as a fuse. Sometimes a quill was used instead, when it was inserted and the tamping pounded down round it. In either case, the method was one productive of many casualties. Outside the mine the ore was transported on pack-animals. Occasionally the quantity was so great that horses and carts were pressed into service but such were exceptional cases.
and the pack-animal persisted until displaced by tramways about 1816.

With the advent of shaft mining, the problems of drainage and ventilation became pressing, though explosive dampers did not have to be combatted. So long as the shafts could be kept above the level of free drainage, the adit system was used. Then the windlass and buckets were used. Later came the "rag and chain" pump. This was a long pipe with an endless chain coming up through it; at intervals on the chain were bindings of leather, which fitted the pipe snugly. So a series of short columns of water was raised to the required height. These pumps requiring 24 to 30 men to work them in shifts of six men, each, could drain a shallow shaft, though with very heavy labour. Different dates are given by writers for the introduction of the steam pump, ranging from 1708 to 1725. It is worthy of note that it was in Devon, where the problem of draining the tin mines was acute, that the steam engine was invented and used, though it rapidly spread to the coal areas. So great was the conservatism of the tin-miners that in 1742 there was only one engine in use. In the next 36 years, however, great advance was made, some 60 engines coming into use. But they were rapidly superseded by the engines of Boulton and Watt after 1778.

NOTE. The information relative to tin mining was taken from the V.C.H. Cornwall II. p. 545-551.
Ventilation was secured by having different shafts, and not extending the drifts farther than was safe for the workers from any one shaft. The drainage adits also served for ventilation till the workings were sunk below that level. The most notable device in this connection was that of sending a stream of water down the mine, and assisting the current of air that went with it by means of fans worked by boys at the top. When shafts came into use, the men reached the top by means of ladders for the most part, as the irregular workings of the mines made the rope and windlass inconvenient. These ladders entailed a great deal of labour on the part of the miners, whom for the maximum depths attained by means of the Newcomen engine for drainage was some 540 feet.

The Industrial Revolution, so far as pottery is concerned, is associated with the name of Josiah Wedgwood. But in that industry, as in others, there was a period of considerable growth and expansion that prepared the way for the great master. About 1680 the modern period of development may be said to have begun with the accidental discovery of the method of glazing pottery with common salt, instead of with lead ores as had been the case. Then in the wake of William III.

1. V.C.H. Cornwall I.545,551.
came two men, Elers by name, who introduced the art of making red wares and Egyptian black, into the potteries of Staffordshire. Their secrets were stolen from them and became common in the district. During the period Delft ware was largely made in England, among other places, at Liverpool. The next important advance was in 1720 when the value of flint was discovered, this time also by accident, by Astbury, who along with the Wedgwoods was one of the prominent potters of the Burslem district. In 1724 a patent was taken out by Redrich and Jones for a new art of staining, veining, and otherwise imitating rich stones such as marble and porphyry. In 1726 and 1732 there were two patents taken out, which removed the objection to the working of flints. Hitherto they had to be ground dry, and the dust was extremely injurious to health. These patents were for processes whereby the flints were ground wet, and the dust nuisance removed. Thus was made possible the extensive manufacture of the white wares, of which flint is the principal ingredient. In 1733 there was patented a secret for making pots chocolate-coloured on one side and white on the other, but in 1737 this was nullified by a legal decision as not being a new thing, but simply a wash that was already well known.

2. Ibid. p. 61.
3. Ibid p.62
The art of making porcelain was introduced into England before 1740. Defoe describes the porcelain works at Bow, and says they equal or surpass the Dresden ware. Liverpool was among the places where this industry flourished in the fifties and sixties. A Liverpool firm also introduced about 1752 the art of decorating pottery by transferring designs printed on paper to the surface of the fired glaze.

In the early part of the eighteenth century the chief wares being made in England were the ordinary coarse brown wares, the finer cane coloured ware, Delft ware, crouch or salt-glazed wares, red wares, and the clouded mottled or marbled wares. The tools were the ordinary potters wheel, the common turning lathe, and a few cutting knives. The first important new ware of the Josiah Wedgwood's make also comes into our period. In 1754 he entered into partnership with Whieldon, and began to make a new earthenware with a green glaze like glass. By 1761 he had perfected the body and glaze of his fine cream coloured wares, and presented a candle and breakfast service of it to the Queen. She approved of it so highly that he was made "Potter to Her Majesty," and the ware was called

2. Jewitt cited above. p.70.
3. Ibid. p.130.
4. Ibid. p.119.
"Queen's ware". Another set made shortly after for the king became the "Royal pattern". With these steps taken on the ladder of fame, the Industrial Revolution in pottery might be said to have been fairly begun in the early sixties.

There was a considerable manufacture of glass in England during our period. The principal alkali used was barilla, which came from the east and was produced by burning "kaliplant". The most important feature of the manufacture about 1750 was the production of flint glass, which was much whiter and more brilliant than the ordinary. It was chiefly used for making mirrors and drinking vessels. The methods were the same as those used today, though modern factories have more elaborate appliance. Plate glass was not made in England till 1772, when a company was incorporated and set up a factory at St. Helens. Eighteenth century stained glass windows are negligible. When about 1777 Sir Joshua Reynolds set about his window in New College, Oxford, the art of glass-painting was so dead that he had to employ a pottery painter to paint it.

The technique of textile industry falls into four divisions, the preparation of the material, the spinning, the weaving, and lastly the finishing processes, including the dyeing and printing. The first division is more important in the cotton and woollen textiles than in the silk and linen, because in the former, the fibres of the wool are not very long and it has to be so prepared that it will spin readily into a strong and continuous thread. The longer fibres of linen and silk make the problem of preparation rather easier. In Lancashire, before machines came into general use, the cotton was cleaned by hand, assisted by spreading it out and beating it with a light cane to free it from any seeds that were left. It was then carded to draw the fibres into line with each other instead of being entangled in all directions. These cards were like two brushed, and the cotton was laid on one, while the other was drawn across it, thus straightening the fibres out for the next step in the process. The only improvement in this hand process of carding before the Industrial

1. Dobson. Evolution of the Spinning Machine. p. 36 (Daniels. Early English Cotton Industry. p. 75) also Dobson p. 35 - 35. These were called stock-cards as distinguished from the older hand-cards.
Revolution was the enlarging of the cards and the fixing of one in a definite position and hanging the other on a pulley with a weight to balance it. As the cotton came off the cards it was given a slight twist into a loose spongy rope called a roving, when it was ready for the spinning. A carding machine was invented by Paul, and patented in 1748; as was another by Bourne in the same year. But both machines lacked an arrangement for taking the cotton off the cards, and were unsuccessful until Arkwright remedied the defect by means of a crank and comb, similar to what is still used on carding machines. Paul's carding machine was introduced into Lancashire about 1760, and soon afterwards was adopted, in principle at least, by the Peal family at Blackburn.

The Industrial Revolution, so far as cotton was concerned, may be said to have dated from the invention of Hargreaves' spinning-jenny in 1761. Up till that time a weaver required four or more persons to keep him supplied with cotton weft for his loom. "A good weaver could keep three active women at work upon the wheel spinning weft." Besides the persons employed to clean, card, androve the cotton—before it

1. ure. Cotton Manufacture, I. 241
2. Daniels. Early English Cotton Industry p. 77
4. Daniels, p. 78.
reached them. It was found easier to multiply weavers than spinners, and hence looms were often at a stand for want of yarn. "Weavers had difficulty in fulfilling their contracts on time, especially when they had not enough persons in their household to supply them and had to put out the cotton to be spun elsewhere. "At this time", says Mr Guest, "a weaver was under the necessity frequently of trudging three or four miles in a morning and visiting many spinsters before he could collect weft enough to keep his loom going for the rest of the day; and such was the competition he met with from other weavers on the same errand, that he was often obliged to treat the females with presents in order to quicken their diligence at the wheel." Spinning and weaving were like an ill-matched team in those days; the weaving continually pulling ahead of the spinning until the introduction of the spinning-jenny, and later the mule, when spinning pulled ahead and weaving lagged behind, until the application of power to looms enabled that side of the industry to pull up level, and since then the team has been working on pretty equal terms.

There were two spinning wheels in common use. The first is called the "big wheel" from the size of the wheel which was turned by hand, or the "wool wheel" from the fact that it was commonly used in the spinning of sheep's wool. The present writer has often seen this wheel in use on the farms of Ontario, Canada, when the women of the households spun their own yarn for making socks. The turning of the large wheel made the bobbin to which the roving was attached revolve at a high speed and the spinner drew out the roving to the necessary thickness and the turning of the bobbin gave the thread the required twist. Then by a counter revolution of the wheel the bobbin was made to revolve and the thread was wound on the bobbin when the operation was repeated. This wheel was called the Jersey Wheel. The first spinning jenny profitably used in England was on this principle. Many spindles, at first sight, this number afterwards increasing until there were eighty, were made to revolve by one fly-wheel, while a moveable frame on which the roving bobbins were placed, alternately receded from or approached the spindles for

1. Ure. Cotton Manufacture. I. p. 235-236. There are cuts of both the wool-wheel and the early jenny which greatly assist in appreciating the working of both the hand wheel and the machine.
spinning and winding the thread on the bobbins. The only change apart from multiplication of the spindles was that while on the wool-wheel the spindle was horizontal, on the jenny it was vertical. The wheel was still turned by hand but had a crank attached to apply the greater power more easily.

The second spinning wheel was commonly called the Saxony Wheel. It was the old flax-wheel. This was somewhat different from the other in that the wheel is small and turned by a foot-treadle and the thread required both hands at times for manipulation being drawn out between the two hands before the twist was imparted to it by the turning spindle. Also the twisting of the thread and winding it on the bobbin proceeded simultaneously. Both bobbin and spindle revolved, the bobbin moving much faster and by its superior speed winding the thread on itself as it was received from the whorl of the spindle. This was effected by two pulleys, one turning the spindle and the other the bobbin, the latter being tubular and fitted over the spindle. There were two cords, running in two grooves on the wheel and connected with the whorls or pulleys of the spindle and bobbin. The present

writer has seen wheels of this description auctioned off within the last year in Invernessshire amongst household effects. The fingers of the hands were used in this process principally to equalise the distribution of the filaments and remove entanglements, and the hand next the spindle by holding the thread somewhat against the traction of the winding bobbin, serve to stretch and attenuate it to the requisite degree. Thus by the uniformity, strength and fineness of the thread was the skill of the spinster estimated.

It was on this principle that the early attempts to invent spinning by rollers were based. Wyatt and Paul in 1736 were the inventors of this machine at Birmingham which was patented in the name of the latter in that year. In this machine the roving passed through two or more pairs of rollers each pair revolving faster than the previous ones so that the thread was stretched thinner as it passed each pair. From the rollers it passed on to spindles and was spun by the motion given to them, they drawing faster than the last pair of rollers would give, thus drawing thread out to the last degree of fineness required. The principle was suggested, says Ure, by the analogous process of drawing

1. This was in Kingussie, Invernessshire in the Spring of 1920 when a friend of the writer was the purchaser. The wheel had been the property of an old person recently deceased.
out metal rods by means of rollers, then in use in
Birmingham. For some reason, however, either because
of some mechanical imperfection or lack of commercial
ability this machine was not a success although it was
used for some years in factories at London, Birmingham
and Nottingham. In 1756 a further patent was secured
but soon afterwards Paul died and the successful ap-
plication of the principle was left for others - so
that we may conclude that up till the invention of
the spinning jenny at Blackburn about 1764 spinning was
still done in the old way with either the wool-wheel
or the flax-wheel and was the staple industry in many
a cottage home, as well as the occupation of the women
of homes far and wide in both weaving and spinning dis-
tricts. Because of the difficulty of keeping up the
supply of yarn for the weavers, wool (not cotton however)
was sent long distances from the woollen area of the
south-west to northern counties like Westmoreland and
Cumberland to be spun and then brought back to be woven
in the south-west again.

**WEAVING.** The weaving of cotton was nearly all carried
on by means of hand looms. The weaver stood or sat at
his loom and crossed the warp by foot treadles while he

*Ure. I. p. 237-238.*
sent the shuttle with the cotton waft back and forth by hand. There were three important improvements in weaving during the first sixty years of the century. The first of these was the introduction of the Dutch looms into the Manchester area. One of the characteristic products of the cotton district was narrow tapes, and to weave these by hand on the ordinary looms one at a time was a slow and tedious process. The Dutch had perfected a loom which could weave several of these narrow fabrics at once and it was introduced into Manchester in the first quarter of the century. They represented the first power weaving in that the shuttles were worked back and forward without being touched by hand. These were called the swivel-loom. The mechanism consisted of a series of shuttles according to the number of fabrics to be woven. The shuttle was longer than the width of the ribbon and was passed through by the action of cog-wheels on either side. Before the cogs on the one side lost their grip the shuttle had been caught by the cogs on the other side and was drawn clear of the warp. By reversing the action the

shuttle was passed back again after the threads of the warp had been altered. This was a slow and tedious process as compared with throwing/shuttle by hand and the advantage of the machine was solely that it could weave a number of ribbons at a time. The next invention, that of the "fly-shuttle" ultimately displaced the principle of the cogs in the tape machines.

The fly shuttle is associated with the name of John Kay of Bury who invented it in 1736. He had previously invented some improvements in the reeds used in the looms chiefly using polished pieces of metal instead of the older wooden reeds. The fly shuttle was a contrivance by means of which hammers instead of hands propelled the shuttle along the lathe or grooved plane of the loom. These hammers had cords attached to a handle near the centre of the lathe and by jerking this handle the hammer at the end struck the shuttle with sufficient force to drive it to the other end where it was in turn struck by the other hammer. The benefit of this invention was that the second man necessary for broader cloths was saved because however broad the cloth the hammers would drive

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the shuttle through the warp - and on the narrower cloths he could work more rapidly as he did not have to reach to either side to touch the shuttle but jerked the handle to and fro with one hand while he drove the weft home by swinging the reed with the other. This invention does not seem to have been much used in the cotton industry before 1760 and a recent writer is puzzled to account for it. It is possible that the reason may be found in the fact that spinners were scarce and many looms were not able to work full time as it was. This fact would make the weavers chary of improvements which would mean still more idle time and not being constantly employed it would be difficult for them to find the money for the alteration necessary to introduce the fly shuttle. But in the Woollen industry because of the wider dispersion of the spinning industry there was not such a disparity between the spinning and weaving. The industry was rapidly expanding, especially in the north where they had begun to weave the

1725-33, e.g. Parish Register at Bury contains entries of all his children in unbroken succession from 1726-41 or 2.

3. The reed had to vary in fineness with the quality of the work to be performed and this variation was more easily effected in the case of metal reeds than with wooden ones.

broad-cloth. The saving of the second man at these looms was sufficient inducement to the thrifty Yorkshire master to use the new device and in doing so no great reverence was paid to the rights of the inventor and patentee.

When in 1760 his son Robert Kay invented the drop-box which enabled the weaver to use any one of several shuttles containing different coloured threads without having to remove them from the lathe the use of the fly shuttle increased rapidly in the manufacture of cotton textiles. This contrivance is described by Chapman as "a partitioned lift working at one end of the lathe and so constructed that any section of it could be raised or lowered to the same level as the lathe and thus made to form a part of it". This when combined with the fly shuttle made the loom more complicated it is true, but it greatly increased the speed at which the figured fabrics could be woven, and it may have been this improvement that caused its more general adoption in Lancashire after 1760 especially when in 1764 the spinning jenny did so much to redress the balance between spinning and weaving. John Kay had also taken out a patent in 1745 for a power loom but his efforts in that direction as well as in the carding and spinning

processes, met with little success.

Another development was an arrangement for raising warps in groups so that Figured Goods could be produced. This was in use in the earlier part of the century and derived its name of drawboy - a name which attached to the fabric also from the fact that a boy was usually employed to work it under the direction of the weaver who probably called "Draw, boy" when he required a change of warps. Such a loom of course introduced greater complexity into the weaving process so that some weavers who could not afford the expense themselves had looms mounted for them by the masters. Others had to employ "gaiters" to make the necessary changes in the reeds when they were beginning on different sorts of goods. Such was the condition of the weaving and spinning when the jenny and the mule and later the power loom revolutionised the cotton industry.

It must be noted that until after 1760 few of the cotton goods produced in Lancashire were made

1. Memoir of John Kay of Bury (1903) by John Lord. He quotes an abstract of patents. This loom was No. 612 of that year, 1745.

wholly of cotton. The spinning of cotton was not far enough advanced to have produced a thread sufficiently strong for the warp - so that the cotton goods discussed were cloths with a linen warp and a cotton weft. For this reason the weaver was furnished with warp and raw cotton. The linen yarn used was largely imported from Ireland. This mixture of linen and cotton occurs in the earliest mention of cotton in Lancashire. In a petition of 1620-21 the petitioners state: "About twenty years past divers people in this kingdom but chiefly in the county of Lancaster, have found out the trade of making of the fustians, made of a kind of bombast or down, being a fruit of the earth growing upon little shrubs or bushes, brought into this kingdom by the Turkey Merchants but commonly called cotton wool and also of linen yarn". In the early eighteenth century curiously enough the only place where we have reason to believe that pure cotton goods were made was at Weymouth and Melcombe Regis in Dorset. Amongst the petitions against

1. Deniels. Early English Cotton Industry p.9. In 1613 also in the grant of a patent to the Duke of Lennox goods made wholly or partly of cotton wool are mentioned.
the Act of 1721 prohibiting the use or wear of printed calicoes in England, whether printed in England or elsewhere is one from the above borough, saying that "for many years past a manufacture had been carried on in the said town for making cotton wool.... into cloth of divers kinds, more particularly those fabrics that imitate calicoes." The petitioners were afraid that the proposed Act would kill this industry in their midst - a fear which was evidently realised. On this occasion the alliance of cotton with linen in Lancashire probably proved the salvation of the cotton industry and made possible the advances of a later date.

The principal development of the first half of the eighteenth century in the finishing processes of cotton goods was in connection with the printing of calicoes. About the end of the 17th century the increase in the use of printed or dyed calicoes alarmed the woollen interests and they secured an Act in 1700 prohibiting the use or wear of calicoes dyed or printed outside of England. Almost at once there began an import of plain


2. 11 and 12 William III.c.10.
calicoes and muslins which were printed and dyed in England for in 1703 further petitions for legislative interference began to flow into the House of Commons. By 1721 these could no longer be ignored and the Act of 1721 prohibited the use or wear of printed calicoes, no matter where printed. From the absence of any petitions against this bill from the cotton interests of Lancashire it may safely be concluded that pure cotton fabrics in imitation of Indian muslins had not begun to be made there at that time for it was a period when petitions to Parliament were regarded almost as an obligation on those whose interests were affected. From the scope of the bill fustians were excluded so that the fabrics of linen and cotton were free. Printing them had begun at a fairly early date but the different affinities of cotton and linen fibres for the dyes used made even colouring very difficult. There is no doubt however that the Act of 1721 stimulated the printing of other fabrics such as the fustians of the north for opposition to them came to a head about 1735. This opposition was chiefly from the woollen interests of Norfolk and led to the "Manchester Act" explaining the

1. 7 Geo. I. c.7.

2. 9. George II. c. 4.
Act of 1721 and specifically excluding the fustians from its operation.

It is evident therefore that the printing and dyeing industry was settled in Lancashire long before the Industrial Revolution. As early as 1704 a patent was taken out for printing, staining and colouring silks, stuffs, linens, cottons, leather and paper, by means of copper cylinders. In 1700 Leigh speaks of the trade of making fustians and printing them but the printing of calicoes and cotton goods proper was not settled in Lancashire before 1760. It had begun much earlier near and in London but the natural advantages of Lancashire as the place of manufacture of the cloth itself, the lower rent of bleaching grounds and the cheaper living for workmen, combined to attract the industry into Lancashire. There was considerable development by the invention of the flat press about 1760. Cylinder printing began about 1783 when Thos. Bell took out patents for printing by means of cylinders. This was successfully applied in 1785 at Mosney, Prescot. It was however, the Peel family that

1. Espinasse. Lancashire Worthies. Sec.2. also V.C.H. Lancs. II. 395.
3. Ogdén. Descri. of Manchester. 1783.
5. Ibid.
built up to a great extent the printing of calicoes in Lancashire. "They were to printing what Arkwright was to spinning."

The woollen industry processes remained the same for several centuries. Until the invention of Kay's flying shuttle in 1733 and its adoption in the worsted trade there were few developments in the processes and the changes had been mainly in the direction of improving the organisation of the business. When the wool came in the fleece, the first process was to have it sorted. There were short and longer wools, finer and coarser in the same fleece. This business fell mainly to the stapler, especially in the south-west and the east where there had been greater progress in division of labour than in the north. The wool was then cleaned and if for mixed cloth it was dyed.

The next process was carding or combing. If the wool was for ordinary woollens or broadcloths it was carded and if for worsteds it was combed. The carding was somewhat like the carding of cotton. Postlethwayte thus describes the card:—"It was a sort of instrument or comb composed of a number of small pieces or points of iron wire, a little incurvated like

hooks towards the middle and fastened very closely together by the feet in rows. A piece of thick leather which keeps them fast is nailed by the edges on a flat piece of wood which is about a foot long and six inches wide with a handle placed in the middle on the edge of the longest side. The wool was placed between two of these and worked together into a sort of mat so that all the fibres were tangled together. The strength of the yarn and therefore of the cloth depended on how thoroughly this entangling of the fibres had been done. As the wool came off the cards it was twisted into a loose spongy roving similar to the cotton roving and was then ready for spinning.

The combing process was with similar instruments but with a different object. The strength of worsted depends on the hard smooth spinning of the thread not on the entangling of the fibres and for worsteds only the longest fibre wool is chosen. The combing was intended to straighten out all the fibres and lay them as far as possible parallel to each other. Combing was most unhealthy because it was carried on in closed rooms in which were charcoal stoves for the

heating of the combs. The fumes from these stoves had ill effects on the health of the workers. It was a highly skilled operation and the wool-combers were looked upon as the aristocracy of the wool-workers. It was not till the introduction of worsted manufacture into the north that these workers made their appearance there in the first part of the eighteenth century. Rochdale, Burnley and Colne became the Lancashire centres of their work.

For the spinning, the wool wheel described above was the usual instrument but the distaff was also used occasionally. Spinning was taken far afield. There was an even greater disparity between spinning and weaving in the woollen industry than in the cotton because we read that a woollen weaver could keep ten spinners busy while the cotton weaver needed three or four. Even after the hand jenny began to be used the woollen weaver kept four spinners busy supplying him with yarn. This difference was of course partly due to the fact that the cotton spinners had only to supply weft while the wool spinners had to spin both warp and weft to keep up with the weaver. One defect that domestic spinning, both of cotton and wool, was

subject to, was variable quality. Some of the spinners were children who were just learning and whose work would vary greatly from day to day; while at the other end of the scale were the skilled women of many year's experience. A bale of yarn might contain all grades between those two extremes.

**WEAVING.** The weaving was done by the hand loom with a lathe wide or narrow according to the cloth intended to be woven on it. The broader looms required two men to work them. One man could only weave a cloth as wide as he could conveniently reach as he had to throw the shuttle through the warp with one hand and catch and throw it back with the other. When Kay invented his fly shuttle it was eagerly seized on by the makers of the broader cloths because it saved the labour of one man and made faster work possible. Some year's of Kay's life were largely spent in litigation with these Yorkshire manufacturers who were infringing his patent.

**FULLING.** The next step in the process was that of fulling and tentering or stretching. Fulling or milling

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1. It was probably the litigation on this question and the frequency with which his name would appear in the Leeds records that gave rise to the idea that he lived there for some years. John Lord has proved pretty conclusively from the parish records that he was domiciled continuously in Bury till 1753; though no doubt he made frequent and prolonged business trips through the textile areas to sell his reeds and shuttles.
was the process of working the cloth into a close mat of fibres, a process which was not so necessary with worsteds for they, as noted above, depended for their strength on the smoothness and hardness of the spun thread. But with the carded and more loosely spun woollens fulling was an important step in the process of making the cloth a good wearing fabric. When milled, the cloth was thoroughly scoured with fuller's earth and soap to clean it. The fulling mill is thus described by a writer in 1766. "Fulling is performed by a water much mill/like a corn-mill, and in some places both in England and France there are mills that serve for both purposes. The wheel gives motion to the tree or spindle whose teeth communicate it to pestles or stampers which pound the cloth in troughs thus condensing, thickening the cloth". The fuller's earth had the property of absorbing the oils and grease so freely used in the preparation of the wool and of the yarn, thus helping to cleanse the cloth although a proportion of soap was also used.

