THE EVOLUTION OF AN INDUSTRIAL LANDSCAPE:  
THE CALDER-DARWEN VALLEY, LANCASHIRE FROM  
c1740 TO 1914

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Accrington in springtime; this aerial view epitomises the romantic approach to the urban landscapes of Lancashire, in which each town is seen as a smoke-shrouded copy of all the other cotton manufacturing towns.
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The maps, diagrams and plates which illustrate this study are bound in a separate volume which also contains a list of contents.

References are given at the end of each chapter, except for explanatory footnotes which appear in the text; the references to journals employ the abbreviations listed in the bibliography and cite volume number, year, first page of the paper. Where a specific point, rather than the paper as a whole, is referred to the fact is indicated by the insertion of a precise page reference.
This study has its origins, if they are to be traced at all, in an earlier analysis of the modern economic geography of the Calder-Darwen Valley produced by the writer in 1955. This revealed, among other things, the importance of the nineteenth century to an understanding of contemporary problems and the inability of existing sources fully to explain the pattern of events before 1914. Interest in the nineteenth century was further aroused by E.W. Gilbert's observation that historical geographers ought increasingly to concern themselves with the period, and further stimulus came from the publication of R. Millward's essay on the evolution of the Lancashire landscape. This scarcely touches upon the Calder-Darwen Valley, but it provokes thought about the diversity of landscape in Lancashire. Ten years or so of teaching and research about Britain during this major phase of transformation have convinced the writer that it provides a singularly fruitful field of enquiry which has the added respectability of contributing to our understanding of contemporary problems. It is also clear that the opportunity to carry out detailed field studies of the period is rapidly disappearing, for even in the Calder-Darwen Valley where rebuilding has come late and in small amounts great changes of landscape have occurred in the town centres during the past decade.

The research upon which this account is based has largely been carried out since 1961, but some earlier material has
inevitably been incorporated, much of it collected while the writer was a research student of the University of Manchester. Grants in aid from the University of Leicester Research Board have financed part of the field work and visits to libraries and similar institutions. The writer is also indebted to several people for help received while the work was in preparation, notably to Mr T.W.Freeman and Mr H.B.Rodgers, of the University of Manchester, Professor N. Pye of the University of Leicester, and to librarians and archivists in the Public Record Office, the Lancashire County Record Office, Manchester Central Reference Library and Local History Library, Aerofilms Photographic Library, and the reference departments in the libraries of several Lancashire towns: substantial technical help has been provided by Mr T Garfield and Mr R.G.Richards of the University of Leicester, particularly in preparing copies of maps and diagrams originally drafted by the writer. These illustrations, together with a selection of aerial photographs, have been bound in a separate volume for ease of reference and handling.

Final acknowledgement goes to my wife, who abstracted the census data used in Chapter 7 and assisted with typing and checking the manuscript — but most important of all first induced the writer to visit a part of Lancashire which differed so radically from his own native locality that the interest from which this work stems was initiated.

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INTRODUCTION

This study traces the evolution of landscape in the Calder-Darwen Valley from the latter part of the eighteenth century to the outbreak of the 1914-1918 War, and analyses the various influences which combined to give the locality its distinctiveness. For the most part this work deals with the transformation of a dominantly rural area into a largely urban one during the nineteenth century. It will be noted, however, that the period of study runs from about 1740-1780 to about 1914-1920 rather than from 1800 to 1900. In many ways the nineteenth century can be said to have ended with the 1914-1918 War, particularly in localities such as this where the post-war collapse of basic industry gave rise to an era of readjustment which has scarcely ended. The beginnings of the period of nineteenth-century change are less easy to discern, for the so-called Industrial Revolution gained momentum slowly, and was uneven in its territorial effect. However, many of the changes which recognisably form part of this era of great technical and social advance date from the 1740s onwards — the construction of canals and turnpike roads, the mechanization of cotton manufacture for example — although the precise terminal date will vary from locality to locality. In the Calder-Darwen Valley change came relatively slowly before about 1780 for the locality appears always to have lagged behind developments in southern Lancastria.
The mode of treatment employed here is that of drawing period pictures to illustrate the landscape at various stages in its evolution. Although it would in theory be possible to confine each picture to a single year this would produce several practical problems, not least of them deciding which years to take from the many possibilities which exist. The period pictures have, therefore, been drawn to illustrate phases rather than single years, and each period has been chosen to mark out distinct stages of evolution. The period pictures occupy a single chapter each, and these have been sub-divided within a standard framework for sake of clarity. The greater part of the account is, therefore, concerned with the nineteenth-century historical geography of the Calder-Darwen Valley, preceded by a short essay on the physique of the locality which stresses those features necessary to an understanding of economic and social development. The two concluding chapters respectively review the repercussions of the nineteenth century on the locality's subsequent development, and compare its evolution during the nineteenth century with that of other parts of Lancastria.