**TENTERING.** The last step was the tentering or stretching. Tenterers were framed on the ground by means of which the cloth was stretched after milling and scouring, to the extent desired or allowed. It was in this process that

fraud was most easily practised and much of the Government and Trade Regulation was designed to prevent weavers from stretching the cloth unduly before sale.

LINEN. The pressing problem in connection with linen was that of bleaching. The finished linen of Scotland and Ireland was met in the English market by the fine products of Holland, Germany and France. During the sixteenth century there were efforts made by the authorities in both Scotland and Ireland to encourage the manufacture and to raise the standard of the technique. A writer who was intensely interested in everything that tended to increase the manufactures of the country says that for a long time the imperfections of the British linens were due to the badness of the flax but that since they had adopted the Flemish method of raising and managing flax they had greatly improved the bleaching. The foundation of the British Linen Bank in 1746 marks the great efforts made in Scotland to assist the establishment of the industry and helps to date the improvements. At the time he was writing they were "daily making advances in both Scotland and Ireland". He was advocating more careful selection and preparation of the salts and water used in bleaching.

The notable thing about the silk industry, which was established in many places in England, notably London, Derby, and Stockport, during our period, was the introduction of power machines for throwing the silk. This machine was set up at Derby, and was the wonder of tourists during the later part of the century first sixty years of the century. It had been brought from Italy by Sir Thomas Lombe, says Defoe, and he secured a patent from Parliament in 1720, for the erection and working of the machine in England. Financial and other difficulties prevented him from getting it into working order before the expiration of the fourteen years, so that the Parliament paid him £14,000 for his trouble, on condition that he would allow copies to be made on the machine for the general benefit of the manufacture. This machine was for the fine silks in imitation of those made in Italy. The Turkish silk was not fine or strong stapled enough to be twisted into warp, and so was used for the weft or damasks, for silk stockings, gallons, and gold and silver lace. The heavy duty on Bengal and Chinese silks prevented them from 1. Defoe. Tour. 3 iii. 73 ed. 1760.
HATS.

being used in the English manufacture.

In the hat industry, the hair of beaver, goats, and other animals was used. The cleaning was effected in a primitive way, like the picking of cotton with a bow string. This also served the purpose of working the hairs gradually into a mat, which was slowly shaped into the conical form required. The remainder of the process was concerned with thickening and shaping this hat to the mould, finally stiffening the shape with glue, after it had been dyed in large vats that would hold some dozens of hats at once. The hats were then ready for brushing, ironing, and finishing for the market.

2. Ibid. Art. Hats.
CHAPTER III.

ECONOMIC ORGANISATION OF PRODUCTION.
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The gradual expansion of the organisation by which the economic needs of mankind have been supplied may be said to have proceeded from the early village economy through the town, and later the national economy, to the present international economy. In other words, the unit of economic self-sufficiency has been in turn the village, the town and its surrounding district, then the nation, until in the last century, the economic inter-dependence of civilised nations has become firmly established. Industry responded to the commercial stimulus that marked the transition to each succeeding phase, and industrial organisation passed from the manorial household system, through the handicraft and domestic stages to the modern factory or mass production system. These merge into each other so gradually that it is impossible to make any clear chronological division. Sometimes two systems will be found side by side for a time in the same industry; and again, we may find one industry that has passed to a new form of organisation, alongside another that remains undisturbed in the earlier form. We find in our modern
economy, survivals of the domestic system, such as the manufacture of homespuns in the north of Scotland, or some of the small wares manufacture of Birmingham. So long as manual skill remains the chief factor in the production of any article, some phases of the domestic system will remain, however much the capitalist may organise the supply of material, the movement from process to process, and the marketing of the finished article. But, as soon as a machine has been made that will replace manual by mechanical skill, factory production will secure predominance.

IND. REV. A TRANSITION. On the eve of the Industrial Revolution, industry in England was feeling the impetus of commercial expansion. The foreign trade of the country was in process of quadrupling within a century, and with provisions at a low price, and capital rapidly accumulating from commerce, the home trade was no doubt increasing at a similar rate. Industry could not respond much further to the commercial expansion unless improved methods of manufacture could be found. Men interested in iron production were searching for a means of smelting

iron ore with coal, in order to obviate the difficulties caused by the diminishing supply of wood. Others were struggling with the difficulties of drainage and ventilation in the mines and of transport at the surface. Those interested in textiles were searching for some means of redressing the balance between spinners and weavers.

We have already seen how in the pottery manufacture such basic discoveries as salt glazing, and the use of flint, had been made in the first forty years of the century, thus preparing the way for the further discovery and organisation for which Josiah Wedgwood was responsible. What we call the Industrial Revolution was then the transition from the domestic system of industry, which answered the needs of the national economy, to the factory or mass production system made necessary when Britain began to assume the post of workshop for her neighbours. It would, therefore, be truer, perhaps, to attribute the inventions to the transition, and the forces behind it, rather than to attribute the transition to the invention, as is popularly done.

Industry in England in the early part of the eighteenth century was mostly on a domestic
basis, either because of the natural conditions or the nature of the operation. The coal mines, for example, required the gathering of a number of workmen into one place; the leasing of the mine, the payment of wages till it become productive, and the necessary equipment expenses, all made for a capitalistic organisation. In the coal industry, therefore, the coal owners had already become the main persons in the organisation, and production was on a wages basis, the miners owning nothing except their labour. Similar conditions obtained with regard to the iron and copper mines. Lead mining in Derbyshire, and tin mining in Cornwall were on a free basis; discovery of the metal carried with it the right to work the discovery regardless of the landlord; but even here, in the eighteenth century, with the deepening of mines and the increasing expense of equipment and operation, the small master was disappearing before the capitalistic mine owner.

In other cases, the nature of the operations made it necessary to congregate workmen in one place. The blast furnaces for iron, the smelting houses for copper, tin, and lead were such as to require a good

deal of fixed capital, and the employment of a number of labourers on a wages basis. In some of the iron industries also a later factory system was anticipated. The notable examples of this are the formation of the Soho works at Birmingham, the Carron Iron Works in Scotland, and the works of the Darby's at Coalbrookdale.

A third class of works that had taken on capitalistic organisation was those in which non-human power had been adopted. The earliest types of this class were the corn mills and the fulling mills, which were run by water. But the true representative of the new factory type was the silk mill at Derby, where the introduction of complicated machines made power necessary, and where the work people had to come together to attend the machines. The introduction of the swivel loom into the cotton industry was the first step towards power machinery. Defoe says that within three miles of Manchester, there were sixty water mills, and as these are mentioned in connection with the Dutch looms, the inference is that the water mills were largely used in providing power for these machines.

Apart from such examples as those above, however, industry in England in the early eighteenth century was domestic. The salient feature of the domestic industry is implied in the name. The unit of organisation is the household; the workmen is his own master, working in his own home, superintending the work of his household, which besides his family would include his apprentices and his journeymen. As the household was the unit of industry, the head of the household, the master-workmen, was the pivot of the organisation of production. The economic factors in production are the supply of raw material, the control of fixed and circulating capital, management and labour, and lastly the marketing of the product. Under the domestic system in its purest form, the performance of all these functions would be centred in the master of the household. But there is a tendency for these economic provinces to be invaded by merchants and other capitalists, especially in the case of supplying raw material, and the marketing of the product. There was also a tendency for a merchant middleman, or for the master of one of the processes to acquire ownership of the material throughout all the processes, so that the realm of circulating capital was liable to pass out of the hands of the master workmen. But so long as the control of fixed capital, and the
work of management centre in him, the industry can accurately be described as domestic. It will be our purpose in the present chapter to examine the first three of these factors and see how far the small master had kept or lost control before the coming of the new machines, leaving the marketing to be dealt with under the organisation of distribution.

The simplest organisation for the supply of raw material was that whereby the workmen produced all or part of the material required, and in any case, bought from the actual producers in his neighbourhood. But this simple organisation was modified almost as soon as there was any expansion of the market, or attempt to produce a finer quality of goods.

Textiles play an important part in economic history, and provide excellent illustrations in the changes in the organisation of the industry. There were two important modifications in the system, and both were introduced at an early date. The first is the intervention of the middleman between the producer of raw material and the textile workers. The other is the tendency of the workers at one process to become employers of the workers in other processes of the same industry.
In the woollen trade two factors encouraged the growth of the middle man function. It was not economical for the producer of only one kind of cloth to buy wool in the fleece because only part of the fleece was suitable for his purposes. He wanted either the long or the short wool, the fine or the coarse. So there arose the stapler whose business it was to sort the wool into its various grades and sell those to the clothmakers who required them. Accompanying this necessity for sorting the wool there was the fact that spinning was necessarily spread over a much greater area than the weaving since a good woollen weaver could keep ten spinners busy. A writer in the sixties of the eighteenth century thus described the extent of the circulation of wool and yarn. "The fine fleece wool of Lincoln, Leicester and Northants is carried on pack-horses south to Cirencester and Tedbury in Gloucester where it is bought up and afterwards made into yarn for the clothiers of Wilts, Gloucester and Somerset to mix with the fine Spanish wool in making their broad-cloths; eastward the same is carried into Norwich and Bury.... and northward to the farther parts of Yorkshire and even into Westmoreland and Cumberland where it is made into fine yarn which is brought up to London to the amount
of at least 100 horse packs a week for the making of fine druggets and camblets in Spitalfields. The surprising quantities of wool produced on the spacious plains of Wilts, Dorset and Hants are carried into the counties of Somerset and Devon. In some parts of Somerset it is mixed with the long staple wool of Lincoln; in other parts, and in Devon, with the Irish wool for the perfecting of their fine serges, stuffs and druggets. There is likewise a very great quantity of 1. fall-wool sent from London to Colchester, Bocking, Braintree and all other parts of Essex where the bays 2. trade is carried on".

The other factor was one of time. The wool clip of the year was ready for market within a few weeks; and to hold it long for market was unprofitable for the farmer because of the interest charges on capital. On the other hand the small producer of cloth usually had not sufficient capital to purchase his supply for a year all at once. The farmer wanted a quick sale for his year's clip. The clothier wanted a dealer from whom he could buy in small quantities as required. Hence the wool-buyer arose who bought in large quantities at certain seasons and sold in small quantities to the 

1. i.e. wool taken from the skins of sheep after they have been killed.
clothiers the year round.

Into Cotton Industry. In the cotton industry the need for the middleman was still more urgent. The yarn for the linen warp had to be brought from Ireland or N.E. Europe while the cotton had to be bought from the merchants who were responsible for its import from abroad. Until the cotton trade with America began most of the cotton entered England via London from the Levant although there was a good deal entering through Liverpool during the early 16th century and also through Whitehaven and Lancaster. The cotton entering via Liverpool, Lancs, or Whitehaven was from the W. Indian Colonies and So. America which were rapidly supplanting the Mediterranean countries as a source of supply. This fact of the foreign origin of raw materials in the cotton industry resulted almost from the first in a capitalistic organisation.

In the 17th century some prominent Manchester merchants were the Tippings, Mosleys and Chethams. From their accounts the Chethams are seen to have at least financed the workers if they did not actually employ them. Thus it will be seen that the merchants at a fairly early date began to control the material throughout the processes

2. Ibid. p. 57.
3. Ibid. p. 36.
though the fixed capital remained in the control of the workers.

In Lancashire there were three branches of manufacture, the fustian makers, check makers and the worsted mill wares men. There were no doubt small independent producers especially in the fustian trade until the development of the factory system but it is doubtful if they were numerous or typical of the industry in the mid-eighteenth century. The merchant who imported the cotton wool and linen began not to sell to producers on credit and buy back the cloth but to supply the material and pay piece rates for the spinning and weaving. Thus arose the system of "putting out" which is characteristic of the domestic system under the dominance of the merchant clothier or merchant manufacturer of cottons. In the neighbourhood of Manchester the merchants did their own putting out but in the more remote districts they employed putters-out who worked for them on commission. These resided in the district where the employees lived and were responsible for the distribution of the warp and wool and the collection of the finished goods and the paying of the workers. Guest

1. In the watchmaking industry of Lancs. this same system prevailed. Work was put out by the Manager on Monday and collected from the job-masters on Saturday; Parts assembled and sent to customers V.C.H. Lancs. II.366-7.
says this development took place about 1740 but this is probably much too late as Aikin refers to the use of warping mills in the seventeenth century. Chapman concludes that "somewhere about the beginning of the eighteenth century a strong centralising tendency asserted itself and that it was assisted by the economies associated with centralised warping after the invention of the warping mill". For a time also the merchant gave out copts of weft as well but as it was difficult to detect faults till the cloth was woven, and the defect might be due to spinning or to weaving the merchant began to give out the raw cotton with the linen warp and make the weaver responsible for the cleaning, carding, roving, spinning and weaving. It would thus be possible to hold the weaver responsible for defects without regard to the process in which the fault lay. After machine spinning and carding arose the merchant again resorted to the custom of giving out weft as well as warp because he could be reasonably sure of uniform quality. A further development of this control by the merchant middleman was the rise of a second-rate class of merchants called "fustian masters". Those resided in the country districts.

among the weavers gave out materials and employed the weavers to do the work. They were really independent putters-out receiving their reward, not in commission from the Manchester Merchants but in profit on the cloth they sold. The conclusion drawn by a recent writer on the subject is that "even if it be true that before the first part of the eighteenth century the greater proportion of the fustian weavers were semi-independent producers...by the middle of the century they were certainly the workpeople of capitalist employers as probably many of them were before that time"

This organisation is really the counterpart of the merchant clothier organisation in the woollen industry. The greater part of the clothing trade in the eastern and south western districts was on a capitalistic basis. Defoe's description of the southwest illustrates this organisation. "These towns as they stand, thin and at a considerable distance from each other...are interspersed with a great number of villages, hamlets, and scattered houses; in which generally speaking the spinning work of these manufactures is performed by the poor people. The Master

Clothiers who generally live in the greater towns, sending out the wool weekly to their homes by their servants and horse, and at the same time bringing back the yarn they have spun and finished which is then fitted for the loom. The weaving would thus seem to have been concentrated in or near the larger towns.

The more independent type of domestic manufacture from the standpoint of supply of raw material was found in West Yorkshire in the woollen industry. All the descriptions we have of the woollen trade of West Yorkshire in the eighteenth century agree that the clothiers as a class were small, independent producers, owning not only their fixed but their circulating capital. The middleman was present but he remained a middleman, selling wool or yarn to the clothier who supervised most of the processes and sold the finished goods in the open market or to a commission agent of some distant firm. The persistence of such markets as the Brig Market at Leeds and the other free markets in cloth halls throughout West Yorks furnishes evidence of the continued independence of the woollen manufacturer in the eighteenth century. In places where the spinning was done in the immediate neighbourhood of the clothiers the spinners called at their

also James. History of the Worsted Manufacture. p.311-312.
employers' houses for the wool and returned the yarn when spun. In the spinning however, the putting-out system prevailed. The distributing agent was sometimes a farmer or a shop-keeper but most frequently a woman of the spinners who thus added to her income.

INDUSTRIAL Besides the tendency for commercial capital to enter the industrial sphere and bring about a partial independence of the small manufacturer there was a similar tendency for masters to employ others of the same craft to work for them. A successful weaver might have more work than he could overtake and would let some of it out to his less fortunate neighbours. In this way he would build up control over a certain number of workmen though they still went on working in their own homes. In the same way men engaged on one process tended to become employers of those engaged in other processes. For instance there is the employment of the spinners and rovers by the weavers. This was common in the cotton industry in the 18th century when the merchant gave out the warp and raw cotton to the weaver, and he had to get it carded, roved and spun before he could finish his own contract. This applied particularly where the weaver had only a small family who could not do enough

work to keep him busy. Woollen weavers so far as they could get spinners near their homes were employers of the spinners. When the wool had to be sent long distances to be spun, however, the tendency was for a commission man to undertake it or the weaver bought the yarn from a yarn merchant. Another example was found in the employment of the fuller by the weaver. The owner of a fulling mill usually worked on custom for the clothiers round about and thus became dependent on them. He employed no circulating capital except that necessary for his fuller's earth and soap and wages for any helpers he might require and he received a fee for each piece of cloth milled. By the middle of the century too some of the masters had increased their business so as to employ several looms. Such small aggregations of workmen under the one employer had already begun to be called shops. In some cases the shop may have been an enlarged weaver's shed capable of holding several looms; and in some it was simply a group of those who worked for the one employer. These various considerations - the interference of the merchant middleman in the supply of raw material - the employment of some workmen by others, and the enlarging of the scope of individual masters' operations, added to the growing custom of merchants or masters setting

1. (See next page)
up the more complicated looms for their employees, produced economic relationships very much like those of modern days. Daniels discusses at some length some labour disputes of the late fifties of the century which show that in the cotton trade wage-earning employees who were in their turn employers of apprentices and journeymen were numerous enough to have formed combinations. He sums up:— "Sometimes it is implied that the transition from the domestic system as it existed early in the 18th century to the factory system involved a great change in economic relationships, almost that it marked the emergence of the capitalist employers. If disproof of this view were required this account of the disputes in the small ware and the check trades in Manchester, a generation before factories definitely appeared in the district, would do something to supply it. The fact is of course that the domestic system was a system of capitalist employers, and the typical workpeople were in every essential respect related to their employers in the same

1. (See previous page) Daniels p. 44 quoted on authority of "The Smallware Weavers Apology a document published during a trade dispute. 1756" Daniels thinks that the shop was probably the place where the work was given out and taken in, and that there is no reason to think that it meant a workshop.
way as after the factory made its appearance. He goes on to point out that the essential changes made by the factory system were: first - that the employers' capital came to be embodied not only in the materials (the circulating capital) but in the fixed capital - the plant and machines as well - and second, the gathering of the workpeople under the one roof for all the operations. Here again however, an effective contrast is provided by the small clothier of the Yorkshire Woollen Trade. There the typical small master, with his family, one or two apprentices, and one or two journeymen continued to carry on the business on an independent basis till near the end of the century except for the wool buyer on whom they depended for their supply of wool or yarn.

Such developments had given rise to middlemen in the organisation of production. In the cotton industry these were mainly the merchants and their putters-out. The merchants bought the cotton and linen and employed weavers to manufacture for them and dyers and printers to finish for them. The putters-out were commission men by means of whom the merchants kept in touch with a large body of workers. The yarn

1. Daniels. p. 54.
merchants also played a part in supplying the raw material more particularly the linen warp but they deal largely with the employing manufacturers.

But since wool was produced in the country the middleman function in that industry was somewhat more extensive. There were various classes of wool-buyers whose functions were not very clearly differentiated. The most specialised was perhaps the brogger or broker who habitually acted as the agent for a large buyer of wool for export or for transfer to the clothing districts. The jobber or merchant was closely allied with the brogger on the one hand and the wool stapler on the other. He bought large quantities and stored them for sale at different periods; hence he required large capital and extensive connections. The wool-stapler was similar but he added the function of breaking the packs and sorting the wool according to the staple so that manufacturers could be supplied with the different kinds they required as well as with suitable quantities. The next important class was the yarn merchants who owed their existence to the localisation of spinning and weaving. Their function

1. This descriptive summary of the organisation of the woollen cloth manufacture so far as it concerns the middleman is based on Westerfield: Middlemen in English Business. 1660 1760. (1915).
was to distribute the wool to the spinning districts, collect it, and sell to the clothiers in the weaving districts.

The central figure in the cloth industry everywhere except in West Yorkshire where the small master retained his almost complete independence was the clothier. He was more a middleman than a manufacturer because he had abandoned the actual trade of cloth-worker. But he organised the manufacture and the materials underwent extensive alterations while in his possession. He organised the distribution of the material, the labour and the manufacture of the cloth. In the western district they were most highly organised and most nearly approached the factory system and there "They appear to have reached the acme of their renown and importance between 1690 and 1760 after which they declined rapidly under the throes of the Industrial Revolution and the migration of industry to the north.

In the north it was not the clothier but the merchant who dominated the scene. In spite of the poverty of the north country cloth-worker he retained his independence in a remarkable degree but his poverty

favoured the growth of the merchant middleman who sold him his raw material and bought the product at the open markets. The cloth production here for different reasons had migrated from the towns to the country districts, and most of the masters as we have seen were also farmers on a small scale.

The manufacture of the Eastern district was the oldest due perhaps to its proximity to the continent. But during the first half of the century its decline began. By 1750 the Surrey clothing trade was practically at an end. In this district the differentiation of the weaver, clothier and merchant had never been completed. "Some weavers employed spinners, carders, dyers, etc., and sold their cloth. Some clothiers employed in addition weavers and the other craftsmen who finished the cloth. Other clothiers employed only the finishers, buying in the grey from the weavers". Westerfield ascribes this to the nearness of the London markets and the presence of the exporting towns of the eastern counties.

The preceding discussion will have made it fairly clear that while there were considerable variations in the control of circulating capital, the fixed
capital remained in the hands of the master-workmen. He carried on his work in a building, usually a house owned or leased by himself, with tools or machines that were his own property. The looms were simple of construction in the early part of the century, and frequently were made by the village carpenter, though there was a separate trade of reed making, for that part of the loom. In the more concentrated weaving districts loom-makers were found. The cards were simple instruments and were doubtless made at home or by some local workman. Spinning wheels were also of local manufacture. When drawboys and the Dutch looms were introduced, loom-making became a more complicated business and would therefore become more specialized. The Dutch looms were sometimes made at a distance from Manchester, for in 1753 we find a Staffordshire man advertising two Dutch swivel looms for sale, and offering to supply as many more as might be required. Evidently a mechanic had冒险 some capital in the manufacture of these two looms, and was seeking a market for them.

Besides the looms, the cards, and the spinning apparatus necessary, the woollen master usually

2. It will be remembered that John Kay, the inventor of the Fly Shuttle, was a reed-maker by trade, and is so described in most of the patent abstracts.
3. Manchester Mercury, June 12, 1753.
had a dye-vat of lead which was kept outside the house, sometimes in a small dye-house. In this the wool was dyed before being spun. To many of the houses a loom-shop was attached, but where this was not the case, the loom was placed in the least inconvenient place in the cottage. In 1770 near Stockport, we are told that cottages with a convenient loom-shop and a small garden rented at from 1½ to 2 guineas per annum. Further up the country round Rochdale we have the farmer-manufacturer's buildings described. "Both farmers and cottagers in the neighbourhoods of Bury and Rochdale were at that time engaged in the flannel manufacture. Many of these would be both makers of cloth and sellers. It was about this period that the large and roomy stone buildings which are so frequently met with in the neighbourhood of Rochdale were erected. There were large rooms over the living quarters, and these were the work-rooms. A farmer generally had three or four looms. Stone houses were common everywhere on the slopes of the Pennines, but brick and stone had replaced wooden houses almost everywhere

throughout the clothing area of Yorkshire and East Lancashire. The large upper room, spoken of above, often had an external staircase, and a door through which the wool was taken, thus keeping it separate from the actual living quarters. But such would be only in homes of the more well-to-do yoemen. In the smaller houses the loom would have to find a resting-place either in the living room or the sleeping chamber. As in the cotton area, however, a long low shed was frequently erected in which the looms were set up.

DOMESTIC

Connected with the consideration of fixed and circulating capital there is the question of the link between the textile workers and the pursuit of agriculture. Some writers emphasize one phase of the connection and some another, but from the evidence there would seem to have been three more or less distinct classes engaged in the manufacture of textiles in Lancashire. There was first of all the smaller yoemen who were real farmers, and who engaged in textile only in so far as was necessary for the time of the women and children of the household to be fully employed and to provide work for the men in the intervals when farm work was not pressing. The second class was probably made up of the still smaller yoemen and the tenant farmers on the typical small farms of Lancashire in that period. For this class their main source of
subsistence was manufacture and they only cultivated their land in the intervals when there was an insufficient supply of material for the looms or the spinners. Radcliffe's description of the township of Mellor is widely quoted but it illustrates this point. "In the year 1770 the land in our township was occupied by between fifty and sixty farmers.... and out of these not more than six or seven raised their rents directly from the produce of their farms; all the rest got their rent partly in some branch of trade, such as spinning and weaving wool, linen and cotton. The cottagers were employed entirely in this manner except for a few weeks in harvest time". Thus the third class of worker was entirely dependent on his labour for a subsistence and except for a few weeks of unusual demand in harvest for agricultural labour, he was dependent on his work as a labouring manufacturer. This third class would provide the greater number of the mere wage-earners in manufacturing, as they had no land in their possession except a few yards of ground at the cottage door for a garden.

It is difficult to draw a dividing line between the first two classes. Tastes and capacity would probably cause one family to become dependent mainly on farming while similar causes would tend to make some of the real farmers mainly dependent on manufacturing. According to Radcliffe only about ten per cent of the farmers were farmers alone but it is impossible to estimate from his description how many of the rest were mainly dependent on the produce of their farms. Nor does he give any indication of how many cottagers were in proportion to the farmers. We may, however, conclude that what independent producers there were in the rural districts would be found among these farmers of the first two classes. It is probable too that a greater number of independent producers would be found amongst the woollen manufacturers than amongst the cotton. Most of them would have a few sheep on their farms and would therefore have part at least of the raw material ready to their hand. Then again, the skill required would have been handed down for many generations, since the farmers had always made their own clothing and to engage in the manufacture was only to extend what they had already been doing for their own use. The family of Pocock's horse boy, it will be remembered, wove woollens
for sale as well as for themselves. Another point to be noted is that the farming of the class that had come to depend on manufacture would be of a rather slovenly and intermittent character. Bamford say that: "the farming was generally of that kind soonest and most easily performed" In Defoe's familiar picture of the woollen district near Halifax he notes that little of the land was cultivated but that it was used for the support of a horse and a cow or two. A recent writer on the woollen industry of Yorkshire commenting on the landholdings of the cloth workers, says that they were not intended to make farming a serious rival to the textile industry. Sometimes they were used largely for textile purposes. If not thus used they were devoted to the growth of hardy crops that required little attention or were turned into pasture for the rearing of live stock. Defoe remarks that they "scarcely sow enough corn to feed their poultry".

The above description is of the cloth workers, cotton and woollen, that were to be found in the rural districts. But there was another class to be found congregated in the towns, Manchester, Halifax, and the other

clothing towns of the northern woollen area provide many illustrations. This class would have no connection with the land and would be for the most part simply wage-earners, either at day or piece rates. There were a number of big clothiers in Leeds some having as many as twelve looms in a room. In the Derby Silk Mill in Defoe's time 200 hands were employed, while the one at Sheffield employed 152 hands. An interesting contrast to the picture of the weaving area near Halifax where Defoe describes the country organisation of his day is provided by his description of the town of Norwich. After quoting the statement of a resident of the town to show that 120,000 people are employed in the spinning or weaving of the district, he says, "If a stranger were only to view or ride through the city of Norwich on ordinary days he would be induced to think it a town without inhabitants...but the case is this; the inhabitants being all busy at their manufactures, dwell in their garrets at their looms and in their combing shops, as they call them, twisting mills, and

other work houses. So that in considering the organisation of the cloth workers the town labourers, working in their own garrets or in the loom shops of larger employers must be remembered in addition to the three classes of country labourers mentioned above.

MANAGEMENT. We have now to consider the domestic organisation from the standpoint of management. The master workman is not only owner of his fixed and to some extent, except in the most dependent forms of domestic manufacture, of his circulating capital; he is also the manager and working foreman of his little household. In the woollen industry there might be discerned three classes of clothiers shading into each other of course. There was first of all the small independent clothier whose business was practically confined to his own immediate household. Having bought the wool it was carded and spun by members of his own family, and, if necessary some of it was put out to be spun in the neighbouring cottages. He carried through all the processes himself, and with the aid of an apprentice who might be his own son, or the son of a neighbour, or a pauper child thrust upon him by the Poor Law Commissioners, and possibly...
a journeyman wove one or two pieces of cloth per week. This he marketed himself and his class formed the bulk of the sellers in the Leeds market. Out of the proceeds he would have to pay for wool, for fulling and wages for any spinning he had had done outside his own family. Most of these men had from 3 to 15 acres of land, kept some poultry, a cow or two and perhaps some pigs. Frequently they also had a horse to carry materials from the market and cloth to it; but some of the poorer clothiers could not afford this luxury and had to carry their wool and cloth to and fro on their backs. The cleaning, carding and spinning was done by the children and women of the house. When the yarn was ready, the men sized the warp and put it into the loom, and then wove the piece of cloth. About the middle of the century £100 to £150 was considered sufficient to set up on such a scale and this objective was within the reach of a frugal and hardworking journeyman after a few years labour.

Some of this class developed into the middle class of clothiers. The small man did not however, hold the field in Yorkshire though he was so numerous as to

give the prevailing note to the area. The big man went to the wool markets or to the wool producing counties, bought his wool and when he had brought it home he set his family and the children and women of his employees' families to convert it into yarn and cloth. Heaton gives two instances of this class. One who began business in 1780 had only one loom in his own house which was worked either by himself, his son, or an apprentice, while his daughter spent all her time in spinning for this loom. But besides this home organisation he employed twelve journeymen working in their own homes on piece rates. Another, on a slightly larger scale, living at Armley, was a maker of fine broadcloths. He had a spinning jenny and three looms, all of which were in his own workshop. He, his apprentice, and a journeyman each worked a loom. Another man and his wife spun for him in his shop - two or three children sorted the wool and another woman was engaged in spinning for him in her own home.

The third class was composed of the very big clothiers of whom there were some in Yorkshire and particularly in Leeds during our period. These men anticipated the factory system by having large con gregations of workpeople in their shops but retained

the domestic system in that they had numbers of employees who worked in their own homes. Instances are given by the Report of 1806. One of a clothier who had twenty one looms, eleven in his own shops and ten erected in the houses of his weavers; another at Huddersfield had seventeen looms and employed others to work in their homes. Although these examples are from a later date than 1760, power loom weaving had not yet invaded the woollen industry and machine spinning was the only long step in advance the industry had taken.

In the worsted industry, we find examples of the more capitalistic form of management. This was a comparatively new industry in the north and its rise was one of the characteristics of the period under study. The worsted manufacture had to fight its way against the other woollen fabrics of the north and it required some considerable capital to set up in that branch. The worsted manufacturer was usually a large employer of labour, controlling the wool throughout all the processes of manufacture. In this way he resembled the large clothiers of the South western district. When the wool had been secured he had it sorted.

and dyed under his own supervision; it was then given out to be combed and spun over a large extent of country. When spun it was collected again and given out to domestic weavers who worked at piece rates. Thus in the woollen industry there were a large number of small men and a few large ones; but in the worsted industry there were few, if any, very small men and the industry was in the hands of the large clothiers.

In the cotton industry both cotton and linen yarn reached the manufacturers through the merchants or through the shopkeepers. After the invention of the warping mills the linen yarn was given out by the merchants or employers so that it was ready for use. But the cotton was given out in bulk and it was part of the business of management devolving on the master weaver to get it cleaned, carded, roved and spun. Where possible this was done in the weaver's family. Laid on a tight hammock of cords, it was beaten with a willow switch by the women or children of the family, then slubbed or washed in a ley of soap and water and afterwards dried near the kitchen fire. When dry it was carded and twisted into the roving and spun by the women. But in many instances

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there were not enough members of the family to
spin enough for the weaver and he had to put out
the cotton wool for spinning. He was paid a sum
to cover the cost of carding, roving and spinning
and made his own arrangements with the spinners. In
many cases no doubt the weavers bought the cotton
wool and sold the cloth but these were by the middle
of the century, the exception rather than the rule
in the cotton industry.

ADVANTAGES
OF DOMESTIC
SYSTEM

The domestic system had many ad:

vantages as a productive organisation. There was

a freedom from supervision that should have tended
to develop a greater sense of responsibility and
dependableness of character amongst the workers. The
family were enabled to work together instead of being
separated as in the factory system. Children while
they had to work, worked under the supervision of
their parents. The healthiness of the occupation is
perhaps not to be attributed to the cottage system
as such but to the fact that the cottages were placed
in the rural districts and the hours of indoor labour
were interspersed with outdoor work in the gardens
and with trips to and from the markets or the source
of supply of raw material. The supposed advantage of
the domestic worker's pride of craft was perhaps not
so great as might be thought, for after all, weaving the same sort of cloth week after week was liable to become as monotonous in a cottage as in a mill. If advantage existed at all in this respect it was more likely to be found in the fact that the worker had to provide the power for the loom or the spinning wheel and therefore felt that he was actually performing the operation in a more real sense than where he was simply tending a machine that was itself doing the work.

DISADVANTAGES. Against these must be set the disadvantages inherent in such an organisation of production. There was a great lack of that supervision of the employer or his agents over the quality and uniformity of the work. Hours were long but not very strictly observed as they would be in a factory. The records of the Quarter Sessions are full of cases of theft and embezzlement of material during this period. The system was equally wasteful of time. The passing of material from place to place, from county to county, in the course of the various processes of manufacture made an enormous amount of carriage necessary, and added considerably to the cost of the finished article. When new and larger machines

1. The accounts of these Quarter Sessions in the Manchester Mercury for example in the fifties are mostly concerned with theft of material or embezzlement while the material was entrusted to workers.
came there was the added difficulty of finding room for them or power to work them in the small cottages scattered round the countryside.

**SUMMARY.** The organisation of production on the eve of the Industrial Revolution was therefore partly capitalistic and partly on the domestic basis. Mining was generally speaking, organised on a capitalistic basis. In Lead and Tin Mining some of the small man's freedom and control remained because of the survival of the system of free mining regulations. But even there, owing to the increasing expense of the operations, control was rapidly passing into the hands of the moneyed men and the miners were becoming wage earners on either piece or day rates.

With some notable exceptions in the case of very large clothiers and in the silk industry where factories had already begun manufacturing was on a domestic basis. In connection with the supply of raw materials and the ownership of circulating capital, control of this economic function had passed very largely into the hands of merchant employers on the one hand and the masters of one or two processes who employed the craftsmen of other processes and even employed others of their own craft. There was thus a tendency on the part of commercial capital to enter the industrial field
and assume the function of organisation of the distribution of raw materials and control them through the various processes of production. As industrial capital accumulated in the possession of the more successful craftsmen it tended to be employed in the same sort of organisation. Both from within and without capital was tending to interfere with the complete independence of the small master and bring him into dependence on an employer. The notable exception to this tendency was in the clothing area of East Lancashire and West Yorkshire and to some extent in the country districts of the cotton and fustian area.

Fixed capital, however, remained in the hands of the craftsmen to a very large extent. The rather primitive nature of the processes and the simple construction of the machines and instruments used made it possible for any frugal workman to set up for himself after a few years. It was in the management of this fixed capital and in the management of the activities of the members of his family and the apprentice, and in most cases the journeymen he employed that the master workman found outlet for his organising energies. And lastly we have seen the advantages and disadvantages inherent in such a productive organisation. It was wasteful and uneconomical; it tended to be conservative
and antiquated and it was inadequate to meet any sudden expansion of demand from the consuming markets. Neverthelessthe domestic system fostered and preserved the small unit; it gave some measure of freedom to the worker and it brought with it conditions that worked for his general physical wellbeing.

The close of our period is marked also by the end of the system of government regulation of industry. State regulation had begun in the first instance as the result of a genuine desire to maintain the high reputation of English goods and of a necessity for revenue. Early in the thirteenth century "Ulnagers" or measures were appointed for woollens. The "Assize of Measures" was dropped about 1353 but the "Ulnager" remained as a measurer and a collector of the subsidy. Dishonest weavers were in the habit of using flocks, thrums or waste ends, and other waste in the weft of the cloth. There were also complaints of diversity of quality in the one piece of cloth and of excessive stretching or tentering.

By 1552, the law recognised twenty two different types of woollen cloth. In that year weight was added to the other specifications for the cloth. Searchers were also appointed to assist the "Ulnagers". In 1597 a drastic step was taken when tenters were
were forbidden altogether, but the Yorkshire Justices refused to enforce the Act. In 1623 the Government gave way and permitted tenters of given specifications. During the 17th century there were three separate conflicts between the clothiers and the Ulnagers. From 1612 to 1614 the Ulnagers attempted to raise the subsidy on Kerseys from one penny to \( \frac{1}{2} \text{d} \). In a great law suit, the clothiers won a complete victory and similar contests in 1637 and 1676 had the same result.

Under the Stuarts an attempt was made to supervise the Yorkshire Cloth Industry by means of corporations. There was first of all the West Riding Corporation which had charge of the clothiers throughout the Riding. One half of its members were appointed from Leeds and half from the rest of the Riding. This Corporation died out about 1665 and an attempt to revive it in 1692 was a failure. The difficulty it encountered was due to the fact that the clothiers were scattered about in the valleys of the countryside, and effective supervision was almost impossible. In 1662 there was a revised Corporation of Leeds, which set up six gilds within the town, of which the cloth workers was the largest. This municipal attempt gradually

died out because the country clothiers were not subject to supervision, and the manufacturers tended to leave the town. The best work of this gild was that of the searchers.

By seventeen hundred it was plain that the Stuart machinery had broken down. An Act of 1708 fixed a minimum breadth of 1 yard 13\(\frac{1}{2}\) inches, and a maximum length of 46 yards for each cloth. Measurement and sealing were to be done by the fuller at his mill. Indictments were only to be made before Justices who were neither merchants nor clothiers. The fullers did not like to offend their customers and so the duty of measuring and sealing was not very conscientiously performed. The Statute of 1725 was based upon the recommendations of the Committee of Enquiry from the Pontefract Quarter Sessions. Under this Act the clothier was to sow or weave his name and address into the end of each cloth. Maximum lengths and minimum breadths were continued; and the fullers were put under oath to measure and seal the cloths, and were allowed to keep one half of the fee of two pence for each cloth. The value of this act lay in its machinery. The Justices were to appoint searchers

on a salary of £15 a year, with full powers of entry and search in mills, houses, shops, but houses, tenter ground or warehouse. This Act remained in force until 1765. At first it only applied to broadcloth but in 1736 it was made to apply to narrow cloth also and was amended by removing the requirements for length and breadth and causing the searcher to mark the dimensions on each piece as he sealed it before it left the fulling mill. The number of searchers was largely increased so that each mill could be visited every day. In 1743 a surveyor was appointed to supervise the searchers. By the sixties however, the Act had broken down and the searcher was accustomed to leave his seals with the fullers.

The Statute of 1765 repealed all the preceding Acts and therefore took away all restrictions of dimensions and weight. Sealing and stamping were taken from the fuller and given to the searcher and a new system of searchers, inspectors, and supervisors was set up. For a time the new broom swept clean, but by 1806 the searcher merely collected fees and registered cloth. In 1821 all previous Acts were repealed and Government supervision came to an end. As the Government supervision declined, an informal organisation began amongst the worsted manufacturers about 1775.
which was legalised for Lancashire, Yorkshire and Cheshire in 1777. This "Worsted Committee" gradually evolved an efficient system of inspection and is still in existence.

In contrast to the woollen industry the cotton and linen manufacture grew up under the exemption from supervision which was granted to the cheap cloths of Lancashire, Kendal, etc., by the Acts of Elizabeth. Almost the only Government interference with these trades was concerned with the prohibition of printed calicoes early in the eighteenth century. In 1700, the woollen interests secured an Act prohibiting the import of printed cotton fabrics. In 1721 the home production of printed cottons had become so great that an act was passed prohibiting the wear or use of printed or dyed calicoes of any sort, home or imported. Scottish linen manufacturers secured the exemption of British Linens from the Act and Lancashire was saved by the exclusion of muslins, neck cloths, and fustians from the scope of the bill. This led to the printing of fustians and other fabrics which called out opposition from Norwich in 1735 and resulted in the "Manchester Act" which expressly exempted the fustian fabrics of Lancashire.

1. Heaton, Ch. xii.
CHAPTER IV.

ECONOMIC ORGANIZATION OF DISTRIBUTION.

The last step in production is also the first step in distribution. Production could not be considered complete until the product was on the market on its way to the consumer. Under the domestic system in its more independent form, cutting of the cloth by the small producer was an important part of his business. While New York and West Yorkshire country was small the weekly markets were unimportant, and the fairs held once, twice or thrice a year were the most important marketing centres for woollens. In the early seventeenth century there were 16 places in the Riding 1. of West York chartered to hold cloth fairs. But toward the middle of the century the weekly cloth markets at such places as Wakefield and Leeds grew in importance until the old fairs lost their place in the marketing of cloth.

In the early part of the seventeenth century the Raw Market for cloth had been held on the narrow bridge over the Aire at the Foot of Briggate. The exposed situation and the inconvenience to passersby and to vehicles caused its removal in 1664 to the broad...
CHAPTER IV.

ECONOMIC ORGANISATION OF DISTRIBUTION.

Markets.

The last step in production is also the first step in distribution. Production could not be considered complete until the product was on the market on its way to the consumer. Under the domestic system in its more independent forms, the marketing of the cloth by the small producer was an important part of his business. While the production of cloth in the Lancashire and West Yorkshire country was small the weekly markets were unimportant, and the fairs held once, twice or thrice a year were the most important marketing centres for woollens. In the early seventeenth century there were 15 places in the Riding of West York chartered to hold cloth fairs. But toward the middle of the century the weekly cloth markets at such places as Wakefield and Leeds grew in importance until the old fairs lost their place in the marketing of cloth.

In the early part of the seventeenth century the Brig Market for cloth had been held on the narrow bridge over the Aire at the foot of Briggate. The exposed situation and the inconvenience to passersby and to vehicles caused its removal in 1664 to the broad . . . . . . .

street above where it remained until it was superseded by the cloth halls of a later date. This market is chosen for description because it was one of the largest, if not the largest in the country. Others were run on a similar basis such as the markets at Wakefield, Halifax, Bolton, Colne, etc. The clothiers had to be up very early in the morning and from the surrounding country districts one to fourteen miles away they made their way over the narrow and abominable roads to Leeds to be there in good time for the opening of the market at six o'clock in summer and seven in winter. They made this journey in face of the perils of the road from accidents and highwaymen and in the frequently inclement weather of a Yorkshire winter night, some with their one or two pieces of cloth on the back of a little galloway and some carrying the cloth on their heads.

Perhaps the best of the many contemporary descriptions of this market is that given by Defoe and though it is well known it is worth quoting. Having refreshed himself after his long journey at one of the numerous inns, with what was called the "Briggshot" a meal consisting of a "pot of ale" a noggin of pottage, and a trencher of boiled or roast beef for twopence

1. Defoe. Tour. iii.p.117.ii19.
the clothier was ready for the market. "The Cloth
Market at Leeds is chiefly to be admired as a prodigy of
its kind and perhaps not to be equalled in the world.
The market for serges at Exeter is indeed a wonderful
thing and the money returned very great but it is there
only once a week whereas here it is every Tuesday and
Saturday.

'Early in the Morning, Tressels are placed
in two Rows in the Street sometimes two Rows on a Side,
cross which Boards are laid which make a kind of
temporary Counter on either Side from one end of the
Street to the other. The Clothiers come early in the
Morning with their Cloth; and as few bring more than
one Piece, the Market days being so frequent, they go
into the Inns and Public houses with it and there set
it down.

'At about Six o'clock in the Summer, and
about Seven in the Winter, the Clothiers being all come
by that Time, the Market Bell at the old Chapel by the
Bridge rings; upon which it would surprise a Stranger
to see in how few Minutes without Hurry, Noise, or the
least Disorder, the whole market is filled, and all the
Boards on the Tressels covered with Cloth, as close to
one another as the pieces can lie longways, each
Proprietor standing behind his own Piece, who form as
it were a Mercantile Regiment, drawn up in a double line, in as great Order as a Military one.

As soon as the Bell has ceased ringing the Factors and Buyers of all Sorts enter the Market and walk up and down between the Rows, as their occasions direct. Some of them have their foreign Letters of Orders, with Patterns sealed on them in their hands; the colours of which they match by holding them to the Cloths they think agree to. When they have pitched upon their Cloth they lean over the Clothier and by a Whisper in the fewest Words imaginable, the Price is stated; one asks, the other bids; and they agree or disagree in a Moment. The reason of this prudent Silence is owing to the Clothiers standing so near to one another; for it is not reasonable that one Trader should know another's Traffic.

If a Merchant has bid a Clothier a Price and he will not take it, he may go after him to his House and tell him he has considered of it, and is willing to let him have it but they are not to make any new Agreement for it so as to remove the Market from the Street to the Merchant's House.

The Buyers generally walk up and down twice on each Side of the Rows and in little more than an Hour all the business is done. In less than Half
'an Hour you will perceive the Cloth begin to move off, the Clothier taking it upon his Shoulder to carry it to the Merchant's House. At about Half an Hour after Eight the Market Bell rings again, upon which the Buyers immediately disappear; the Cloth is all sold or if any remains it is carried back into the Inns. By Nine o'clock the Boards and Tressels are removed and the Streets left at Liberty for the Marketpeople of other professions, the Linen Drapers, Shoemakers, Hardwaremen, and the like.

'Thus you see 10 or 20,000 worth of Cloth, and sometimes more, bought and sold in little more than an Hour, the Laws of the Market being the most strictly observed that I ever saw in any Market in England.'

But such a market was open to the weather and at the end of the first decade of the eighteenth century the rivalry between Leeds and Wakefield led to the erection of cloth halls in both places. The hall in Wakefield was opened in 1710 and that in Leeds in 1711. They were for the marketing of white cloths, and the only effect was to remove the market under cover from the weather and to alter the sale of white cloths to the afternoons of Tuesday. But as the century advanced this
hall became too small for the growing needs of the area and in 1755, just a little before the end of our special period a second White Cloth Hall was erected. A third hall was erected in 1775 which provided 1,213 cloth stands and which though built by the energy and subscriptions of the merchants of Leeds was handed over to the clothiers for administration.

In contrast with the comparative inactivity of the white cloth makers in connection with these halls is the energy and initiative of the coloured cloth makers about the middle of the century. Some alterations of the streets which the Corporation had received permission to execute made it necessary for the makers of coloured cloths, who of course had been left on the market in the open at Briggate to find some other accommodation. They built by subscription amongst themselves a larger hall than that erected in 1775 by the white cloth merchants on a piece of ground where the City Square and The Post Office now stand. It was in the form of a quadrangle and contained 1770 stalls, each 22 inches wide. They were the freehold property of the

clothiers who had subscribed to the building to the extent of £2:10/- each or more but no holder was allowed to have more than three. This large hall was opened for business in 1756 so that in Leeds by the opening of the Industrial Revolution the picturesque open market had disappeared but the principle of the public market remained and the small producer marketed his one or two pieces of cloth on practically equal terms with his larger competitors. The only restriction on the use of both the White and Coloured Cloth Halls was that the clothier using them must have served the full period of apprenticeship which was seven years until 1797 when force of circumstances compelled the Trustees to reduce the period to five years. There was a cloth hall also at Halifax as early as 1708 which served as a market there with the overflow finding a place in the Butchers' Shambles till 1779 when a new hall was erected. The worsted merchants at Bradford did not however have a hall till 1773 perhaps because being more capitalistic in organisation they sold in larger quantities. At any rate they made shift with their own premises and some space at one of the inns

2. ibid. p. 375. (Report of Woollen Manufacture 1806)
3. ibid. p. 379.
till the date mentioned above. There is no mention of a hall at Colne but there was a considerable open market there till the rise of Bradford gradually absorbed the trade at Colne. The Huddersfield clothiers exposed their goods on the walls of the churchyard till their hall was erected in 1766. The Wakefield Hall of 1710 was supplemented by another called the Tammy Hall built also in 1766. There was a fustian market at Bolton but because of the comparatively small number of independent producers it never attained any great prominence. Most of the workers were employed on piece or day rates by merchants who took the cloth else: where for sale. In fact the cloth market or open market system was only suited to an industry where there was a host of small producers as was the case in the Yorkshire Woollen Industry. As soon as the merchant or the large manufacturer really dominated the scene the open market would decline and that step in the organisation of distribution would disappear.