Although this study is largely concerned with landscape it must also consider at length the various economic and social features which combined to produce change. Thus much time is given to analysing the development of cotton manufacture and the growth of population and settlement, as well as describing the ever-changing urban and rural scene. The sources used in compiling this account are cited in detail in the
bibliography, which also contains notes on some of the principal documentary series. In addition to literary research it is also possible to employ field work in a survey of this kind, for much still survives of the nineteenth-century landscape. Admittedly the field evidence is now slighter than it was a decade ago, and much more is about to disappear as the redevelopment schemes gain momentum, replacing the Victorian individuality of the towns with pallid modern architecture. No landscape can remain unaltered for long, and the nineteenth-century development of the Calder-Darwen Valley makes change inevitable. Nevertheless much of nineteenth-century origin remains and provides a constant visual reminder of the deep-rooted influences which the period still exerts on the pattern of modern life.

REFERENCES

1. The term was first popularized by A. Toynbee, Lectures on the Industrial Revolution of the Eighteenth Century in England, 1884, and has enjoyed great currency ever since. It is best considered a conveniently vague label for a complex set of changes that was not always industrial and rarely revolutionary.

2. The first British canal, as opposed to navigation, dates from 1742, the earliest forms of power driven cotton machinery date from 1741-1745, the first spate of turnpike building dates from 1730-1750. For some of the problems of dating the Industrial Revolution see L.S. Presnell ed., Studies in the Industrial Revolution, 1960.

3. For a comment on this aspect of recent change see I. Nairn, "Lancashire mill towns", Architectural Review, 132, 1962, 47.
Chapter 1
The Physique of the Calder-Darwen Valley

It is a commonplace assertion that the Lancashire cotton industry provides an excellent example of the close relationship between physique and economic development. Often an excessively narrow interpretation has been placed on the scope of these influences, for there is more at issue than the simple locational tie of soft water which Ogden emphasised. In a recent essay Rodgers has demonstrated the significance of physical geography to the industrial growth of Eastern Lancastria, and has shown how wide the range of influences can be. In this chapter it is intended to outline those elements of physique necessary to an understanding of the emergence of the Calder-Darwen Valley as an industrial region. It should be noted at the outset that little detailed information on the geomorphology of the locality exists - Figure 1 is extremely tentative - and that it is beyond the scope of this account to investigate the morphological problems which arise. Fortunately the geology of the area is well documented, both in New Series maps and in memoirs, which have been drawn upon in writing this chapter and in preparing the maps which illustrate it.

Although the term Calder-Darwen Valley implies a simple lowland corridor the area covered by this study includes, in addition to the valley proper, adjoining tracts of upland. This is partly because most townships of the valley proper
extend into neighbouring areas of greater elevation, and partly because much is to be gained from a comparison between those localities which lie on the upland margins and those which are in the lowlands. Thus the Calder-Darwen Valley is only partly a lowland area - much of it comprising steeply sloping ground even at low altitude - and included within its limits are tracts which, although they may form the physical continuation of adjacent uplands, are best considered as marginal components of the valley proper. Here is a problem of definition which reflects among other things the interdependence of hill and valley, in spite of the striking contrasts in their physique and economic development.

Solid Geology and Structure

The Calder-Darwen Valley is entirely underlain by Carboniferous strata (Figure 3); structurally four major units are discernible: the Pennine anticline and the Rossendale anticline, which are marginal to the valley proper on its eastern and southern margins respectively; the Pendle monocline, the north-west facing scarp of which overlooks the Ribble Valley; and the Burnley-Blackburn syncline, which lies entirely within the Calder-Darwen Valley. The syncline is asymmetrical with a high angle of dip on its north-western limb, and is broken by severe faulting at right angles to the dominant north-east to south-west trend of the trough. The coals of the syncline, which are now classified as Lower Coal Measures throughout, comprise over 2,100 feet of strata, of which about 60 feet is workable coal found in twenty two seams of varying thickness and quality. The
Union or Lower Mountain Mine (4 feet thick), the Upper Mountain and Cannel Mines (4 feet thick) and the Arley Mine (5 feet thick) are, or have been, the most productive seams, particularly in the area of maximum thickness and minimum disturbance by faulting and folding between Accrington and Burnley. Although the coalfield appears to be extensive (Fig 3), large tracts are heavily faulted and, or, poorly endowed. Thus the Darwen coalfield is badly shattered by faulting, and its best coals were largely exhausted by the 1870s. North of Burnley the productive measures thin out rapidly and often deteriorate in quality: for example the Upper Mountain Mine is 4 feet thick in the Burnley area, 6 inches thick at Nelson, and completely absent from the Coal Measure sequence at Trawden. At their best the seams of the Burnley syncline provide good general purpose industrial and coking coals, but it must be emphasized that the territorial extent of the field gives a misleading impression of its productive capacity, even though many of the poorer localities contributed to the early stages of industrialization.

Interbedded with the coal seams the remaining members of the Coal Measure sequence range from massive sandstones, through less well consolidated flagstones, to fireclays, mudstones and shales. Although the sandstones often form striking topographical features this is not always so: for example the 'heights' of Little Marsden and the valley of Walverden Brook below are both underlain by Coal Measures Sandstones. However, the lithological differences within the Coal Measure series are import-
not only for their topographical effect, but also for their economic value to the quarrying and brick making industries (Figure 5).

The continuation of the north-western limb of the syncline forms the most striking part of the Pendle monocline, dominated by Pendle Hill itself. The principal structural feature is the high angle of dip, ranging from $50^\circ$ - $70^\circ$ in the vicinity of Whalley, to $15^\circ$ - $30^\circ$ further east about Colne. In rapid succession the upper members of the Carboniferous Limestone series (the Bowland Shales), the Millstone Grits, and the lower members of the Coal Measures outcrop in a narrow but topographically diverse belt of country overlooking the Calder-Darwen lowlands. The monocline gives way to the gently dipping strata of the Burnley-Blackburn syncline along a sharply defined axis running north-east to south-west from Higherford through Read to Pleasington (Figure 1): between Higherford and Colne the monoclinal axis is less clearly defined, and forms the northern limb of the minor Laneshaw syncline. The importance of the monocline is seen partly in its effect on topography, for it is instrumental in producing the sharp contrast between the Pendle foothills and the Calder-Darwen lowlands, and more significantly in its restrictive influence on coal mining, for the steeply dipping lower coal seams have not been worked, even though they were explored in the 1950s to assess the possibilities of opencast mining.

The asymmetrical Pennine anticline is also marginal to the Calder-Darwen Valley; like the Pendle monocline to the
west its high angle of dip produces a rapid alternation of Coal Measures and Millstone Grit outcrops in a belt of broken country which gives way to gently dipping or horizontally bedded strata typical of the central Pennine upland. The fourth structural unit of the locality - the Rossendale anticline - is similarly peripheral to the Calder-Darwen Valley and displays two main components: first the horizontally bedded Coal Measures and Millstone Grits, which give rise to terraced topography; and second the gently dipping northern anticlinal limb which produces a series of backslopes and south facing scarps much broken by faults. In the upper Darwen Valley the proximity of numerous faults produces shatter belts of great complexity, which have been more susceptible to erosion than the Central Rossendale Plateau, and the area is, therefore, at a lower elevation. Upland Rossendale, like the other tracts of fell country which rim the Calder-Darwen lowlands, has exerted economic influences both negative - notably as a barrier to communications - and positive - principally as a source of mineral wealth and water supply. This point reinforces the view that in spite of contrasts between them the uplands and lowlands of the region enjoy a complementary existence.