Even while the halls were seemingly at their zenith methods were growing up which were in the end to supersede them by destroying the need for a public market. In some cases a merchant or his factor would ask a clothier to make a certain number of cloths to given specifications. These cloths, of course, would not come
into the open market and in course of time the clothier might be so busy filling orders that he went no more to the market. The same result might come about in a slightly different way. A merchant might be struck with the quality or pattern of a certain cloth on the market and ask the clothier to make him a number like it. Thus began the system of working to order which was one of the great causes of the decline of the open markets. The letters of Holroyd and Hill show that this tendency was at work quite early in the century. Holroyd was a factor who by 1706 was buying large quantities of cloth in the Halifax market; but at the same time he was visiting the clothiers and buying cloth from them at their homes. In some cases he gave orders for cloths to be made to his specifications. Thirty years later Hill was a clothier working on a rather large scale. "The greater part of his wares were made in accordance with the orders of his patrons, merchants of London and Holland". Some of them agreed to take a certain number of cloths per annum or per month.

The economic significance of such methods is not so much that they tended to destroy the public

1. "Letter Books of Joseph Holroyd and Sam Hill". The present writer has been unable to secure a copy of this book in Edinburgh and so has had to rely on the extracts given by Heaton; Yorkshire Woollen and Worsted Industry and others. Present reference is to Heaton p. 387.388.
market that they sapped the independence of the small master. When that declined the Public Market would decline of itself. Either the merchant began to adventure his capital in controlling the manufacture of the goods or the successful clothier became a merchant as well on his own account, became the employer of numbers of others, and so drew them into dependence on itself. This was what had happened in the more highly organised clothing industry of the south west and to a lesser extent in the east. It was what had happened to a great extent in the cotton industry though from slightly different causes.

So that outside the area where the independent small clothiers remained the dominant figure on the stage this first step in the organisation of distribution, that of selling goods in small quantities in a free public market, was practically omitted.

To analyze the organisation of distribution is to discuss the middleman. How did the goods after leaving the workshop reach the final consumers? We should first ask ourselves who were the buyers in the local public market and where the goods went after they were purchased from the small producer. First of all, the local consumer must have his requirements satisfied. It is possible that a few economical people would go
into the cloth market to buy a piece of cloth for their own use; but the main buying for local consumption would be by the shopkeepers and tailors. The extent of this buying would be insignificant as compared with purchases for distant consumption especially in the large markets like that of Leeds or in any areas where production was specialised.

Defoe distinguishes three classes of buyers in the market at Leeds. He observes "First there is a Home-Consumption; to supply which, several considerable Traders in Leeds go with Drovers of pack-Horses laden with those Goods, to all the Fairs and Market Towns almost over the whole Island, not to sell by Retale, but to the Shops by wholesale; giving large Credit..... there are others who have Commission from London to buy, or who give Commissions to Factors or Warehouse Keepers in London to sell for them, who not only supply all the Shopkeepers and wholesale Men in London, but sell also very great Quantities to the Merchants as well for the exportation to the English Colonies in America....as also to the Russian Merchants, ..... the third sorts are such as receive Commissions from abroad to buy Cloth for the Merchants chiefly in Hamburg and in Holland etc. These are not only many in Number, but some of them very considerable in their
'Dealings, and correspond with the farthest Provinces
in Germany.' It will thus be seen that there were
three consuming areas represented, the foreign market,
the London wholesale market, and the provincial English
areas.

Before passing to a consideration of the
distribution in these markets let us pause and consider
another method of exchange then in vogue. What the
local public market was to the small producer, the fairs
were to the wholesale dealers in the early eighteenth
century. They were occasions on which great gatherings
of merchants and traders met in certain places. There
for a few days the bulk of the commercial life of vast
areas was concentrated, and large amounts of business
transacted. They were the attempt of commerce to over:
come the inconveniences of poor and scanty means of com:
munication and in the first instance had been intended to
give the outside dealers a chance to trade in towns where
for the greater part of the year the local dealers had
a monopoly. A writer in 1774 says that "Free Fairs
were a very considerable article in the commerce of
Europe, especially that of the Mediterranean and the
Inland parts of Germany, etc., where the continual
passage and repassage of ships is impracticable:

1. Defoe. Tour. iii. p. 119-120.
2. Pamphlet 1774. Hist. Account of Sturbridge and
The suggestion that it was imperfect facilities for communication that gave the fairs their commercial value is probably well founded. This writer cites the great fairs of Europe and amongst them he mentions Leipsic, Novi, Riga, Archangel, a fair of six weeks when Russia meets Europe, Beaucaire, and others; besides a number in America and the West Indies. At some of the European fairs a great business was done in Bills of Exchange on different countries. In Britain the fairs next to Sturbridge were Bristol, Portsdown, Bury, and the Midsummer fair near Cambridge. Another writer mentions in addition fairs at Exeter, West Chester, and Edinburgh; there were as well the sheep fairs at Weyhill and Burford, a fishing fair at Yarmouth, a butter fair at Ipswich, and Cheese Fairs at Atherston and Chipping Norton.

It is interesting to note in this connection how the eighteenth century idea is being revived in the modern Exhibition or Fairs that are held from time to time. A good example is the well established National Exhibition at Toronto in Canada. This lasts for two weeks each Autumn; manufacturers and merchants advertise their goods, keep a stall in the fair and sometimes sell by retail.

Retail dealers for many hundreds of miles are present and give orders for goods and trade connections are established that aid considerably in advancing the commercial interests of the community.

In the early eighteenth century the greatest fair in England and according to some writers the greatest in the world was held at Sturbridge near Cambridge. Again the most graphic description remaining to us is from the pen of Defoe. There were first the retail traders who came and set up their shops to sell to the concourse of people thus come together from all over the Island. These came chiefly from London - their booths were arranged in streets but all were under canvas. In some of the streets the retail shops were mingled with those of wholesalers but the parts of the fair that made the greatest impression on Defoe were those devoted to the wholesalers in wool, woollen manufactures and hops. The part devoted to woollen manufacture was a square called the Duddery 80 by 100 yards in extent where the "dealers have room before every booth to take down and open their packs, and to bring in waggons to load and unload".

This place being peculiar to the wholesale Dealers in the Woollen Manufacture the Booths or Tents I. Tour. I. 89-94.
are of a vast extent, have different apartments, and the quantities of goods they bring are so great that the insides of them look like so many Blackwell Halls, and are vast warehouses piled up with goods to the top. In this Duddery, as I have been informed, have been sold £100,000 worth of woollen manufactures in less than a week's time; besides the prodigious trade carried on here by wholesale men from London, and all parts of England who transact their business wholly in their pocket-books; and meeting their Chapman from all parts, make up their accounts, receive money, chiefly in bills, and take orders. These they say, exceed by far the sale of goods actually brought to the fair, and delivered in kind; it being frequent for the London Wholesale man to carry back orders from the dealers, for £10,000 worth of goods a man and some much more. This especially respects those people who deal in heavy goods as wholesale grocers, salters, braziers, iron merchants, wine-merchants, and the like; but does not exclude the dealers in woollen manufactures, and especially in mercery-goods of all sorts, who generally manage their business in this manner."

The clothiers of Yorkshire and their brethren from Lancashire who sold Manchester wares occupied a side and a half of the Duddery, and Defoe
says that there were near a thousand horse packs of goods from that side of the country. There was also a part of a street taken up by the Upholsterers Wares and amongst this there would be a good deal of Manchester "Tickens and Sackens". One dealer in Norwich stuffs alone had nearly £20,000 worth of goods in his own booth. The goods of the Western Cloth area are also mentioned but were not so extensively shown; perhaps because the fairs held in Bristol twice a year carried off a goodly part of the manufactures of the west.

Besides the trade in cloth carried on at this fair, the sale of hops was so important that the price in many places was not set till the fair was over and it was known what price had prevailed there. The trade in wool was not so great as that in manufactured goods but he says that £50,000 or more was the amount of the dealings. Wool was sometimes brought to this fair in "Pockets" which were sacks forming a wagon-load in themselves, one of them containing as much as 2500 lbs of wool. The hardwares of Birmingham, the Cutlety of Sheffield and the Glass ware and Stockens of Leicester and Nottingham are also in the market. It was then at fairs like this that the wholesale dealers of the country in some measure kept in touch with the sources of supply, and with their customers in other
parts. Curiously enough there is no suggestion in Defoe's description of the fair of any dealing on behalf of or by foreign merchants but from another source we learn that Dutch traders began to frequent the fair after the accession of William III.

Toward the end of the second quarter of the century other methods began to displace the fair. In a note in the 1762 edition of Defoe's "Tour" the editor says that the fair had considerably declined since the description was written but that it was still considerable. The pamphleteer quoted above says that for 20 years past (writing in 1774) Sturbridge Fair had been on the decline. Among other causes he mentions the easy communication with commercial cities and manufacturing towns, an increase of land carriages, new navigable canals and the number of riders who take orders direct from the retailer for the manufacturers.

Buying for the foreign market was done partly by English merchants or their agents and partly by the agents of foreign dealers themselves. The chief companies trading out of the east of England were the Merchant Adventurers and the Eastland or Russia Company.

\[\text{1. Pamphlet quoted above p. 66. Note 2.} \]

\[\text{2. Tour. (ed. 1762) p. 89.}\]
In the early sixteenth century when the export of Yorkshire cloth workers began to assume larger proportions the local mercers' companies were absorbed by one or other of these companies. They enjoyed a monopoly of the sale of English cloth in the markets of north eastern Europe and made regulations for sale by the merchants. Each merchant of course traded entirely on his own responsibility. They guarded entrance into the company very closely so as to make their monopoly as profitable as possible. But toward the end of the century British trade was expanding and the restrictions of the companies weighed more heavily on would-be independent exporters. The outports resented the dominance of headquarters and the growth of the manufacture in the rural districts increased the number who wished to be free from restraint. The companies had been suspended during the Commonwealth but were restored to their privileges at the Restoration. But their strength had departed for in 1686 they were unable to prevent a statute being passed that destroyed the monopoly they had hitherto enjoyed in Holland, Germany and the Baltic. After this the companies declined rapidly. The records of the Eastland or Russia Company at York concerned with the sale of coloured cloth to the Baltic end in 1696 and although this does not seem that the company went out of existence, it ceased to
have any appreciable influence on the coloured cloth trade. The Merchant Adventurers in 1693 tried to bolster up their failing power by pulling down the barriers of exclusiveness from within and reduced the entrance fee to forty shillings. But their concessions were without avail when merchants could trade freely without their help. The York branch of this company continued throughout the eighteenth century as a trading society but they pursued conservative methods and the cloth trade of Yorkshire passed largely into more enterprising hands. While these developments had been going on in the east and the trade of Hull and Newcastle were developing, Bristol and Liverpool had also been building up a trade that was independent of the London merchants. "The manufactures called Manchester wares" says Postlethwayte, "such as fustians, cottons, tapes, incle, etc., are sent on packhorses to London, Bristol, Liverpool, etc., for exportation". From the sea-ports they returned with cotton wool, linen yarn, etc., for the manufacturers. After speaking

2. ibid. p. 245.
of the extent of the woollen manufacture of East Lancashire and Yorkshire he says that this manufacture is carried to the same places and in the same way as the Manchester wares, besides "immense quantities sent direct to Hull for export".

There were four main methods used by the merchants in transacting their export business. Some sent shipments of goods in charge of a super-cargo who was a sort of travelling agent with power to sell the goods and perhaps buy a return cargo for import; but whose power did not extend beyond one voyage at a time. Then there was the method of employing factors who were resident in the foreign port and bought and sold on the instructions of the employer; with perhaps some latitude as to the prices. There was but a small step from the employment of a factor to the method of selling through a commission house. The commission house was a firm entirely independent of the home firm but they were entrusted with goods to sell as best they could on commission. Their popularity of course would depend on their being able to make good baragins for the shipping house. The fourth one method was that came into use more during the eighteenth century, as trade expanded and merchants accumulated larger capitals. This method was the establishment of branch houses in a port where the firm was doing a large business. The branch house was managed by an employee, or more
usually by a partner in the firm; and thus greater freedom of action was possible, a more complete dependence on the man in the foreign city, and a closer correspondence with regard to policy. This method was adopted during the eighteenth century by the Manchester merchants as their business with Europe developed. Most of the foreign merchants employed factors or bought through English agents. Holroyd at the beginning of the century, and Hill during the thirties and forties, whose letter books have been referred to above are examples of this method. There are also instances of foreign merchants having a member of their firm resident in one of the producing areas, such as Manchester, thus using also the method of the branch house.

So far as the home consumption was concerned, London was, for the early years of the century at least, the great clearing house of the nation's trade. Even after the middle of the century "London is indeed the centre of this home circulation, the several counties sending their goods thither, and


2. See above. p. 58.
receiving those of others in return.... and the same
may be said of other manufactures... besides what are dis-
tributed by pack horses.... there are also immense quan-
tities sold at the fairs at Stourbridge, Bristol, West
Chester, Exeter and Woodboro Hill." The London whole-
salers bought through the marts in London, such as Blackwell
Hall, and through their factors they bought at country
fairs.

Blackwell Hall provides an illustration of the
important development of the sale of goods produced in the
country and sold through factors in London. Until well
on in the eighteenth century Blackwell Hall had the monopoly
of the sale of cloth for the country clothiers in the
metropolis. When first opened the country clothiers owned
stalls there and did their own selling. But it was not
long before the custom of selling through agents or factors
arose. At first these agents were the keepers of the hall
and they sold cloth that had been left by clothiers who had
not sold them during their stay in the city. But during
the seventeenth century they encroached on the province
of the clothiers to such an extent that they destroyed the
sale by direct producers altogether. Attempts were made
to suppress their activities altogether, and failing that

to prevent them putting economic pressure on the producers to secure their monopoly, but were unsuccessful. In spite of the numerous complaints against them there is no doubt that they served a useful economic function. They obviated the necessity for frequent trips to London on the part of the clothiers with the consequent expense and loss of time. This function was especially useful when communication became easier and regular posts allowed the sending of samples and correspondence more speedily. It was also possible for the cloth to be sold at the most advantageous time, whereas otherwise the clothier would have to sell while he was in London. As their experience and constant presence at the Hall made them valuable to the clothiers, so their constant handling of cloth made their judgment valuable to the merchants who came to depend more and more on their valuation of the cloth. Thus did these middlemen establish their position between the producer and the wholesale dealer.

During the early part of the century too they established connections with foreign merchants and with factors of foreign merchants who were attracted to London by the long credit system prevailing. This

2. ibid. ibid. p.299
could not well be done till the European monopoly of the companies was destroyed in 1666, but by the middle of the eighteenth century it had become quite important. Many foreign merchants who had been accustomed to travel to the clothing areas and buy direct from the producers began to buy through the factors in London thus saving themselves the expense and inconvenience of travelling in the rural parts of a foreign country, and of having to deal with several different parties.

The London wholesalers sold their wares to the retailers in London; but an important part of their business was that of selling to the country drapers and mercers and to the chapmen. We have seen in Defoe's picture of the Sturbridge fair, the London wholesalers with their pocket books taking orders from their chapmen for goods to be delivered at some future time at different places for distribution in the country districts. In

1. Gentlemen's Magazine. 1740. p. 501. Spanish and Dutch Merchants who had formerly bought from the clothier were by that time buying entirely through the factors in Blackwell Hall.

this way they acted as a connecting link between the specialized producing areas and the consuming areas scattered over the whole country.

But the enterprise of the northern dealers and perhaps to some extent the freedom from traditional methods and old established regulations caused considerable inroads to be made on their trade by the method of travelling merchants. So characteristic of the northern traders was this development that those who followed it were called "Manchester Men". At first the chapmen 'used to keep strings of pack-horses, and accompany them to the principal towns with goods in packs which they opened and sold to the shopkeepers, lodging what was unsold in small stores at the inns. The pack-horses brought back sheep's wool which was bought on the journey and sold to the makers of worsted yarn at Manchester or to the clothiers of Rochdale, Saddleworth and the West Riding. On the improvement of the turnpike roads waggons were sent up and the pack-horses discontinued, and the chapmen rode out only for orders, carrying with them patterns in their bags. This writer says that this latter development took place mostly between 1740 and 1770; and that in that period they pushed the practice of "sending riders to those parts of the kingdom which before had been supplied

'by the wholesale dealers in the capital places'. The expense and trouble of this innovation did not appeal to the old traders, some of whom we are told went out of business or continuing in the old way, their trade greatly diminished. Aikin attributes to the influx of young and adventurous spirits into the business circles of Manchester, the increase in luxury and gaiety that marked that period in the life of the city.

The common method adopted by these travelling merchants in the time of Defoe was that of the pack-horse. In his description of Leeds market it will be remembered he spoke of the traders who went with gangs of pack-horses to different towns, selling to the shops by wholesale. Some of them were quite large traders. It was ordinary for one to carry a thousand pounds worth of cloth with him at one time; and to have to send for several fresh supplies during the summer which was their chief travelling season owing to 'the badness of the roads'. Elsewhere he speaks of the wares from Manchester and Coventry as well as Yorkshire going by pack-horses to London and also to all parts of England. "the Manchester men, saving their wealth, being a kind of pedlars who carry their goods themselves to the country shopkeepers everywhere as do now the Yorkshire

1. Defoe. Tour. iii. p.119.
And Coventry Manufacturers also. Thus it was evidently the example of the Manchester men which inspired the other traders to this plan.

RIDERS. By the fifties the rise of the carriers had changed the system to that of riders as described above and it had even invaded the domain of the London wholesalers who had been forced to follow the example of the enterprising men of the north. Postlethwayte about the end of the fifties speaks of "our tradesmen of London being under the disagreeable necessity of sending riders at great expense to promote their business in the country." Although he uses this as an argument for the continuance of fairs, it clearly shows that a change was coming over the method of business. Instead of the country drapers seeking out the dealers in London to order goods they were visited by travellers with patterns and were solicited for their orders.

It remains for us to enquire how the retail trade of the country was carried on at that time. The vast bulk of the retail trade outside of the very large towns, and a good deal even in them, was done at the local markets and fairs. At the beginning of the century there were first permanent shops only in the

considerable towns and cities but as the century went on their number and variety gradually increased. Even of the goods actually sold in the shops, the greater portion passed at one period or other of their preparation or carriage through markets or fairs, or both.

Reference has been made to the great fairs held in different parts of the kingdom. One tendency that should be noticed was toward specialization in one or two related commodities. There were the sheep fairs at Weyhill and Burford - the horse fairs at Pancrass in Staffordshire - the butter fairs at Ipswich and the cheese fairs at Atherston and Chipping Norton, the cloth fairs at Exeter, Bristol and Woodboro Hill, Dorset. Even the most famous fair of all, that at Sturbridge, tended in spite of the variety of goods sold there to specialize in the wholesale trade in wool and woollen manufactures. But the fairs were more concerned with wholesale than with retail business although the opportunity presented by such a gathering of people was not likely to be neglected by local shopkeepers, chapmen, or even by shop-keepers from a distance.

The main dependence of the people in both

2. This list of fairs is selected from a larger list given by Postlethwayte in his Univ. Dict. in the fifties of the century. Westerfield mentions other lists published in the Atlas Mar. at Com. 1728. and in Owen's Weekly Chronicle. 1758. There is also a general work, the Report by the Market Rights and Tolls Commission. 3. It will be remembered that the retailers in Stourbridge fair were mostly from London.
metropolitan and rural areas up till the great development of fixed shops in the eighteenth century was on the weekly markets. Defoe in the early part of the century mentions 26 market towns in Lancashire and to this list at least one, that of New Church in Rossendale is to be added. As the population of the county had not reached much more than about 250,000 by that time, there was a market town for every ten thousand people or less, for such markets as Liverpool, Warrington, Manchester and Rochdale supplied many more than that number. There were sixty parishes in Lancashire at the time Defoe wrote, so that there was a market town for every two or three parishes. In Warrington there were two fairs annually and the chief market was on Wednesday but there were others as well. Prestons had three weekly markets "well supplied and frequented." In the sparsely populated peninsula of Furness there were four market towns, Dalton, Cartmel, Ulverstone and Hawkshead.

The period of most rapid development of the markets was that from 1200 to 1500 but they were of great importance as late as our period. The total number of market towns in England and Wales in 1720 was reported as 756, and in 1741 as 766. This was an average of

sixteen per county, or one for approximately 8,500 people. The larger places as mentioned had more than one market, and where this was the case there was a tendency for the markets like the fairs to specialize in certain commodities. There were nearly forty markets in Defoe's time in London. One of the most famous was the cattle market at Smithfield on Monday and Friday with the afternoon of Friday devoted entirely to horses. There were altogether sixteen flesh-markets to which a new one, Brookfield, was added in 1740, to be held three days a week. At all these markets space was set aside for fish and another for vegetables and in addition there the fish markets of Billingagate, Fishstreet Hill, and Old Fishstreet. The special vegetable markets were Covent Garden and Stocks market which had been removed to Fleetditch to make room for the Lord Mayor's Mansion House. There were ten markets for the wholesale distribution of vegetables held three days a week all year, but in the summer the market gardeners came six days. There was a fruit market at the Three Cranes, there were four meal markets, six hay markets, and at Leadenhall there was a leather market as well. There were also the cloth markets at Blackwell Hall and

1. Defoe. Tour. ii. p. 144-149.
Leadenhall. Leadenhall was in fact a composite market, having different places and times for meats, fish, vegetables, leather, hides, bays from Colchester, poultry, dairy products, etc. The chief coal market was at Romeland, Billingsgate, though Defoe says that there were numerous wharves belonging to different dealers, all the way from the Hermitage to the Horseferry, Westminster which might be called so many markets. He estimated that at that time London and suburbs was consuming about 500,000 chaldrons of coal annually. The corn markets at Bearkey, Queenhithe, Mark-Lane were of course mostly wholesale, as were some of the others. The Billingsgate coal market was held daily and was partly wholesale, and partly retail. There were also specialized markets in different parts of the country. The cloth markets at Leeds and Exeter, Halifax and Norwich were well known. Shrewsbury was a great provision market, Cirencester a great wool centre, etc.

Sufficient has been said to show the importance of the markets in the distribution of goods both wholesale and retail. They kept their hold as long as the population was mainly agricultural and scattered, and even in great centres retained a good deal of

importance. Defoe often finds nothing to say of a town except that it had a good market. As population grew denser there was a gradual transference of sale from the periodic public market to the continuous market of the shops. Fairs had been practically superseded by the beginning of the Industrial Revolution, but the markets held their place for a much greater time; and in the case of vegetables and other agricultural produce are still an important phase of retail distribution.

**SHOPS.** As the markets declined the shops took their place. Many of the markets were held in streets, and all were at some convenient place for the gathering of the population. Stalls were erected in the street or the market square and after the markets were taken down again. If the stall holder could get possession of the house near which his stall stood, or get the consent of its owner, he might make it stronger and leave it standing from one market day to another, putting shutters on the front in the meantime. Thus it became in course of time a shop, or a store. In some cases the shop-keeper might begin to sell goods in one of the front rooms of the house, and this afterwards be enlarged by the addition of something corresponding to what we would call a shop front.

A similar transformation may be seen in modern cities when a street is in process of transition
to a business thoroughfare. Some houses have goods in a convenient window, while others have a shop front built on like an additional room where there is ground in front of the house. There is this difference, of course, that in the eighteenth century, the change marked an alteration in the method of doing business, whereas to-day it simply means that business is invading a neighbourhood hitherto residential.

This change to closed shops was taking place in parts of London about the beginning of the 17th century. After the Great Fire of 1666 there was a dispersion of the shops into new districts. Dealers who had put up temporary quarters in other districts found it profitable to stay there. There was a great tendency in London at least to specialization in the kind of goods handled. In 1747 there were 175 different kinds of shops at which things were sold but for the most part the usual retail establishment was a general shop. The growth of the shops was sufficient by 1760 for a pamphleteer to complain that there were "hardly any markets in our country towns," and although this is no doubt a gross exaggeration, it shows that the market was suffering from the competition of the shops.

Pocock's characteristics of a good town included good

1. Westerfield p. 343.
shops, manufactures, considerable markets, and public houses. The same traveller speaks of Landlocks on the Severn as a "small poor town, in which most of the shops are kept by the tradesmen of Newtown, and are only opened on market days", when there would be more than the local population to serve. What was happening was that as towns became larger, and the population denser, it paid the retailing middlemen to become sedentary, or at least to have a fixed place of sale, though many of them kept up their itinerant trade also. Another point is that the modern principle of display in shops became important and dealers began to dress windows and get larger premises so as to display their goods to better advantage.

**CHAPMEN.** The itinerant trade was, before the rise of the country shops the only way, outside of the markets, in which retail dealing was carried on. Indeed it must have represented most of the opportunities the women folk of the farms and villages had of seeing manufactured goods for sale by retail, as they did not have so much chance to attend the markets as the men. By the eighteenth century the term "chapman" which had at first applied to

1. Westerfield. 346. Pocock's descriptions of Totness, Truro, Kyneton, Hereford, Badminster, Bendley, Warwick, and Abergaveny are referred to.

all dealers, had become characteristic only of the retail trade. They bought their goods of the wholesale dealers at fairs, or in London, or from the Manchester men who travelled from town to town with wholesale lots. They ranged from the large dealer who had a shop of his own in some market town, and left it in charge of assistants while he travelled about by horse or waggon in the country, to the small pedlar who carried his case slung round his neck, and his wares displayed in it, or hung round its edges. In the lists of bankrupts published in the Manchester Mercury in the early fifties, the words "and Chapman" follow the name of the business concerned with remarkable frequency. Sometimes the craftsman is listed as being also dealer and chapman. Out of a list of forty-two retail dealers in the bankruptcy lists during part of 1752 and 1753, thirty-two were chapmen also and there is only one instance of the failure of one who was a chapman only. Itinerant dealing was combined with such businesses and crafts as: shoemaker, clothworker, hatmaker, brick-layer, hosier, silversmith, dealer in bottles, maltster, farmer, carrier, flaxdresser, Mercer, grocer, silkman, watchmaker, victualler, coachmaker, and horse-dealer, potter, stonemason, linen draper, shalloon maker, distiller, pawnbroker, weaver, clothier, mealman and painter. Such a diversity points

1. Manchester Mercury. various dates from March 3rd. 1752 to April. 1753.
to a very general adoption of the chapman's business as supplemented to a craft or a business; and it also points to the attempt on the part of many small manufacturers to market their own goods without selling to merchants and other wholesale dealers.

Settled shop-keepers have always had severe criticism to offer of such itinerant dealers and the eighteenth century was no exception to the rule. They were subject to no system of apprenticeship and could set up as they wished. They were on a lower social level, and lived very cheaply. They had few overhead expenses, such as rent, assistants, apprentices, etc... and they escaped most of the taxes, and civic duties that fell to the lot of the town shop-keepers. So that they could compete on very advantageous terms with those settled in town, especially as they went to their customers, instead of waiting for their customers to come to them. On the other hand they could not carry such a selection of goods nor display them to such good advantage as could shop-keepers; but they served the people who were remote from markets and towns and rendered a real service in pushing sale of goods of all sorts into all parts of the country.

In response to the complaints of the shop-keepers, a license was required to hawk goods about for sale. The exceptions to this law were the makers of goods who
might sell their own product. In 1704 the wholesale dealers in woollens and linens were exempted from the operation of the statute; in 1717, the wholesalers of bone lace were exempted, but it was not till 1765 that this was extended to all wholesalers. With the rise of the country store however, his function declined.

**Street Hawking.** In the cities hawking was much more common than today. No doubt they declined because of the growth of the settled trade of shops, just as the country chapmen did, although in both country and town there are survivals in the modern hawkers and pedlars, and the street merchants selling fuel, vegetables, and fish.

**Chap-books.** An important element of the chapman's service to the community from the social, if not from the economic standpoint, was his distribution of ideas, and of literature. The chapman brought news of the outside world to isolated farms and villages; he spread the ideas current at the time far and wide over the country. But in addition, during the first sixty years of the century at least, when book-stores were only to be found in the largest towns, and when newspapers

1. 3 & 4 Anne. Cap. 4 Sec. 4; 4 Geo. I. Cap. 7; 25 Geo. III. Cap. 78. See Westerfield p. 316.
2. See Westerfield p. 319. for details of Hawking in London Streets.
were few and mostly full of war items and foreign news, the little books sold by the chapmen formed over the major part of the country, and for the bulk of the population the only mental pabulum offered. Previous to the eighteenth century the chapmen had been distributors of ballads, and the chap-book did not exist unless the political tracts of the Civil War period could be described. But with the opening of the century the chap-book proper came into vogue. Up till 1725 they were 8vo. in form. 16 pages; but after that until 1800 when they began to disappear they were almost invariably duodecimo, with 24 pages. The principal factory for them was at Aldermary Churchyard, London, and the principal point for the provinces was Newcastle. They were on all sorts of subjects and thus suited the tastes of a large variety of purchasers. They treated of subjects religious and diabolical, supernatural and superstitious, legendary and historical, romantic and biographical. The most popular were the romantic, and humorous stories. Being so small they sold cheaply, mostly for a penny, and were very widely sold, especially amongst the less travelled part of the population. It was chiefly in this form that the numerous sermons, tracts, and controversial...

1. This description of the chap-books is based on Ashton; Chap-books of the 16th Century. Introd. pp. v-x.
works of the Wesleyan movement were circulated; and when it is remembered that Wesley received during his lifetime upwards of £200,000 from his published writings, the scope of the chap-book literature may be realized. It must be noted however, that Wesley's publications were not circulated so much by chapmen as by the preachers he employed and the societies he formed.

COAL.

The coal trade furnished illustrations of the operations of the middlemen on a simpler basis than manufactured goods. It passed without change of form, from the mines to the consumers domestic or industrial. There were five main divisions, three of which are sea-borne, and the others river-borne. Those carried by sea were from Newcastle and Sunderland on the east; the Cumberland coal exported from Whitehaven, mostly to Ireland; and the South Wales coal, shipped mostly to Devon, Somerset and Dorset. The river areas were the northern one of Yorks and Lancs and the valley of the Severn. In addition to this there was a great deal of coal distributed by the rivers of the middle eastern counties from Lynn and Yarmouth, but this coal was first sea borne from Newcastle or Sunderland. In some instances the river distribution was supplemented by land

1. carriage, as in Lancashire, in Nottingham where the coal was distributed by loaded asses and coal-carts, and in Yorkshire where some of the towns were supplied by pack-horses each carrying a load of some 320 lbs.

But the great terminal points of the coal trade up till the end of the 18th century were Newcastle and Sunderland in the north and London. The most important point of distribution after London was Lynn which distributed up the Ouse, and other streams to the counties of Lincoln, Northampton, Leicester, Buckingham, Bedford, Cambridge and Norfolk.

The following table given by Westerfield shows the extent of the trade from Newcastle.

Annual Average.

<table>
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<tr>
<th>Period</th>
<th>Tons</th>
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<tbody>
<tr>
<td>1661-1670</td>
<td>335,000</td>
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<tr>
<td>1671-1680</td>
<td>424,000</td>
</tr>
<tr>
<td>1681-1690</td>
<td>512,000</td>
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<tr>
<td>1691-1700</td>
<td>479,000</td>
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<tr>
<td>1701-1710</td>
<td>482,000</td>
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<td>1711-1720</td>
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<tr>
<td>1721-1730</td>
<td>710,000</td>
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<tr>
<td>1731-1740</td>
<td>764,000</td>
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<td>1741-1750</td>
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<td>1751-1760</td>
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<td>1761-1766</td>
<td>860,000</td>
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<td>1871-1880</td>
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</table>

Postlethwayte distinguishes the three sections of the sea-borne coal trade mentioned above, and concluded by saying that "it has been computed that these three coal trades employ no less than 1500 sail, and men in

1. See above, p.14, note 2, where the opening of the Sankey canal caused the sale of large numbers of pack-horses.
proportion; to which if we add the porters, carmen, keelmen, watermen, lightermen, and bargemen...we shall find it one of the most valuable branches of our home commerce. Elsewhere in the same article he says that there have been known to be in the port of London between 500 and 600 of these colliers at a time, and they never want a market for their goods. In addition to the consumption in London itself there was a good deal reladen in smaller vessels and shipped inland via the Thames to the counties drained by that stream.

Owner. The coal-owner was the capitalist who organised the production of the coal. That is he leased the land, if he was not already the owner and provided the capital necessary for development. It was his business to place the coal in the staiths at the waterside, ready for transport. At this point the first middleman takes his place in the process. These were the keelmen, the managers of the keels or lighters, of about 20 tons burthen each which conveyed the coal from the staiths to the ships.

Keelman. There seems to have been a constant tendency for the keelmen who were nominally only carriers to assume the middleman function as the hostmen often levied fines on

2. Galloway. Annals of Coal Mining. p.46. In Westerfield's book is a mistake so great that it must be a misprint. He is made to say that there were 320 keels in Newcastle in 1655 with a capacity of 800 Newcastle chaldrons each. This would mean that they carried about 2000 tons each as a Newcastle chaldron was 53cwt. 6 chaldrons must be meant for at that period ocean-going ships were
their members for dealing with keelmen. In any case they never assumed large importance as middlemen.

**Fitter.** The fitters were the agents who acted for coal-owners who were not hostmen and therefore not entitled to engage in the coal trade out of the port. As time went on however, the fitters began to dominate the Hostmen’s Company and in the eighteenth century the town hostman and fitter was almost synonymous. Sometimes they bought the coals and sold them to the ship-masters but their main business was to sell to the ship-masters and to load the coals from the staiths to the ships. For this service they got a stated "fittage" one shilling a chaldron at Newcastle and 2/6d at Sunderland, owing to the fact that at the latter port the loading had to be done in the open roads as there was no harbour. Their efforts at combination and regulation of sale may have been for the purpose of raising profits but they effected the useful function of keeping the mines regularly employed. Had cut-throat competition been the vogue many mines would have had to be abandoned as they would not have been able to work steadily and the overhead cost of keeping them open would have been prohibitive.

**Shipmaster.** Curiously enough the shipping was not owned by Newcastle people to any great extent. According to

not much more than 100 tons on the average. A modern Newcastle keel is only 21 tons.

data published in 1789 Newcastle owned only 71 out of 1277 ships registered for the coal trade. Of these the largest number 211 owed in Yarmouth, London having 163, Whitby, 93 and Lynn 74. The average tonnage was 54. The ship-master was a seafaring merchant, buying from the hostmen or fitters at Newcastle, and selling to the crimps in London. He might, and generally did, own a share in the vessel he sailed, but he was not usually sole-owner. He received a certificate from the fitter or hostman declaring the quantity, price and quality of the cargo.

Lightermen. Arrived at London with his load of coal, the ship was met by the watermen or lightermen whose business it was to unload the vessel, and take the coal to the wharves. Up till 1730 they acted as buyers and sellers also but in that year this practice was forbidden by statute and the attempt was made to confine them to their own business of unloading. By the middle of the 18th century too, many of them had become ship-owners. Thus there was a tendency at London towards amalgamation of the functions, but the development was checked by legislation. The man who assumed the function of buying

from the ship-master was the crimp or coal-factor. By the statute of 1730 they were forbidden to buy or sell on their own account, but the law did not succeed in its aim for they often bought cargoes and resold them in smaller lots. But the commission business was the bulk of their work.

First Buyer. They bought for the Coal Merchant, or First Buyer, as he was called. He was the true wholesaler, buying all or a large part of a cargo at a time, or even several cargoes, and then selling them again in broken bulk to an intermediate class of second buyers. Some of the second buyers were sub-wholesalers, and some were retailers. Some of the first buyers who were in a smaller way, sold directly to consumers and householders. There were two classes of retailers. The first was called a dealer and he owned his craft for unloading although he had not sufficient capital to buy at Billingsgate itself. He bought from the first buyer and sold principally to householders. The other called a retailer, kept a shed, and sold by the bushel, or in very small lots to those who came to him for coal, or delivered it to the houses in sacks much as is done today. The sacks were sealed as being of the proper size.

Salt Metals. Up till the changes of the eighteenth century the iron and salt trades were characterised by a
lack of middlemen. The contact between miners and smelters of iron and salt boilers on the one hand, and the consumers on the other was very direct. But in lead-mining the system of free mining caused the mines to be owned and operated by men of very small capital. They normally sold to the wealthier lead merchants who performed the function of collecting the produce of many small workings, smelting the ore and putting the lead on the market. Though the system of shares made it possible for capitalists to acquire ownership of mines, and there were many large owners by the eighteenth century, they continued to sell to the merchants as the smaller owners did. Tin mining was also free, and though there were many local peculiarities of organisation in the ownership of the mining rights, the usual merchant bought from the miners and after the tin had been smelted he sold to the pewterers who were the greatest customers for the product.

POST OFFICE. An important element in the economic organisation of business is the means of communication between correspondents in distant places. In the earlier days special messengers or chance travellers, constituted the usual means of communication. With the rise of the carrier, the means became a little more regular, but was

still slow and uncertain. The Post Office arose from the needs of the trading classes and the desire of the government to raise part or all of the expense of the royal mail. In 1657 a General Post Office was established and a Postmaster General nominated by the Protector for eleven years. In 1661 there were eight Clerks of the Road, each two having charge of despatching mail by one of the four great roads; the Northern, the Chester, the Eastern and the Western. In 1677 the Kent and the Bristol Roads were added. Bye-posts or posts from market towns to the nearest post town were introduced. Then in 1696 cross posts were introduced. They were posts organised between two important centres without touching London. Up till that time all letters sent had to go to London and then from London to their destination, though it might be less than half as far away as London from the point of departure. A letter from Leeds for Manchester for example would have to go to London, and then back to Manchester. In 1711 various sub-centres of the Post Office were set up, including Dublin, New York, the West Indies and other American Colonies. In 1721, Ralph Allen was given a lease of the cross and bye posts for seven years and for the next twenty years he furnished a thrice-a-week service to all of the country except the south-western and the
eastern roads where there was a daily post. The most
important cross post was that described by Defoe. It
"begins at Plymouth......and leaving the great Western
post road of Exeter behind comes away north to Taunton,
Bridgewater and Bristol; from thence goes on through
all the great cities and towns up the Severn, such as
Gloucester, Worcester, Bridgnorth and Shrewsbury; thence
by West Chester to Liverpool and Warrington; from whence
it turns away east, and passes to Manchester, Bury,
Rochdale, Halifax, Leeds and York, and ends at Hull." The
convenience of this cross post for the merchants
of Lancashire and the north generally is pointed out
in the same part of his work. "By this means the mer-
chants of Hull have immediate advice of their ships,
which go out of the channel and come in, by their
letters from Plymouth, as readily as the merchants of
London, and without the charge of double postage. The
shop-keepers and manufacturers can correspond with their
dealers at Manchester, Liverpool, and Bristol; nay, even
with Ireland directly without the tedious interruption of
sending their letters about by London."

The first positive evidence of an official
postmaster in Manchester is in 1646 when the office was
held by one Richard Green. The position of postmaster
was eagerly sought after in all parts of the country
because it carried a monopoly of the supply of post horses to travellers, especially lucrative on the main roads. The post-master was usually an inn-keeper, and of course there were gratuities to be had for speedy service. In 1660 the rates for postage were 2d for a single sheet up to 80 miles, 4d for a double sheet, and 8d per oz. for larger packets; with an increase of fifty per cent on these rates if the distance exceeded 80 miles. By 1721 there was a thrice a week post to London from Manchester, as from most parts of the country; and from Manchester posts went on Monday, Thursday and Saturday to various points in the kingdom, including Liverpool, Bristol, Kendal and Carlisle, Chester and Worcester. On Sundays, Tuesdays and Fridays the post left for Rochdale, Yorkshire and Edinburgh. Inward mails were of equal frequency. About 1744 the stage coach began to replace the post chaise and the use of saddle horses for travellers. Up to 1755 this arrangement of thrice a week posts remained the same but in that year some, of them notably the one to Rotherham and Sheffield, the Liverpool and Preston post, and the one to Derby were made daily posts. It was not so long before the London post was added to the number. It was the custom for the recipient

1. Lancs and Ches. Ant. Soc. xxii. p.11
2. Brooke. Liverpool in the last Quarter of the Eighteenth Century. p.66.
of a packet to pay the postage or to "loose it from the post" as the expression was.

The description of the postal arrangements in Liverpool in 1775 illustrates the slender service that was given in those days. At that time Liverpool had a population of about 30,000.

"The post-office was in 1775, and for some years after in North John Street. It was like the post office still seen in small country towns, a plain dwelling house with an aperture for receiving letters and a moveable square or little door-like opening in the window for the delivery of letters. In 1775 there was only one letter carrier for all Liverpool and a greater number than one was not allowed for any town out of London. The mail bags were carried in 1775 and for some years afterwards in and out of Liverpool on horseback."

Slow and inconvenient as these postal arrangements seem to us, they were the best facilities available and the traders took the fullest advantage of them. Besides their regular correspondence they used the mails for sending light goods such as laces, diamonds, etc. Then arose the custom of sending patterns and samples of cloth through the post to regular customers, and thus the range of business was extended
In 1736 the Bank of England introduced the system of "Bank Post Bills" for the sending of large sums through the post— the fore-runners of our modern bank drafts. They were made payable at Seven Days' sight in case of robbery of the mails when payment of the bills could be stopped. Other commercial bills receivable and payable were also sent through the mails. So that altogether the increase of the use of the mails for business purposes in the early eighteenth century represents a general speeding up in business communication and a facilitating of the means of transmitting funds to meet payments in different parts of the country without having to send heavy loads of specie.

NEwSPAPERS. During the first half of the century too there was a large increase in the circulation of magazines and newspapers. It was the era of the Tatler, the Review, the Spectator, the Freeholder and the Gentleman's Magazine. But it was also the period of the more ephemeral newspaper. The Press had attained some growth in the seventeenth century and there were even some attempts at commercial advertising. However, the great development was in the eighteenth century.

2. See Times. Tercentenary Hand List of English and Welsh Newspapers Sect. II. for provincial newspapers from 1620 onwards. This list misses Whitworth's Manchester Magazine being published in the 1730's. The editor was also
The first daily newspaper was printed in 1702. By 1724 there were printed in London, 3 dailies, 5 weeklies, 7 thrice a week, and three thrice a week half-penny posts, or 53 issues of various papers per week. The first provincial paper was started in Norwich in 1701 or early in 1702. There followed in rapid succession, Bristol, 1702, Exeter 1706, Nottingham, 1710, Worcester about 1710. The earliest newspaper as far as known in the north was the Liverpool Courant, a semi-weekly, which was begun about May 1st, 1712, and published Tuesday and Friday mornings by S. Terry in Dale Street. During the next few years newspapers were begun at Salisbury, Bury St. Edmonds, St Ives, Plymouth, Cirencester, and Ludlow. Leeds and York both enter the list in 1719. The Manchester Weekly Journal was begun in 1718 or 1719 (No. 325 published in 1725) and Derby followed in 1720; Ipswich the same year and Newcastle in 1725 while the Gloucester Journal began about 1722. In 1756 began the publication of "Williamson's Liverpool Advertiser", a weekly, that afterwards became the Liverpool "Times". This was followed in 1765 by Gore's General Advertiser. Whitworth's Manchester Magazine was also published in apparently unaware that a practically complete file of the Manchester Mercury from 1752 onwards is in the Chetham Library, Manchester.

Manchester during the thirties of the century and in 1752 began the publication of Harrop's Weekly which afterwards became the Manchester Mercury; and of which almost complete files including the first issues are preserved in the Cheetham Library in Manchester.

The Leeds Intelligence began in 1756. From the commercial standpoint the significance of the newspaper is in its widespread dissemination of news affecting the interests of merchants and manufacturers, the medium it provided for advertising, and hence the increasing sensitiveness of industrial and commercial life to movements and events in distant places. The result was to stabilize prices and markets over long periods and to facilitate the growth of wider interests for both trade and manufactures.

Another factor in the rapid increase of trade and commerce was the rise of banking and assurance which facilitated the performance of the capitalistic function in production and distribution. After 1660 there was a great increase of the capital available for trade and manufacture in England and in spite of the set back of the wars of William III the increase went steadily forward until in 1738
the "plenitude of money for investment raised the government 3 per cents to a premium. In her rivalry with Holland England was at a disadvantage with her commercial rate for money at 5 or 6 per cent while in Holland it was only 3 per cent, but by 1740 the plenty of money had lowered the English rate to 3 and 4 per cent. The century before 1760 with minor exceptions saw the system of modern credit rise in England. Book credit and promissory notes, and bills of exchange were known before 1650, but their use was comparatively meagre.

Banking arose first in connection with the pawn-shop business of the goldsmiths and their safety deposit service for merchants. But throughout the latter part of the 17th century there was a growing demand for a commercial bank. Although the Bank of England was founded in 1694 primarily as a revenue measure, it speedily became the heart of the economic life of the country. It added to the available capital of the country and gave wider opportunity for trading on borrowed capital.

Banking institutions did not extend very rapidly in the early half of the eighteenth century. The following numbers of banks existed in 1677, 44:

1738, 21; 1736, 21, 1740, 26, 1754, 16 and in 1759, 24; the fluctuations being caused by failures, amalgamations, and new foundations. The first country bank was at Gloucester in 1716, and remained the only one till about 1737. By 1750 there were 12 and by 1772 there were 24. Some of them were established as branches of a London concern, but the bulk of them were instituted by tradesmen to facilitate their business. They established accounts with some London bank for their own convenience and then began to send up bills for other tradesmen, dealing on their own current account. Gradually this part of the business became important and eventually many of them dropped their merchandising, and gave all their attention to banking. The Mine Adventurers of England, and the "British Linen Company" did a banking business alongside and eventually to the exclusion of their mining mercantile and manufacturing business. Bankers were drawn from various businesses. Mansfield was a linen-draper, Cuming a cloth dealer, Alexander a tobacconist, Coutts a corn merchant. The first country bank in Gloucester was founded by Wood, a soap and tallow chandler. The Liverpool bankers were .......

originally general merchants, tea-dealers, linen merchants, and one was a watch and clock manufacturer. The rise of these country banks is one evidence of the tendency of English commerce to drift to the provinces with the rise of the manufacturing and trading areas of the north. The chief functions of the banks are illustrated by Postlethwayte's summary of the various kinds of banks in his day. The safe keeping of deposits is illustrated by the Bank of Amsterdam, where the bank was simply a place of safekeeping, doing no trading or exchange bills business, and being under public direction. The safer kind of general banks are those like the Bank of England that are regularly incorporated companies. They borrow on their own credit, lend on security, buy and sell bullion, discount bills of exchange and other secure debts. The private banks like the country banks and the Lombard Street Bankers do much the same sort of business, but the public confidence must be founded on the personal standing of the bankers; and such banks are therefore not so sound. There is the further difficulty that this continuity may be broken by death.

Then there were the Remitters or banks whose main business

1. This sketch is based on Westerfield, p. 382-387, unless other authority is quoted. His authorities are principally Price v.s., Bis scop, Rise of the London Money Market, Bourne-English Merchants, Hughes-Liverpool Banks, and Lawson, History of Banking.
was the negotiation of foreign bills of exchange.

Bottomry, or the insurance of ships had been a custom of long-standing but in the seventeenth century the underwriters began to develop into a specialized class in the community. Some were private, and others were public. In 1720 two general companies were incorporated, viz., the London Assurance and the Royal Assurance, getting Parliamentary consent by offering a loan of £600,000 to the Civil List then in arrears. Fire and Life Assurance began as early as 1706 and by 1723 it was said that not one in a hundred would lend money on a house unless it were insured against fire.

Thus while the banks arose out of the need for more fluid credit arrangements, and were made possible by the accumulations of capital gathered during the prosperity of the century before the Industrial Revolution, they in turn stimulated and assisted trade and made a still greater volume of business possible. They made it possible for a tradesman by the use of credit to do a larger business on a small capital. They afforded loans to capitalist agriculturists and thus hastened the changes in farming. They served a useful

function in the transmission of money and by means of bills of exchange reduced the amount of specie that had to be transported. "Their very close relation to the industrial and commercial expansion was revealed during the Industrial Revolution in the first five decades of which the numbers of country banks rose from 12 to nearly 400". Assurance was not only a stabilising influence in that it reduced the total loss to any individual through fire or accident but it made houses and plant more of an instrument of credit than they could be where fire or flood, or riot, might destroy the buildings and no compensation be forthcoming.

CHAPTER V.

INDUSTRIAL LABOUR AND SOCIAL CONDITIONS.
CHAPTER V.

INDUSTRIAL LABOUR AND SOCIAL CONDITIONS.

Industrial workers may be classified vertically according to industries or horizontally according to social classes and economic interests. To a large extent the vertical classification is suitable for the eighteenth century because there was little actual cleavage between employers and employed in most of the industries. The modern classification into employers and workmen is hardly adequate since there was until after 1760 such a large number of independent or semi-independent producers, with one or two employees but who were still employed the greater part of their time in the actual manual operations of their craft. To follow the first classification on the other hand would lead to much repetition. So that while some attention will necessarily be given to the vertical classification, the endeavour will be made to treat industrial labour according to whether it was employed at home or in the house of an employer of approximately the same social grade as the worker, or whether employed in some capitalistic organization under an employer of a higher social grade. Under the former class will fall most of the textile workers especially in Lancashire and Yorkshire, and most of the manufacturing labourers in other trades. Under the latter
will appear the miners, those engaged in smelting or forging operations, and those employed in the few examples of factory organization that existed in the early eighteenth century. A fairly large class of which not much is known specifically was that of the transport workers of the period. These were the men who drove the horses of the waggons and pack-horses trains that carried such a large volume of the goods of the country from point to point during and after the process of production; and the class of barge-men and others engaged in the rapidly growing river trade of the period. But here also the suggested classification would hold, as between those who owned their small capital of a single string of pack-horses or waggon and team or small barge, and those who worked for larger men and owned no capital but their labour.

WAGES

The wages of employed labourers ranged from 7/1d per week in the Manchester textiles to 13/6d per week in the cutlery and plate works at Sheffield. The average was 9/6d per week. In the pottery and iron industries the wages were from 9/6d to 10 shillings a week. At Wakefield the cloth workers received 10 shillings a week but elsewhere their wages ranged from the Manchester rate of 7/1 to nine shillings a week at Carlisle, and 9/5 in the Stocken, cotton and linsey
woolsey industry at Kendal. In Liverpool the wages for porcelain and glass workers averaged about 8/11 per week. Next to the textile wages at Manchester the lowest wages for men quoted by Young were 7/6d per week to the allum workers at Ayton, and to the lead miners at Fremington. Wages for women varied from 3/3 at Kendal and 3/6 at Leeds to 6/- at the lead mines of Fremington and 6/6 in the potteries at Burslem, the average of all industries given being 4/7 per week. Manchester stands well up in this list, the wage for women being 5/4 per week. This was perhaps due to the demand for spinners who were chiefly women and to the fact that cotton weaving was not too heavy for women to do almost as well as men. It may help also to explain why the men's wages were so small, if women were competitors in the same manufacture. In the lace industry at Bedford where only women and girls were employed the wages for women were 4/6d per week. The same wages prevailed for women in the shoe and hat industries of Newcastle and in the glove trade at Worcester as well as in the sail cloth and sacking work at Warrington. Wages for girls ranged from a shilling a week at Newcastle to four shillings a week in the lace work at Bedford where they seem to have either been older girls on the average, or have been able to compete on fairly favourable terms with the women. Girls 1. These wages figures are from the tables in Young, Northern Tour.
as well as boys and women were employed in the lead mines at Fremington where they received the same wages as the boys, 3/3 a week. In Manchester they got nearly as much, 3/5, while at Kendal and Warrington in the textile and pin trade they are said to receive 2/6d per week. The wages of boys were the same as those of the girls except in the cloth work at Leeds where they got five shillings per week and the girls employed only received 1/6. This was probably due to their being employed on different sorts of work. In the iron works at Rotherham girls were not employed and boys received 3 shillings per week. Coal miners were a separate class and received relatively high wages than as now. At Wakefield Young says they received 11 shillings per week while at Newcastle they got 15. Another writer, quoted in the Victoria County History of Lancashire says that coal getters received in the seventies 2 shillings a day and labourers a shilling.

A writer in 1756 on the amount of taxes paid by the various classes of the community indicated some of the current wages. A manufacturer of wood, iron, etc., in London might be receiving 12 shillings per week, a silk worker 10/6d per week, wood and iron workers outside of London 9 shillings per week, woollen cloth and stuffs—

1. In another place (Tour. iii. 165) Young states that the boys and girls in the pin manufactory got from 1 to 2 shillings per wk.
2. V.C.H. Lancs. II.356.
workers 7/6 per week, while he puts the husbandman or labourer at 5s per week. These paid from 1/3 to 2/4 in the £ on their wage, in taxes on beer, salt, sugar, leather, soap, candles, coals, drugs, spirits, tobacco and window tax.

The accounts of the building of a Baptist Chapel at Bacup in 1746 show that a shilling a day, more or less, was the wage for ordinary labour at that time in rural Lancashire. One Richard Lord worked several days at 1ld per day at different sorts of work. When he used his horse as well the wage was 1/9, when he took two horses it was 2/7 or with a cart as well, 2/11 per day. Another account in connection with the same building shows that three men named Hardman, probably father and two sons, worked altogether 126 days on the building and received £6-16-6 which was at the rate of 1/1 per day. Similar wages were paid in 1749 in connection with the building of the pottery house where Wedgwood entered into partnership with Whieldon at Fenton. Some of the labourers received a shilling a day and some 1ld for such work as digging the cellar. In connection with the same works the wages of potters seem not to have been nearly so large as those given by Young twenty years later. John Austin was hired

1. Hargreaves. The Baptist Church at Bacup (1816). Extracts from different accounts of the building in 1746 of the chapel there.
at 5/6 per week for "placeing white" etc., and received an earnest gift of 3s. as well. Another man hired a little later got 6/6 for veining but he in addition received a pair of Stockins valued at 3/6 and earnest money of 15s. in advance for his handicraft skill. This payment of earnest gift at the hiring was a characteristic of the potter's bargains at that period. The earnest ranged from a shilling to £2-2/- or more according to the skill required for the particular task. Sometimes it was paid partly in kind, either in new or old clothes. In one instance in the accounts above, 7 yards of cloth was given. In another instance where the hiring was for two years the workman was to get a pair of shoes each year. In conclusion, then it may be said that industrial skilled labourers received from a shilling to 2 shillings a day while unskilled labourers received around a shilling a day. An exception to this general rule is observed by Defoe in the lead mines of Derby where a woman living in a cave in the rock said her husband could earn 5d a day if he was lucky, and she if there were not so many children could earn 3d, but she thanked God they were very comfortable.

Young's estimates for many of the domestic workers have been mentioned. For the most part the

domestic workers were on piece rates, and it is difficult to estimate their weekly earnings with the information now to be had. About 1770 the cotton weaver of the cottager class could earn from 8s to 10/6d per week and his sons 6s to 8s. In the cotton manufacture of 1741 we learn that 17 lbs. of 1/6 weft occupied a family 14 days, and the wages earned represented 16s for the weaving, 9s for the spinning, and 6s for the cleaning, carding and roving - a total of 35 shillings as the earnings of a family for fourteen days. Of course if the family could not manage the preliminary operations themselves, a portion of that would go to others.

Some information is available with regard to the Gloucestershire weavers in 1756. The wages assessment of the Quarter Sessions in 1727 had set the rates for broadcloth weaving at from 3d per yard for a cloth of 400-500 threads to 24d per yard for £100 to £200 threads. The workers claimed that the clothiers had been disregarding this assessment and making separate bargains with weavers at lower rates. The masters as usual said conditions were due to depression of trade, to the intemperance and bad economy of the labourers, and to the increase in the number of weavers. Certainly all the evidence seems

3. ibid. Appendix II.
to show that living was cheaper in the north, and also that drinking of malt and spirituous liquors had made great strides in the south than in the north. Both these facts would help to explain why the clothiers found the competition of Yorkshire very difficult to meet. But they claimed that a loom earned from £35 to £40 per annum, presumably where the loom could be kept steadily employed. This amount had to be divided amongst the master, journeyman and a child for a quill-winder. If there were too many weavers, of course few would earn the full amount and the distress the weavers complain of would be easily understood. The weavers on the other hand complained that in many sorts of work they could hardly earn four pence with sixteen hours work. Probably the truth as to the condition of the average weaver is somewhere between the two statements. The dispute is evidence that with the growing complexity of industrial operations, and with the growing freedom of industry from legislative "interference, the wages assessment was being found impracticable, and was rapidly falling into disuse.

The petition of the weavers in Gloucester, referred to above, was for a time successful, and in 1756 an Act was passed reviving the assessment.  

2. 29 Geo. II. c.33.
The Somerset weavers at the same time did not succeed in getting an assessment. In Gloucester the men had difficulty in getting even a partial assessment made, and many of the masters refused to obey it. The following year the clothiers petitioned Parliament and with the support of the masters in Somerset and Wilts, succeeded in having the wages clauses of the Act of 1756 repealed, declaring it to have proved mischievous and inconvenient.

Another difficulty against which labour had to contend during the century in connection with their wages was the truck or payment in kind system. Following a petition of some West Country weavers, an Act was passed in 1702 forbidding the payment of wages in truck, and making provision against the embezzlement of material by the workpeople. This act included the woollen, cotton, fustian, and iron manufactures, and was made perpetual in 1710. In 1740 it was extended to include the leather industry and in 1749 it was made to cover the silk, mohair, flax, hemp, and fur manufactures. Other acts passed in 1726 and 1727 also prohibited the truck system of paying wages. But the evil was difficult to suppress, for in 1784 through the activities of the Worsted Committee in Yorkshire, a Leeds dyer was convicted

1. 30 Geo. II. c. 12.  2. 1 Anne. c. 18.  
3. 13 Geo. II. c. 8 and 22 Geo. II. c. 27. 1710. 9 Anne. c. 32.
of having paid in truck; and in 1802 the same Committee 1. issued a thousand hand bills concerning the evil. There were further acts to suppress the system in the 19th century, but with these we are not now concerned.

Another point in connection with the wages question was the bonding custom which prevailed in the mines of Northumberland and Durham down to 1644 should be mentioned. It was customary for the men to sign a yearly bond, agreeing to work for a year at a certain wage, although it carried no guarantee of steady work. An attempt was made in 1765 by the owners to transform this into a practical serfdom by an agreement amongst themselves not to hire a miner from another mine unless he brought a certificate of discharge from his former employer. As this applied to the usual hiring time (October) as well as to other times, it would have given the owners complete control over their men. In protest the men to the number of some 4,000 went on strike, and after some time won their point.

One of the evils of the early factory system was the length of the hours of labour. There is

2. E.g. 1617. The struggle against truck was specially lively in the early 19th century in the mining, woollen and hosiery industries.
3. Hammond. Skilled Labourer. pp. 12-17. In this strike the men had public opinion very largely on their side.
no doubt that expensive machines made the employer more desirous of keeping his workpeople busy feeding the machine, and this would tend to make the hours of labour if not longer, at least much more continuous and trying than where a minute or two might be spent in leisure to break the strain once in a while. The weavers in Gloucester speak of working sixteen hours to make a fourpence in some sorts of work. A witness the following year, and one who was favourable to the masters said that his hours were fourteen. A writer in the London Chronicle during the coal strike mentioned above says that the men are "shut off from the light of heaven for sixteen or seventeen hours a day". Nevertheless in some instances the hours of labour were extended by the introduction of factories. An old man apprenticed in 1755 recalled the conditions of his youth and his description is considered by the Factories' Commission. "When a lad, the workpeople laboured ordinarily ten hours a day five days a week, the Saturday being always left open for taking work to Nottingham, gardening, etc., through the middle of his life he worked twelve hours a day, but of late years they

Hammond. Skilled Labourer. p.16.
work of necessity fourteen to sixteen hours a day."
In this trade the frame-work knitting, in his working-time, from 1755 to about 1785, fluctuations in wages were almost unknown. But in spite of the fifty hour week the weight of evidence goes to show that except where there were special conditions preventing it, the normal working day was, according to modern standards, a very long one.

The greatest advantage of the domestic system of labour was not in shorter hours but in the comparative freedom from supervision which the toiler enjoyed, in the possibility of the family working together, and in the fact that most of the cottages where the workers lived were in the country. "In many domestic industries the hours were long, the pay was poor, children worked from a tender age, there was overcrowding, and both home and workshop were rendered less desirable from the combination of the two under one roof... But the home-worker at his worst" say the Hammonds in summing up his position, "was in many respects his own master. He worked long hours but they were his own hours, his wife and children worked, but they worked beside him, and there was no alien power in their lives; his house was stifling, but he could slip into the garden; he had spells of unemployment and he could sometimes use them to grow cabbages. The forces that ruled his fate were in a sense outside his daily
life. They did not overshadow and envelope his home, his family, his movements, his hours for work, for food. The new order turned the discomfort of the life of the poor into a rigid system."

This passage is perhaps all the more powerful because there is no reference to the pride of the craftsman in his handiwork nor any assumption of greater comfort in the material sense than the modern labourer enjoys. Arguments that sometimes obscure the essential point in discussing the conditions of labour. Weaving and spinning could be just as monotonous in a cottage as in a factory, the air as stifling, the hours as long, the pay as poor. For the greater part, the domestic worker's advantage lay in the comparative freedom from supervision, the dwelling in the country where the surroundings if not the cottage, would be more conducive to health, in the unity of the family in the manufacture within the home, and in the fact that the apprentice and journeyman could hope for an establishment of their own where they would have their own little plant, and earn their living as their own masters.

In the industries where the worker had to leave his home for the plant of his employer, conditions were not so pleasant, in most cases by reason of the

nature of the employment. Mines were dangerous and unpleasant places in which to work and devices for securing the safety of the workers were crude or non-existent. Foul air had to be fought in all the mines while there was always the danger of an earth fall or of flooding with water. In the coal-mines in addition the fire-damp had to be combatted. In the blast furnaces and forges the methods were crude and the work as exhausting and unpleasant as to-day. Transport was a heavy and arduous task especially on the new canals where much of the towing was done by human power.

John Fletcher, rector of Madeley, in Shropshire, and the finest controversial writer amongst the early Methodists, has left us in his "Appeal to Matter of Fact and Common Sense" a description of the conditions under which the labourers of his parish worked in 1772. The language is somewhat rhetorical but, as it is not familiar in economic literature it is worth an extensive quotation. When he wrote this he had been rector at Madeley for 12 years so that he was familiar with what he is describing. It is not perhaps a fair sample of his style but is a truthful description of the condition of a large number of his

parishioners in the coal mines, iron-works, and on the barges of the time.

He says of the miners, - "They take their leave of the light of the sun and suspended by a rope are let down perpendicularly many fathoms toward the centre of the globe; they traverse the rocks through which they have dug their horizontal ways. The murderer's cell is a palace in comparison of the black spot to which they repair; the vagrant's posture in the stocks is preferable to that in which they labour.

"Form if you can an idea of the misery of men kneeling, stooping or lying on one side, to toil all day in a confined place where a child could hardly stand whilst a younger company, with their hands and feet on the black dusty ground and a chain about their body, creep and drag along, like four-footed beasts, heavy loads of the dirty mineral, through ways almost impassable to the curious observer.

In these low and dreary vaults all the elements seem combined against them. Destructive damp and clouds of noxious dust infect the air they breathe. Sometimes water incessantly distils on their naked bodies; or bursting on them in streams, drowns them, and deluges their work. At other times pieces
of detached rocks crush them to death, or the earth, breaking in upon them, buries them alive. And frequently sulphureous vapours, kindled in an instant by the light of their candles, form subterranean thunder and lightning.

"Wonderful providence! Some of the unhappy men have time to prostrate themselves; the fiery scourge grazes their backs; the ground shields their breasts, they escape. See them wound up out of the blazing dungeon... A pestiferous steam and suffocating smoke pursue them. Half-dead themselves, they hold their dead or dying companions in their trembling arms.

"Leave these black men at their perilous work, and see yonder bargemen haling that loaded vessel against wind and stream. Since the dawn of day, they have wrestled with the impetuous current, and now that it almost overpowers them, how do they exert all their remaining strength and strain their every nerve? How are they bathed in sweat and rain? Fastened to their lines as horses to their traces, wherein do they differ from the laborious brutes? Not in an erect posture of the body, for, in the intenseness of their toil, they bend forward, their head is foremost, and their hands upon the ground. If there is any difference it
consists in this; horses are indulged with a collar to save their breasts....

"Stop to consider the sons of Vulcan confined to these forges and furnaces. In their lot much preferable? A sultry air, and clouds of smoke and dust are the elements in which they labour. The confused noise of water falling, steam hissing, fire-engines working, wheels turning, files creaking, hammers beating, ore bursting and bellows roaring, form the dismal concert that strikes the ears; while a continual eruption of flames ascending from the mouth of their artificial volcanoes, dazzle their eyes with a horrible glare..... See them cast; you would think them in a bath and not a furnace, they bedew the burning sand with their streaming sweat, nor are their garments dried up by the fiery fires they attend or the fiery streams they manage....."

Even when full allowance is made for the rhetorical tendency of this extract, it will be unseen how desirable was the lot of many of the workers who went abroad from their homes to their work. Less disagreeable, but still not so pleasant as home conditions, were the pin works, the glass and pottery works. On the eve of the Industrial Revolution too the first steps to regulating and supervising the
factory work on modern lines of organisation. These were introduced into the Soho Iron Works at Birmingham and were copied by Josiah Wedgwood who because of his personal qualities was able to introduce them without trouble from the workmen. One feature was that of the factory bell which he put up on the works at Burslem to call the workers in at a definite time where they had been wont to straggle in as they pleased. This difficulty, that of the irregular habits of the workpeople was undoubtedly one against which all employers who were trying to extend their works had to contend, not all as successfully as the pottery master. Even he was only able to introduce the discipline very slowly.

Another evil of the factory system which existed in considerable measure under the domestic system was that of child labour. Defoe tells with pleasure that in the clothing area near Halifax, scarce a child over four years did not earn its own bread. Mrs Montagu, the famous blue stocking, was also a colliery owner in the north and she says in 1775 that "boys work in the collieries from seven years of age. A particularly bad instance of the use of child labour is furnished by

2. Defoe. *Tour*, iii.p.137. also at Manchester (iii.p. 252) "the smallest children being all employed and earning their bread."
the chimney-sweeping trade which was a practice peculiar to the British Isles. "It came into vogue in the early 16th century but did not spread to Scotland till about 1786. On the continent it was unknown. As chimneys developed from wide funnels into narrow and complicated flues their cleaning became a more difficult matter; and the discovery of human brushes that would crawl along any flue, however sharp the angles and however winding the passage, encouraged builders to further feats of complexity." We learn from a writer in 1774, however, that some of the more enlightened minds were beginning to discern the loss to the nation from such practices. This man writing from the standpoint of public health says, "it is a common but injurious custom in manufacturing counties to confine children, before they have reached a sufficient degree of strength to sedentary employments in places where they breathe putrid air and are debarred from the free use of their limbs. The effect of this confinement is either to cut them off early in life, or to render their constitutions sickly and feeble." The physique of the industrial inhabitants of great cities in Britain still suffers from

this short-sighted devotion to immediate profit; and was perhaps one of the chief causes of the large proportion of C grade men in the recent war. For the effects of depressing the health of a nation can hardly be eradicated in a generation or two and we are only now correcting the mistake of employing growing children.

APPRENTICESHIP. The Act of 1563 commonly called the Statute of Apprentices, aimed at securing that entry into the various crafts should be effectually guarded from insufficient training. The only workers exempted from its provisions were the makers of the coarsest wares of Cumberland, Westmoreland, Lancashire and Wales, i.e. frizzes cottons, and 'huswives cloth'. This act was for a time strictly enforced. But the increase of country craftsmen, the increasing demand for labour with the growing market for English goods, and the rise of the new cotton industry, all assisted in relaxing the strictness of enforcement. Legal apprenticeship died out in the south before it did in the north. During the eighteenth century there existed in the north, in Lancashire and Yorkshire a customary apprenticeship, alongside the legal. Because of the exemption of the cotton industry from the Statute, the customary apprenticeship held sway in Lancashire very largely, while in the first half of 1. 5. Eliz. c.4.
the century in Yorkshire it was the legal that held the balance.

In 1747 there was an organisation of worsted small wares weavers in Lancashire and one of their regulations was that no master should take an apprentice for less than seven years, unless the apprentice was fifteen years of age, when the time might be six years. This would indicate that there was no legal compulsion felt in the matter. At the same time in Yorkshire the legal enactments seem to have fallen into neglect in the country districts, but in the towns, and especially in Leeds the justices were attempting up till the middle of the century to enforce the provisions of the act. Clothworkers seem to have been the worst offenders but other trades were frequently represented before the authorities. After 1750, however, the justices seem to have abandoned their attempts to enforce the law, for such prosecutions cease to appear in the Court Records. By the end of the century legal apprenticeship was practically dead.

The customary apprenticeship survived

1. Worsted Smallwares Weavers' Apology.1756.
   Manchester Reference Library. No. 28256.
however, and in the woollen industry remained till the coming of mills and factories. We have seen that even in that part of the country that was exempted from the legal obligations there was a customary agreement amongst the undertakers. The apprenticeship system had become part and parcel of the domestic system and until that went, apprenticeship held a large place. As late as 1725 the Parliament attempted to enforce the legal term in the broad woollens trade. But this distinction against one part of the industry was doomed to failure and when the act was renewed in 1733 the apprenticeship clauses were dropped out.

A recent writer has given a picture of the apprenticeship system in the woollen industry in the eighteenth century, that presents the essential features. Apprentices might be drawn from three classes. He might take his own son and teach him the business in which case the apprenticeship was often an unwritten agreement. The apprentice might be the son of a neighbour or friend or of some one else who wished him to learn the trade. In such cases there

1. II Geo. I. c. 24. 2. 7 Geo. II. c. 25.

4. Josiah Wedgwood was bound apprentice to his brother who succeeded to the father's business, but in this case there was a regular legal bond drawn. Jewitt. Life of Josiah Wedgwood. p. 92-93.
would be a legal document, and the master frequently got a premium for taking the boy. The third class of apprentice was not so popular. When a pauper boy reached an age thought fit the authorities of the Poor Law would look about for a master for him. The master was forced by law to take a pauper child when called upon unless he could get exemption from the justices. There was provision for an apprentice to be released from his bond, if his master died, or ill-treated him, or failed to teach him as he should. Apprentices were frequently released by the justices for these causes. On the other hand the master had recourse to the courts if an apprentice proved persistently disobedient, careless, lazy, or otherwise unsatisfactory.

In the commercial branches however, apprenticeship became even more popular. Youths from good families were bound apprentices to some merchant and as this practice grew larger and larger premiums were paid. Defoe remarks on this increase in the premium as early as 1726. Aikin tells how about the middle of the century a large number of young men of good family were apprenticed to Manchester merchants. "The fees of apprentices becoming an object of profit, a different manner of treating them began to prevail. Somewhat before 1760 a considerable manufacturer (i.e. a merchant manufacturer) 1. Complete English Tradesman. p.193.
allotted a back parlour for the use of his apprentices and gave them tea twice a day. His fee in consequence rose higher than had been known before from £250 to £300, and he had three or four apprentices at a time. The highest fee known as late as 1769 was £500”

Before leaving the question of labour, one point remains that of the extent of labour organization before the Industrial Revolution. Under the more independent forms of domestic organization there is but little differentiation between the journeymen who form the bulk of the employed labour and the masters. Socially they are nearly on a level as the journeyman has probably come from a neighbour’s home, or that of a friend. Economically the journeyman in a few year’s time, if he wishes, can be as well off as his master, or at least as independent. With the growth of capitalistic organization however, a clearer line is drawn between the employers and employed and the distinction is both social and economic. The employer begins to acquire the outlook of a merchant manufacturer; the wage-earner gradually ceases to expect to be anything but a wage-earner. Hence the two portions of the industrial sphere begin to be conscious of class division, and at the same time of a divergence of interests. As this consciousness of opposing interests

becomes clearer, the tendency will be for each class
to form organizations of their own.

The results of this differentiation of
classes are seen in the textile industries of the con-
tinent in the fourteenth and fifteenth centuries.
Amongst the other associations that arose at that time
were gilds of wage-earning journeymen who, although
they never secured full rights to a separate organi-
zation, were an important part of the industrial life
of the time. There are records of several disputes on
a fairly large scale in the fourteenth century and the
organizations of the fullers and weavers assumed an
international aspect. But when the textile industries
expanded they passed beyond the limits of the town
organization and as the domestic industry took definite
shape, the centre of gravity shifted to the small mas-
ters, who were essentially working capitalists on a
small scale. The oldest and best journeymen con-
tantly passed into the ranks of the masters and so
destroyed the continuity of any organization that
might be formed by the journeymen.

But as capital began to flow back from
the commercial sphere and control the organization of
production, the wage earning classes again came to be

by Prof. Unwin. pp. xxii and xxiii, for instances
and further references.
a separate class, with special interests and consciousness of common needs. Prof. Unwin points out the essential difference between the situation in the eighteenth century and that of the fourteenth and fifteenth. In the earlier centuries there was an essential monopoly of material and the instruments of production, held by the employing classes, but in the later period there was a free flow of capital, and it was open to any journeyman to enter the ranks of the capitalistic organization. It is pointed out in another work that the tardy growth of stable independent combination amongst hired journeymen is to be found in the prospect of economic advancement which they still possessed. An analogy is suggested with pieces in the cotton industry who even to-day have no strong separate organization because their oldest and best members are constantly passing into the ranks of the spinners.

Organizations of workers seem to have sprung not out of any special institution, although analogies with previous ones might exist but rather out of the gathering together of wage earners in the same craft. Sometimes indeed it was in the heat and stress of a spontaneous strike

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that a permanent organization was born. But still most of them were combinations of the better paid classes of workmen such as the wool-combers, the shipwrights, the carriers, hatters, the calico printers, etc. The hatters had an organization as early as 1667 and their persistence is shown by the fact that they were able to hold congresses in the seventies of the eighteenth century. In 1720 the "master-taylors" of London are complaining that the journeymen have a combination to reduce hours and raise wages. The masters secured an Act of Parliament forbidding the union. In 1744 the Privy Council machinery was set in motion against the men's refusal to obey the former act. In 1750-51 the organization was still strong enough to secure from the Middlesex justices an order for higher wages and in 1767 further legislation was passed against them.

WOOLLENS. Amongst the clothiers of the West of England there were extensive combinations as early as 1675 and in 1682 they refused in concert to work for less than 12 shillings a week. In 1717 there was a widespread combination of wool-workers in Devon and Somerset and throughout the rest of the century there are numerous complaints to the House of Commons of the continuance of workmen's combinations of one kind or another. Most of these

disturbances in the clothing trade were in the south and west but Yorkshire, although it was still largely on the domestic system, suffered also. Yet combinations were much less prevalent there than in other parts. The most prominent in Yorkshire were those of men engaged in the worsted trade which was on a more capitalistic basis than the woollens.

During the early part of the century, Parliament was still largely on the side of the operatives. In 1726 the weavers of Wilts and Somerset presented a petition which was dealt with by the Privy Council. In 1726 the Gloucester weavers successfully appealed to the justices for regulation of wages although the order was evaded by the masters. In 1748 special provision was again made against the payment of wages in truck and in 1756 the Gloucester weavers succeeded in securing an Act of Parliament to have their piece rates fixed by the justices. But this was the last flicker of real sympathy passed to the employers who were primarily interested in increased production. From that time the story is one of repression of combinations amongst the workers, culminating in the Combination Acts at the end of the century, and that period

2. See above p.61. This act was repealed the following year in so far as it favoured the workers.
of strict repression out of which has come so much of
the modern bitterness characteristic of the relations of
employees and employed.

A recent writer has given a full account
of the organization of the workpeople in two of
the three main trades in the Manchester area in the fif-
ties of the eighteenth century based largely on infor-
mation in contemporary literature. Only a brief summery
of the essential points can be attempted here. In both
the check and small wares trades the workpeople attempted
through combination to maintain and advance their economic
position. The two main classes in the manufacture were
the merchant manufacturers who were the real employers and
the undertakers, journeymen, and apprentices who represent
the workers. The latter class had an organization as
early as 1747. It would appear that apprentices were
being taken for short periods instead of the customary
seven years and that some of the masters were taking more
than the usual number to augment their supply of labour.
The combination was evidently intended to check this
tendency and also to get the apprentices taken by the
merchant manufacturers under control. The first article

1. Daniels, Early English Cotton Industry, pp. 41-55. This
account is based chiefly on the "Smallwares Weavers'
Apology, 1756; the accounts of the dispute in the
"Manchester Mercury" for the period; and a Letter to a
friend, by Thos. Percival, a prominent landed proprietor
living at Royton, near Oldham.
of 1747 says that no master shall take apprentices for less than seven years and that he shall not take more than three at a time. In 1753 provision was made for children of weavers to be registered at twenty as having served their time. Women were recognised on the same conditions as men.

The increasing stringency of the rules would indicate that the combination was spreading and perhaps was not succeeding in its aims. In 1756 following on some years of high food prices the problem of wages became acute and rioting was prevalent till the end of 1757. The small wares weavers issued an apology defending their position. They commenced to hold meetings once a month composed of a representative from each shop. The shop was probably the group employed by one master. By 1759 the situation had become acute enough for the masters to advertise that no work would be given to any person interested in unlawful combinations and single out the small wares weavers for special mention. In 1760 a number of them appeared at the Lent Assizes at Lancaster to answer an indictment for a combination to raise wages. They handed in a submission, dissolving

the combination. Their box or treasury for contributions was to be permitted only until their debt was paid and then it was to be discontinued.

The organization of the check weavers was similar. Lord Manfield at the Autumn Assizes at Lancaster in 1755 issued a warrant for the arrest of 19 stewards concerned in the combination. His charge is interesting as showing the organisation. He said he had been informed of "great disturbances in Lancashire occasioned by several thousands having left their work and entered into combinations for raising wages and appointed meetings at stated times - formed themselves into a committee at such meetings and established boxes and fixed stewards in every township for collecting money for supporting such weavers as should by their committee be ordered to leave their masters and made other dangerous and illegal regulations; that they had insulted and abused several weavers who had refused to join in their schemes and continued to work, and had dropped incendiary letters with threats to masters that had opposed their designs ...." Thus it is seen that the essentials of a union were already in being, the aim of improving their

1. Manchester Mercury. 5th Sept. 1755.
position the collection of funds to be used as strike pay, picketing and threats to employers. One difference is noticeable - they had not reached the stage where they dealt with the employers as a whole, but a strike affected only the masters who refused to accede to their demands. The two points in dispute, the standard length of the cloth and the question of unfair weavers, led to a look-out by the masters in May or June 1758. There were three different proposals for a settlement before the look-out ended in October with the weavers' submission. In the Spring of 1759 13 check weavers from Manchester, 2 each from Pendleton and Salford and one from Rusholme appeared at the Assizes and the plea of lenity prevailing they were let off with a fine of a shilling each. The law, however, did not destroy the combination because there was another dispute in 1781. This ended in an agreement which was signed by the masters and one man from each "shop".

In the woollen industry of Yorkshire there were some spasmodic disturbances and one or two attempts at a strike, but little evidence of any actual combination. Following a strike in 1743 there was an indictment of three men and others as yet unknown on a charge of unlawful combination but no details of their organisation are available. In the worsted industry 1. Heaton. p.317.
however it was different. The organization of this class had spread from the south and they held the masters somewhat in awe by their strength. The wool-combers in particular had a strong organization that was almost national in its scope. It was in existence some years before 1741 when it is described by a pamphleteer. It had evidently begun as a friendly society, the members paying 2d or 3d a week and receiving benefits when sick or unemployed. Gradually the union began to dictate to the masters and boycott those who would not agree to their terms. When a member was out of employment he was given a travelling ticket, and money to enable him to seek work elsewhere. Apart from these instances, however, there was not much organized labour in the West Riding.

It is curious that there was not an early organization of the miners. They were a class who lived in segregated areas; they were under a capitalistic organization from the beginning and certainly they were amongst those who needed organization. On occasion they could act together as in the strike of 1765 over the bonding custom when some thousands of them held out until they had won...

a victory. But it was not till the threat of a strike in 1811 that any notice seems to have been taken of a brotherhood or organization amongst the men.

In a previous chapter some attention was given to the homes of the country workers. We have from Bamford a description of the clothing and food of the population in the woollen districts, that with some slight variations is probably true of most of the industrial population. The working dress of the women was a blue flannel bedgown with sleeves to the elbow, a petticoat of the same material, with an apron, sometimes of linen, to match. Young women wore their hair down their back while married women wore mob-caps. Their hose were of white or woollen black/yarn. Shoes were strong, well-fastened with leather straps and buckles. For out-door wear they used a silk handkerchief over the head or a broad-brimmed gipsy hat of felt or chip covered with silk. In the winter they brought out the best article of apparel they had which was an ample crimson cloak of fine wool, double milled, with a hood attached.

The working dress of the men was a low-crowned hat with a broad brim, blue or drab

3. See above. Organization of Production.
short coat or jacket of coarse woollen or fustian. They wore a waist-coat without neck-collar and with long flapping pockets; a pair of breeches buttoned at the knees and generally of strong fustian or sheep's leather; brown or blue hose, and very strong shoes nailed with clinkers and fastened with straps and buckles. In the flannel districts they also wore a striped flannel apron usually greasy with the oil used in the woollen processes.

FOOD.

The breakfast of the working classes consisted of oatmeal porridge with an oatcake and sometimes a piece of cheese and oatcake. For dinner they sometimes had dumplings, boiled meat, broth and oatmeal bread. Potato pies were not uncommon, seasoned with beef or mutton. In the afternoon they had oatcake and their supper was largely a repetition of breakfast. Fuller details of the food in Lancashire are given in a previous chapter.

PUBLIC HEALTH

The towns of the period especially those that were growing at all rapidly were much overcrowded and very unsanitary. One of the earliest historians of Liverpool computes that there were 4200 houses for the population of about 25,000 in 1760. He worked out the average per house excluding those in schools

poor-houses and the infirmary, at 5.9/10 per house. In Northampton about the same time there were $4\frac{3}{4}$ per house and in Birmingham a little more than five. He concludes that there was probably no place in Great Britain except London or Edinburgh which contained so many people in so small a space. The whole area of the town including the docks, yards and warehouses was not larger than Manchester or Birmingham yet they had more people than either.

He says that "the streets are much too narrow for convenience, ornament, or health.....the houses are so crowded that the inhabitants are much more indebted to nature than to art for their health". Probably everyone built "in whatever place or form best suited his own purposes without consulting the appearance of the town or so much as imagining that it would afterwards be of any consequence to the public what situation he chose". The result of such a haphazard system was of course great irregularity and inconvenience when the town became crowded.

The death rate of Liverpool was very high and it was considered one of the healthiest in the kingdom in proportion to its population. In 1750 there were 1065 deaths which is at the rate of 48 per thousand of the population or to use the phrase then

2. " p.20. cited above 1774.
in vogue, 1 in 22 of the population. In 1770 the
deaths were 1555 so that much the same rate was
being maintained. Enfield gives the details of the
deaths in 1772 which was an exceptionally healthy
year. Of the 1085 deaths, 83 were from fevers and
219 from small-pox or not much less than one third
of the deaths. Consumption is credited with
another 356 or more than a third. Nearly two-
thirds of the deaths then were from fevers, small-pox
and consumption which to-day are responsible for
only a few deaths per annum. Nearly half of the
deaths were of children under five years of age.
This compares favourably with London at the same
time where more than half of the deaths were of
children under three years of age.

That these figures were not unusually
high at that time we learn from Percival's Essays on
Population. He was a Manchester doctor and one of
the pioneers in the science of public health. He
made what were for that time careful and somewhat
extensive enquiries into the death rate of different
places. Taking the survey figures of Manchester
for 1757 at nearly 20,000 he finds the death rate of

1. Enfield, p.31.
Manchester was one in 25.7 people. Liverpool was 1 in every 27 people. London 1 to 21 people. Half of the children born in Manchester die under five years of age. The country districts were much healthier. The death rate in Monton, a few miles from Manchester which being in the vicinity of a moss he thought would be unhealthy had been for ten years, 1 to 58 of the population. But "the people are most of them farmers and are remarkable for their diligence and sobriety."

At Horwich, between Bolton and Chorley the death rate was one in 66. The people there being about equally divided between farmers and manufacturers. At Darwen 3 miles from Blackburn a bleak and elevated district, poorly cultivated and the people mostly engaged in the cotton industry, the rate for seven years had been 1 in 56. At Cockey Moor near Bolton although the rate had been raised by a severe epidemic of smallpox it had only reached one in forty-four. At Chowbent where the people were engaged in the linen, cotton and iron industries, the rate was 1 in 41.

These figures show a very great difference between the health of the towns as compared with the country although the towns were receiving a large number of young people supposedly in the prime of life.

every year. Perhaps the most striking comparison is that which he gives for 1774 when there was a detailed enumeration of the town and parish. The death rate in the parish was 1 in 56 and in the town despite the number of new settlers it was 1 in 28. It is hardly too much to say that the cities of England were veritable death-traps to their industrial population for they would contribute the greater part of the toll of death.

**Pauperism.** Even the briefest notice of social conditions of England in this period would be incomplete without a reference to the problem of pauperism. The features worthy of consideration are the very rapid increase in the poor rates throughout the country, the course of legislation on the pauper problem, the effect of the settlement laws and their administration, the introduction of workhouses and lastly the rise of Friendly Societies. The effect of the settlement laws have been dealt with in a previous chapter as they affected the agricultural districts to a greater extent than the industrial.

The increase in the cost of Poor Relief was in some measure due to the growth of manufacturing centres where a temporary depression of trade would throw a great number of poor on the parish. In other

cases it would be due to the immobility of labour under the Settlement Laws. In places where enclosure was followed by a decrease of the land under the plough there would be less work than before and even if there was as much many families who had kept above the level of subsistence by the help of their common rights would fall below it under the new conditions and require partial relief. There was during the century a growing sensitiveness on the part of the public toward suffering and grinding poverty and this would tend in many cases to a more generous provision for the poor. In any case, even the most cursory glance into the literature of the day will serve to show that the problem was an ever present one and was continually pressing on the mind of all who were seriously concerned with the public weal. From the report of the Enquiry Commission appointed by the Board of Trade in 1696 a report drawn up by Locke to the voluminous work of Eden in 1796, men of various shades of opinion concerned themselves to make some contribution to the solution of the problem of poor relief.

In the last quarter of the seventeenth century the poor rate was much lower in the north generally than in the south. Eden publishes in his
work a table of the amounts contributed for poor relief by the different counties about the latter part of the eighties of that century. The amount when worked out per head of population ranged from 6.1 pence per head for Lancashire to 40.5 pence Rutland. The counties immediately preceding Rutland in the list are the counties of the eastern clothing district, local depressions of trade would make a great difference to the poor rate. London, Middlesex, and Westminster, grouped together, come about midway in the list with an expenditure of 20d. per head, while the clothing area of the south-west is all in the latter half of the list.

The population of the counties as given by Eden does not at all agree with the figures as adopted by Finlaison in the Census reports of 1831, and which are now so generally accepted, so that the table is useful only as a means of comparing the distribution of pauperism at the time. Lancashire, however, which paid £7,200 at the earlier date, was by 1783 paying £73,353 per annum, so that the increase had considerably more than kept pace with the population. Elsewhere Eden gives the amounts spent in the town of Lancaster from 1736 to 1760, a period in which the growth of the town was inconsiderable

2. Ibid. II. p. 302-309. (Parochial Details)
In 1736 they spent £95, and in 1760, £391. This represented an increase of more than four times in 24 years. These figures reflect the general increase which attracted so much attention from the writers of the time.

In a previous chapter, a calculation shows a rough approximation to the increase per head as from 6d. to at least 26d. between 1665-90 and 1760.

Legislation. The century opened with a report from a Commission of Enquiry appointed by the Board of Trade in 1696. This report, drawn up by Locke, recommends an elaborate scheme based on the ability of the poor to work, and on the size of their families. A working school in each parish and the provision of materials is recommended. In 1705 a bill based on the report was introduced but did not become law. An isolated act had been passed in 1696, however, which was destined to exercise a good deal of influence.

By that act, the parishes of the City of Bristol were incorporated for purposes of Poor Law Relief, with power to erect a work-house and levy a general poor rate. This workhouse was not a success at first, and in 1714 the corporation got power to increase the rate. By 1731 they were on a sound basis and the rate fixed in 1714

1. See above. Agriculture Chap. 4.
2. Eden II.246
3. 7 & 8. 7. III.
remained until the sixties.

There were few acts passed in the reign of Queen Anne with regard to the poor, and but little alteration in the reign of George I. In 1715, the Truck Act of Queen Anne was enforced with some additional penalty, and in 1720, an act was passed to prevent men leaving their families a charge on the parish while they went elsewhere to work. The Workhouse idea received fresh impetus through an act passed in 1723, by which church wardens received power to hire or purchase houses for the lodging, keeping, and employing the poor. The powers of this act were apparently widely used, for a pamphlet of 1725 when re-printed in 1732 gives particulars of sixty workhouses in the country and fifty in the city. An act of 1733 provides for the recovery of the cost of keeping illegitimate children, when paternity was proven, unless the mother was married before the child was born. An act of 1744 attempted to correct some of the abuses which had grown up in the financial administration of Poor Relief. This act provided for accounts to be regularly kept, to be open to inspection, and for a statement to be rendered by the outgoing overseer to the incoming one. The Act of 1744

1. 1 Geo. I. c. 6. 2. 5 Geo. I.
3. 9 Geo. I. c. 9.
4. Eden: II. p. 269, quotes this writer without giving his name.
5. (1733) 6 Geo. II (1744) 17 Geo. II.
empowered justices to determine all differences between masters and men in husbandry or other labourers hired for a definite period; while another in 1756 relieved apprentices from their hardships in being removed from places where they had been unwarily bound by deeds not properly indented.

An important act was passed in 1767, which provided for the outside nursing of pauper children until they were six years of age. Since Dickens' day, conditions have vastly improved, but even yet, institution life is not very helpful to young children. Conditions in the eighteenth century may be imagined from the fact that almost all pauper infants died under six years of age before the passage of the act of 1767. Price in commenting on it, "allowed that it had prevented a great many deaths." The last act respecting the poor that can be said to fall within our period is that of 1755, which repealed the act of Elizabeth, which said enacted that no cottage should be erected without at least four acres of land attached to it. Thus did the legislature abandon the policy of providing the poor with the means to increase their income, and achieved some small measure of independence in their humble way.

1. 7 Geo. III. c. 39
2. Eden. l. 338.
Contemporary Opinions. From an examination of the Poor Law literature of the eighteenth century, certain definite opinions emerge. There is first of all a growing conviction that the parish had ceased to represent the most economic unit of administration. Dr. Tucker, the Dean of Gloucester, in a pamphlet of 1760, expresses the opinion that the defects of the Poor System were the division into parochial districts, the maintaining of the poor in separate families, and the annual election of Parish Officers. He proposes the incorporation of several parishes together for Poor Law purposes, and Guardians for the government of the corporation. In 1753, the Earl of Hillsboro proposed to form a "Poor Corporation" of subscribers of £5 and upwards, and by means of a general rate, levied over the country, take care of Poor Relief. Sir Richard Lloyd in the same year proposes a Poorhouse system, dividing the county into suitable districts, with Justices and other chosen men as guardians. These instances show that the Workhouse idea was increasing in favour as the century went on.

There was also a tendency to discriminate between the various classes of the poor. The act of 1744

1. Eden. I. 340
2. Eden. I. 316
classifies vagrants into three class, first, Idle and Disorderly. Second, Rogues and Vagabonds, who included patent gatherers, fencers, bear wards, strolling players, fortune-tellers, petty chapmen, without a license, and third, incorrigible rogues. When Alcock in 1752 proposed a plan of a workhouse for every hundred, he suggested that each workhouse should have three parts; one for the impotent and honest, industrious poor, one for the sick, and the third for the confinement, labour, and correction of vagrants, idlers, and sturdy beggars.

One outstanding feature of Poor Law Administration throughout most of the century was the difficulty due to the Settlement Laws. As early as 1735, a Member of Parliament published some remarks on the Poor Laws, and the pamphlet was re-published in 1751 and 1794. He speaks very forcibly in condemnation of a system which abidges a poor man of his liberty, of the nuisance of appeals at quarter sessions on orders for removal, of the expense of returning persons to their parishes, and of the uncertainty under which the poor labour of not knowing whether they will be allowed to remain in a place or not. The Earl of Hillsboro in 1753 wished to destroy the system.

1. Eden. I. 311. Cooper in 1763 proposed a similar scheme.
2. See above. Part I. Chap. IV.
of settlements altogether. Dr Burn in a History of the Poor Laws in 1764 gives a picture of a Parish Overseer that is far from flattering. The description is too long for quotation, but the office of the overseer would appear to have been by every possible means to keep down the number of poor and reduce the poor rate with very little regard to the needs or feelings of the poor. He concludes by suggesting that overseers think their duty is anything "but to see that the poor shall resort to church, and bring their children to be instructed; to contract with the master that he shall procure his apprentice to be taught to read or write; to provide a stock of material to set the poor on work; to see the aged and impotent comfortably sustained, the sick healed, and all of them clothed with neatness and decency. These and suchlike, it is to be feared, are not so generally regarded as the laws intended, and the necessity of the case required."

Lastly, there was a wide-spread dissatisfaction with the existing state, not only of the Poor Laws, but with their administration. Henry Fielding, the Novelist, may be allowed to express that general dissatisfaction. "It must be a matter of astonishment to any man to reflect that in a country where the poor are, beyond

2. Henry Fielding. An Enquiry into the late increase of robbers, etc. 1754. Sec. 4. Poor Laws. As a magistrate, Fielding had seen a good deal of Poor Law Relief in both town and country, and also of the criminal classes.
all comparison, more liberally provided for than in any other part of the habitable globe, there should be found more beggars, more distress, and miserable objects than are to be seen throughout all the states of Europe.... that the Poor Laws are a very great burthen, and even a nuisance to this kingdom; that the laws for relieving their distress and restraining their vices have not answered those purposes; and that they are at present very ill provided for, and much worse governed, are truths, which every man, I believe, will acknowledge..... so very useless indeed is this heavy tax, and so wretched its disposition, that it is a question whether the poor or the rich are more dissatisfied, or have indeed greater reason to be dissatisfied.

Friendly Societies. The eighteenth century saw the beginning of many Friendly Societies and they were gradually extending to most parts of Great Britain. In the north of England instances were found of Clubs of this kind which had existed more than a hundred years by 1795, Alcock in 1752, mentioned several, consisting of Tradesmen and Manufacturers, particularly in the west of England. The Friendly Society of Shoe-makers at Newcastle, dates from 1719.

1. Eden. I.610-613
Another club with a general membership was also begun at Newcastle in 1731. This club, by 1795, had a fund of £344, with 120 members. At Lancaster in 1795, there were 17 Friendly Societies, the earliest dating from 1767. At the same time, in Liverpool, there were twelve societies. At Preston, there was one society, dating from 1762, which had 1,154 members.

1. Eden. II. 302. et seq.
### Appendix No. XI.

**Foreign Commerce and Shipping.**

<table>
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<tr>
<th>Years</th>
<th>Imports</th>
<th>Exports</th>
<th>Total</th>
</tr>
</thead>
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<tr>
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<td>£4,000,000</td>
<td>£2,200,000</td>
<td>£6,200,000</td>
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<tr>
<td>1666-9</td>
<td>4,200,000</td>
<td>2,100,000</td>
<td>6,300,000</td>
</tr>
<tr>
<td>1696-7</td>
<td>3,500,000</td>
<td>3,500,000</td>
<td>7,000,000</td>
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<tr>
<td>1700-4</td>
<td>5,100,000</td>
<td>6,700,000</td>
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<td>1705-9</td>
<td>4,300,000</td>
<td>5,500,000</td>
<td>9,800,000</td>
</tr>
<tr>
<td>1710-4</td>
<td>4,900,000</td>
<td>7,300,000</td>
<td>12,200,000</td>
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<tr>
<td>1715-9</td>
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<td>6,000,000</td>
<td>12,000,000</td>
</tr>
<tr>
<td>1720-4</td>
<td>6,400,000</td>
<td>9,000,000</td>
<td>15,400,000</td>
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<tr>
<td>1725-9</td>
<td>7,100,000</td>
<td>10,600,000</td>
<td>17,700,000</td>
</tr>
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<td>1730-4</td>
<td>7,400,000</td>
<td>11,500,000</td>
<td>18,900,000</td>
</tr>
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<td>1735-9</td>
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<td>1740-4</td>
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<td>18,700,000</td>
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<td>1765-9</td>
<td>11,600,000</td>
<td>14,200,000</td>
<td>25,800,000</td>
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**SHIPPING CLEARED.**

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<th>Years</th>
<th>Tons.</th>
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<tr>
<td>1663-69</td>
<td>1,423,000</td>
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<tr>
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<td>286,000</td>
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<tr>
<td>1696</td>
<td>175,000</td>
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<tr>
<td>1697</td>
<td>245,000</td>
</tr>
<tr>
<td>1700-02</td>
<td>317,000</td>
</tr>
<tr>
<td>1709</td>
<td>209,000</td>
</tr>
<tr>
<td>1712</td>
<td>356,000</td>
</tr>
<tr>
<td>1713-15</td>
<td>448,000</td>
</tr>
<tr>
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<td>444,000</td>
</tr>
<tr>
<td>1726-28</td>
<td>456,000</td>
</tr>
<tr>
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<tr>
<td>1739-41</td>
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<tr>
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<td>661,000</td>
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<tr>
<td>1755-57</td>
<td>525,000</td>
</tr>
<tr>
<td>1760</td>
<td>574,000</td>
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</tbody>
</table>

### APPENDIX No. XI.

Table showing the twelve most densely populated counties in England, Toynbee, Industrial Revolution. p.10.

<table>
<thead>
<tr>
<th>Year</th>
<th>County</th>
<th>No. per sq. mile</th>
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</thead>
<tbody>
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<td>1700</td>
<td>Middlesex</td>
<td>2221</td>
</tr>
<tr>
<td></td>
<td>Surrey</td>
<td>207</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td>Northampton</td>
<td>121</td>
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<tr>
<td></td>
<td>Somerset</td>
<td>119</td>
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<tr>
<td></td>
<td>Worcester</td>
<td>119</td>
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<tr>
<td></td>
<td>Herts</td>
<td>115</td>
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<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td>Bucks</td>
<td>110</td>
</tr>
<tr>
<td></td>
<td>Rutland</td>
<td>110</td>
</tr>
<tr>
<td></td>
<td>Warwick</td>
<td>109</td>
</tr>
<tr>
<td></td>
<td>Oxford</td>
<td>107</td>
</tr>
<tr>
<td>1750</td>
<td>Middlesex</td>
<td>2265</td>
</tr>
<tr>
<td></td>
<td>Surrey</td>
<td>276</td>
</tr>
<tr>
<td></td>
<td>Gloucester</td>
<td>157</td>
</tr>
<tr>
<td></td>
<td>Lancashire</td>
<td>156</td>
</tr>
<tr>
<td></td>
<td>Somerset</td>
<td>137</td>
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<tr>
<td></td>
<td>Worcesters</td>
<td>148</td>
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<td></td>
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<tr>
<td></td>
<td>Warwick</td>
<td>159</td>
</tr>
<tr>
<td></td>
<td>Berkshire</td>
<td>131</td>
</tr>
<tr>
<td>1861</td>
<td>Middlesex</td>
<td>10,387</td>
</tr>
<tr>
<td></td>
<td>Surrey</td>
<td>1,919</td>
</tr>
<tr>
<td></td>
<td>Gloucester</td>
<td>455</td>
</tr>
<tr>
<td></td>
<td>Lancashire</td>
<td>1,813</td>
</tr>
<tr>
<td></td>
<td>Chesire</td>
<td>582</td>
</tr>
<tr>
<td></td>
<td>Worcesters</td>
<td>515</td>
</tr>
<tr>
<td></td>
<td>Nottingham</td>
<td>475</td>
</tr>
<tr>
<td></td>
<td>Stafford</td>
<td>662</td>
</tr>
<tr>
<td></td>
<td>Durham</td>
<td>691</td>
</tr>
<tr>
<td></td>
<td>West York</td>
<td>815</td>
</tr>
<tr>
<td></td>
<td>Warwick</td>
<td>825</td>
</tr>
<tr>
<td></td>
<td>Kent</td>
<td>600</td>
</tr>
</tbody>
</table>

Table showing the growth of some provincial towns in England between 1665 and 1861. Toynbee, Industrial Revolution p.11. (The different numbers for the same town in 1760 are different estimates).

<table>
<thead>
<tr>
<th>Town</th>
<th>1665</th>
<th>c.1760</th>
<th>1861</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIVERPOOL</td>
<td>4,000</td>
<td>30-35,000</td>
<td>552,425</td>
</tr>
<tr>
<td>BIRMINGHAM</td>
<td>4,000</td>
<td>34,000</td>
<td>393,776</td>
</tr>
<tr>
<td>LEEDS</td>
<td>6,000</td>
<td>50,000</td>
<td>400,757</td>
</tr>
<tr>
<td>SHEFFIELD</td>
<td>4,000</td>
<td>40-45,000</td>
<td>264,410</td>
</tr>
<tr>
<td>BRISTOL</td>
<td>28,000</td>
<td>70,000</td>
<td>206,000</td>
</tr>
<tr>
<td>NOTTINGHAM</td>
<td>6,000</td>
<td>17,000</td>
<td>111,651</td>
</tr>
<tr>
<td>NORWICH</td>
<td>26,000</td>
<td>40,000</td>
<td>67,845</td>
</tr>
<tr>
<td>HULL</td>
<td>22,000</td>
<td>60,000</td>
<td>161,519</td>
</tr>
<tr>
<td>YORK</td>
<td>10,000</td>
<td>20,000</td>
<td>59,526</td>
</tr>
<tr>
<td>EXETER</td>
<td>10,000</td>
<td>24,000</td>
<td>47,036</td>
</tr>
<tr>
<td>WORCESTER</td>
<td>8,000</td>
<td>11-12,000</td>
<td>40,421</td>
</tr>
</tbody>
</table>
APPENDIX No.XIII.

GROWTH OF LIVERPOOL.

A. Dock Duties. From a Table in Brooke: Liverpool, 1775-1800.

<table>
<thead>
<tr>
<th>Year</th>
<th>Vessels</th>
<th>Duties</th>
</tr>
</thead>
<tbody>
<tr>
<td>1752</td>
<td>1,371</td>
<td>£1,776 6 2</td>
</tr>
<tr>
<td>1753</td>
<td>1,453</td>
<td>2,034 16 2</td>
</tr>
<tr>
<td>1754</td>
<td>1,231</td>
<td>2,095 11 -</td>
</tr>
<tr>
<td>1755</td>
<td>1,243</td>
<td>2,417 13 11</td>
</tr>
<tr>
<td>1756</td>
<td>1,281</td>
<td>2,187 16 9</td>
</tr>
<tr>
<td>1757</td>
<td>2,073</td>
<td>2,336 15 -</td>
</tr>
<tr>
<td>1758</td>
<td>2,261</td>
<td>2,373 12 2</td>
</tr>
<tr>
<td>1759</td>
<td>2,281</td>
<td>2,330 16 7</td>
</tr>
<tr>
<td>1760</td>
<td>1,225</td>
<td>3,528 7 9</td>
</tr>
<tr>
<td>1761</td>
<td>4,746</td>
<td>10,037 6 2 2</td>
</tr>
</tbody>
</table>

This was from an account published by the dock authorities.

B. Liverpool Customs Revenue, as per a table proved in an important case between the Corporation of Liverpool and Thos. Bolton and others in the King's Bench.

<table>
<thead>
<tr>
<th>Year</th>
<th>Gross</th>
<th>Net Remittance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1733</td>
<td>12,466</td>
<td>£ 35,106</td>
</tr>
<tr>
<td>1750</td>
<td>215,961</td>
<td>£ 55,907</td>
</tr>
<tr>
<td>1755</td>
<td>202,367</td>
<td>£ 49,661</td>
</tr>
<tr>
<td>1760</td>
<td>248,312</td>
<td>£ 84,480</td>
</tr>
<tr>
<td>1765</td>
<td>269,435</td>
<td>£ 70,346</td>
</tr>
<tr>
<td>1800</td>
<td>1,058,576</td>
<td>£ 734,320</td>
</tr>
</tbody>
</table>
### APPENDIX No.

**TABLES OF WAGES FROM YOUNG COUNTIES WITH TWO PLACES NEAR.**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>RISBY</td>
<td>185m.</td>
<td>12/6</td>
<td>12/6</td>
<td>7/-</td>
<td>8/5</td>
<td>£12.</td>
<td>£12.</td>
</tr>
<tr>
<td>HOLDENNESS</td>
<td>193</td>
<td>14/-</td>
<td>14/-</td>
<td>8/-</td>
<td>9/-</td>
<td>£13.</td>
<td>£9.</td>
</tr>
<tr>
<td>DANBY</td>
<td>235</td>
<td>7/6</td>
<td>6/-</td>
<td>5/-</td>
<td>5/2</td>
<td>£15.</td>
<td>£8.</td>
</tr>
<tr>
<td>GOSWORTH</td>
<td>279</td>
<td>9/6</td>
<td>12/6</td>
<td>6/-</td>
<td>7/-</td>
<td>£12.</td>
<td>£8:10/-</td>
</tr>
<tr>
<td>BERWICK</td>
<td>340</td>
<td>6/-</td>
<td>6/-</td>
<td>5/-</td>
<td>5/2</td>
<td>£9.</td>
<td>£7:7/-</td>
</tr>
<tr>
<td>KESWICK</td>
<td>286</td>
<td>6/6</td>
<td>6/6</td>
<td>7/-</td>
<td>6/10</td>
<td>£15.</td>
<td>£8.</td>
</tr>
<tr>
<td>KABERS</td>
<td>230</td>
<td>10/-</td>
<td>10/-</td>
<td>7/-</td>
<td>7/7</td>
<td>£9.</td>
<td>£5.</td>
</tr>
<tr>
<td>GARSTANG</td>
<td>223</td>
<td>10/-</td>
<td>9/-</td>
<td>7/-</td>
<td>7/6</td>
<td>£10.</td>
<td>£7.</td>
</tr>
<tr>
<td>ORMSKIRK</td>
<td>200</td>
<td>6/-</td>
<td>4/-</td>
<td>5/-</td>
<td>4/11</td>
<td>£7.</td>
<td>£5.</td>
</tr>
<tr>
<td>ALTRINGHAM</td>
<td>180</td>
<td>7/3</td>
<td>6/6</td>
<td>5/-</td>
<td>5/4</td>
<td>£8.</td>
<td>£5.</td>
</tr>
<tr>
<td>ASTON</td>
<td>112</td>
<td>11/-</td>
<td>11/-</td>
<td>8/-</td>
<td>8/7</td>
<td>£7.10/-</td>
<td>£5.</td>
</tr>
<tr>
<td>MAIDENHEAD</td>
<td>27</td>
<td>14/-</td>
<td>9/6</td>
<td>6/6</td>
<td>7/6</td>
<td>£7.7/-</td>
<td>£5.</td>
</tr>
<tr>
<td>KENSINGTON</td>
<td>2</td>
<td>12/6</td>
<td>8/6</td>
<td>9/6</td>
<td>9/4</td>
<td>£10.5/-</td>
<td>£7:3:6d</td>
</tr>
</tbody>
</table>

Average 58 dist. 10/3 9/5 6/5 7/1 £10:8:6d £6:11/- £5:9:9d.

Young reckons Board in the north 8d per day in the south 10d per day.
A dinner 4½d in the north and 6d in the south.
NORTHERN TOUR 1770 FOR THE NORTHERN LONDON FOR COMPARISON.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>£27</td>
<td>£21.00</td>
<td>£25.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>£25</td>
<td>£29.00</td>
<td>£23:15/-</td>
<td>£23:15/-</td>
<td>£23:15/-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>£24</td>
<td>£29.00</td>
<td>£25:10/-</td>
<td>£24.15/-</td>
<td>£5/3</td>
<td>£4/-</td>
<td></td>
</tr>
<tr>
<td>£23</td>
<td>£27:16/6</td>
<td>£24.10/-</td>
<td>£23:15/-</td>
<td>£5/6</td>
<td>£3/-</td>
<td>£2/-</td>
</tr>
<tr>
<td>£25</td>
<td>£27:2/-</td>
<td>£23:3/-</td>
<td>£23:3/-</td>
<td>£6/-</td>
<td>£3/-</td>
<td>£2/-</td>
</tr>
<tr>
<td>£22</td>
<td>£25:6/-</td>
<td>£22:5/-</td>
<td>£6/6</td>
<td>£5/6</td>
<td>£4/-</td>
<td></td>
</tr>
<tr>
<td>£115/</td>
<td>£26.6/-</td>
<td>£23:10/-</td>
<td>£3:5/-</td>
<td>£5/-</td>
<td>£4/-</td>
<td></td>
</tr>
<tr>
<td>£1.10/</td>
<td>£24.10/-</td>
<td>£22:10/-</td>
<td>£23:15/-</td>
<td>£6/-</td>
<td>£4/-</td>
<td></td>
</tr>
<tr>
<td>£22</td>
<td>£25.00</td>
<td>£24.10/-</td>
<td>£3:10/-</td>
<td>£3:3/-</td>
<td>£3:3/-</td>
<td></td>
</tr>
<tr>
<td>£22</td>
<td>£24.16.6</td>
<td>£23:5/-</td>
<td>£23:5/-</td>
<td>£3:3/-</td>
<td>£3:3/-</td>
<td></td>
</tr>
<tr>
<td>£22</td>
<td>£24.15.6</td>
<td>£24.00</td>
<td>£23:12/-</td>
<td>£6/-</td>
<td>£5/3</td>
<td>£4/-</td>
</tr>
<tr>
<td>£23</td>
<td>£26.16/-</td>
<td>£24.10/-</td>
<td>£4/3</td>
<td>£3/-</td>
<td>£3/-</td>
<td></td>
</tr>
</tbody>
</table>

( Harvest is reckoned four or five weeks and hay time the same -
the rest of the year is on winter wages. )
## APPENDIX 15.

### MANUFACTURING LABOUR.

<table>
<thead>
<tr>
<th>Place</th>
<th>Manuf.</th>
<th>WEEKLY WAGES</th>
<th>Aver. Price per lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bedford</td>
<td>Lace</td>
<td>4/6</td>
<td>4/-</td>
</tr>
<tr>
<td>Rotherham</td>
<td>Iron, Potteries</td>
<td>10/-</td>
<td>-</td>
</tr>
<tr>
<td>Sheffield</td>
<td>Plating, Cutlery, etc.</td>
<td>13/6</td>
<td>4/-</td>
</tr>
<tr>
<td>Wakefield</td>
<td>Cloths</td>
<td>10/-</td>
<td>-</td>
</tr>
<tr>
<td>Leeds</td>
<td>Cloths</td>
<td>8/3</td>
<td>3/6</td>
</tr>
<tr>
<td>Ayton</td>
<td>Alum</td>
<td>7/6</td>
<td></td>
</tr>
<tr>
<td>Newcastle</td>
<td>Coal, Cottons, checks, Stockings.</td>
<td>9/-</td>
<td></td>
</tr>
<tr>
<td>Carlisle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kendal</td>
<td>Linsey-Woolsey, Tannery.</td>
<td>9/5</td>
<td>3/3</td>
</tr>
<tr>
<td>Warrington</td>
<td>Sailcloth</td>
<td>6/7</td>
<td>4/6</td>
</tr>
<tr>
<td>Liverpool</td>
<td>Sacking, Pins, Shoes, Porcelain, Glass, Fustians.</td>
<td>8/11</td>
<td>-</td>
</tr>
<tr>
<td>Manchester</td>
<td>Check, Hats, Small Wares</td>
<td>7/1</td>
<td>5/4</td>
</tr>
<tr>
<td>Burslem</td>
<td>Potteries</td>
<td>9/6</td>
<td>6/6</td>
</tr>
<tr>
<td>Newcastle</td>
<td>Shoes, Hats</td>
<td>6/6</td>
<td>4/6</td>
</tr>
<tr>
<td>Worcester</td>
<td>Porcelain, Gloves.</td>
<td>9/-</td>
<td>4/6</td>
</tr>
<tr>
<td>AVERAGE</td>
<td></td>
<td>9/6</td>
<td>4/7</td>
</tr>
</tbody>
</table>
A. GENERAL WORKS PUBLISHED IN THE EIGHTEENTH CENTURY

Browne: Estimate of Manners. 1757-58.
Defoe: Tour Through the whole Island of Gt. Britain 1724. (Edition of 1762 used throughout.)
Gentleman's Magazine: 1740-1760.
Postlethwayte: Universal Dictionary of Trade and Commerce. 2nd. Edition. 1766. This work unfortunately is not page numbered so reference must be to articles.
Young: Political Arithmetic.

B. GENERAL WORKS. MODERN.

Camden Society Papers.
Che/atham Society Papers.
Census Reports. 1831.
Dictionary of National Biography.
Dobbs: Education and Social Movements. (Deals with the period round the middle of the 18th century.)
Harrision: Life of Sirnham Chatham.
Lancashire and Cheshire Antiquarian Society Papers. Volumes as referred to. These papers have a wealth of information on Lancashire and Cheshire, which is rendered somewhat less valuable, because frequently the authority for statements is not given.
Morley: Life of Walfpole.
Robertson: England Under the Hanoverians.
Victory County Histories. The History of Lancashire has been fairly extensively used in the industrial part of the thesis, but is not so exhaustive for the agricultural side of the history.
Workman, Townshend and Bayrs: New History of Methodism. 1919.
BIBLIOGRAPHY.

C. LANCASTHIRE. WORKS OF EIGHTEENTH CENTURY

Aikin: Description of the Country Round Manchester.


Brooke: Liverpool as it Was. 1775-1800.


Enfield: Essay toward the History of Liverpool. 1774.

Fennes, Celia: Through England on a Side Saddle in Reign of Wm. III.


Leigh: Natural History of Lancs. and Ches. 1700.

Lancs: Article in Postlethwayte's Univ. Dict.

Liverpool Directories, 1766 et seq.


Percival: Essays on Manchester, etc. 3 Vols. 1776.

Stukeley: Itinerarium Curiosum. 1724.

Yates: Survey (a series of maps large scale) of Lancashire 1778-1787. One copy in Ryland's Library.

D. LANCS. MODERN


Butterworth: Statistical Sketch of Lancashire, 1841.


Baines: Hist. of Liverpool. 1852

Baines: History of Lancashire.

Espinasse: Lancashire Worthies.

Fishwick: "Lancashire Library" A bibliography.

Hargreaves: Rise & Hist. of Bapt. Church at Bacup, 1816

L. & S. Record Soc. for Mills.

Ordnance Survey of Lancs. 1852.


Thornber: Hist. of Blackpool, 1837.
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E. INDUSTRY AND COMMERCE. EIGHTEENTH CENTURY.

Burn: Hist. of the Poor Laws, 1764.
Defoe: Complete Eng. Tradesmen, 1726.
Fielding: Enquiry into the causes of the late increase of Robbers, 1751.
Method of charcoal burning.
Percival: Essays. Special vol. III.
Sinclair: Hist. of the Public Revenue, 1785.
Tyman: "Wesley's Designated Successes". A Life of Fletcher of Madeley.
Walpole: Wealth and Commerce Considered, 1728.
(No. P. 556. Ed. Univ. Lib.)

F. INDUSTRY AND COMMERCE. MODERN

Ballin: Bibliography of Roads.
Chapman: The Lancashire Cotton Industry.
Cowper: History of Hawkeshead.
Cunningham: Growth of English Industry and Commerce.
Daniel: Early English Cotton Industry.
Calloway: Annals of Coal Mining, 1st series.
Codden: Memoir of Henry Fielding.
Garnier: Hist. of the English Landed Interest. (Modern period)
Guest: History of the Cotton Manufacture.
Hammond: Town Labourer.
Hammond: Skilled Labourer.
Heaton: Yorks. Woollen and Worsted Industries.
Hewins: English Trade and Finance.
Jewitt: Life of Josiah Wedgwood.
**F. INDUSTRY AND COMMERCE. MODERN...contd.**

Levy: Economic Liberalism.
Lord: Memoir of John Kay of Bury.
Lucas: Hist. of Warton (gives descriptions of 18th cent. methods of smelting iron.
Smiles: Industrial Biography.
Toynbee: Industrial Revolution.
Tyerman: Wesley's Designated Succesess (A Life of Fletcher of Madeley).
Unwin: Industrial Organisation in 16th and 17th Centuries.
Ure: History of the Cotton Manufacture.
Webb: English Local Government. The Parish and County.
Webb: The King's Highway (Roads).
Westerfield: Middlemen in English Business (especially 1660 to 1760).
Wood: Industrial England in the 18th century.

**G. AGRICULTURE. EIGHTEENTH CENTURY**

BAXBY: The State of Agriculture in Lancashire. 1795.
Eden: State of the Poor. 3 Vols. 1795.
Laurence: Duty of a Steward. 1726.
Miller: Gardener's Dictionary. 1759. This was a second edition much enlarged by the addition of descriptions of new grasses and other crops.
Mills: Husbandry. 1763. 3 Vols.
Monk: Dict. of Agriculture. 1795. This work is made up of extracts from other writers.
Museum Rusticum: 1763-1766. This was a publication made up of letters from farmers, and published monthly.
Mourse: Campania Felix. 1700.
Owen of Henllys: Description of Penbrokeshire. 1603
Tull: Horse-hoeing Husbandry. 1726 (Cobbett’s Ed. 1626)
Young: Six Months Tour in the Northern Counties 1770. 4 Vols.

Beesley: Agriculture in Lancashire at Different Periods. (1841).
Curtler: History of English Agriculture.
Curtler: Enclosures in the 16th Century (1921)
Garnier: English Landed Interest.
Gomer: Common Land and Enclosures.
Hasbach: Hist. of the English Agricultural Labourer.
Hammond: The Village Labourer. This work is too largely on the south of England to be of much value for Lancashire.
Manchester Quarterly. 1867. p.10. Relics of the Common
field system round Manchester.

Prothero: English Farming Past and Present.
Rogers: Six Centuries of Work and Wages.
Report on Enclosures 1844.
Toynbee: Industrial Revolution I pp. 13-22; 34-44.
Wadsworth: Mr A.F. Wadsworth of the Manchester Guardian Staff kindly allowed me to take notes and make extracts from manuscript material in his possession on the agricultural conditions in the Rochdale area.