Superficial Geology and Glacial Features

Much of the Calder-Darwen Valley is drift smeared or covered by post-glacial deposits (Figure 4); even those localities marked drift-free on the map may have a thin veneer of superficial material, either local grit-waste ('head') at high altitude, or a mixture of rock-waste and boulder clay at
lower elevations. The thickness of the drift varies appreciably with a maximum recorded depth of 150 feet at Thursden on the lower slopes of Boulsworth Hill. The complexity of the superficial deposits defies meticulous sub-division: of the glacial drifts boulder clay of varying composition and form is widespread, most commonly found as ground moraine, but occasionally seen as hilly morainic masses or small terminal moraines. Deposits of glacio-fluvial sands and gravels are less extensive, although there are well developed tracts in the Darwen valley, and in the deltaic spreads of gravel east of Blackburn, north of Burnley, and in the vicinity of Colne. The stages of advance, retreat and re-advance which produced the drift sequence are imperfectly known, but it is clear that in addition to the sand and gravel deposits the phases of retreat of the Pleistocene ice-sheet also initiated a remarkable series of periglacial drainage channels and lake basins.

The pattern of marginal drainage produced by the waning ice-sheets has been investigated in the works cited at the head of this section. Many details remain to be interpreted but the main outline of the drainage sequence seems to be agreed upon. Initially, during the Middle Sands Retreat, melt-water from the margins of the ice covering the Calder-Darwen Valley escaped by means of high level channels notched in the main Pennine range (Figure 1) and along the northern scarp faces of Rossendale. Subsequently the main discharge from the chain of lakes (10) ponded against the Pennines was via the Cliviger Gorge, draining
ultimately to the Vale of York. At a later stage it appears that the Cliviger Gorge outlet was abandoned, and the meltwaters flowed southwards via the channels cut into the western extremity of Rossendale, in the vicinity of Brinscall; eventually meltwater was able to flow unimpeded into the Irish Sea basin via the ice-free Ribble Valley. The Middle Sands Retreat was followed by the Upper Boulder Clay Re-advance, which blanketed the newly formed sands and thickly plastered the floors of most of the spillways with morainic material. In the final retreat the extent of lake formation and consequently that of marginal channels and deltaic deposits was much slighter. The most impressive features left by this phase are the deltaic sands and gravels along the Calder valley near Padiham, and the associated esker-like ridge which runs downslope on the north bank of the river. Although many problems of geological and morphological interpretation remain, two important elements of the glacial episode are established for the purposes of this account: first the widespread cover of glacial drift, important mainly for its influences on the pattern of farming, and second the existence of a complex of spillways, of great value to the development of communications.

Of the post-glacial deposits the most extensive is hillpeat (Figure 4). Thick deposits (from 6-9 feet in depth) are most extensive along the plateau-like Pennine watershed, where all the flat or gently sloping ground above 1,200 feet O.D. is peat covered: in addition thick deposits are found at lower altitudes in areas of impeded drainage, as for example on Reedshaw Moss at 900 feet O.D. In upland Rossendale
similar tracts of peat, with an average depth of 4 feet, cover the flat-topped summit levels, and there are also peat deposits on Pendle Hill and the moors to the north-east. Lowland peat is confined to one locality, the post-glacial lake bed of Salterforth Moss. The remaining post-glacial deposits - river terraces and alluvium - are widespread but patchy: nowhere do they attain the topographical importance of the glacial drift or the bleak impressiveness of the hill peat.

Relief and Drainage.

The contrast between upland and lowland, already noted in the treatment of geological structure, is a feature of persistent importance not only in the Calder-Darwen Valley but through Eastern Lancastria. The definition of upland and lowland is more difficult than might at first sight appear, for the break of slope between the two is inconsistent. Generally speaking the 650 foot contour provides a satisfactory boundary, although this produces anomalies, as for example in the Sabden Valley which is best considered part of the upland in spite of its relatively low altitude (c 450 feet O.D.).

Although the Calder-Darwen Valley forms a low level corridor between the Pendle axis and the Pennine-Rossendale uplands it exhibits considerable topographical diversity. As Figure 2 shows the greater part of the lowland lies at an altitude of over 250 feet O.D., and parts of it comprise slopes of moderate to great steepness. The physical landscape of the lowlands ranges from the extensive flats of the alluvial Calder
valley and Salterforth Moss, through the gentle to moderately sloping tracts of drift-smeared terrain found along the major valleys and on the sub-Rossendale levels, to the steep-sided interfluvies of the minor valleys cut by swift ungraded streams flowing from the uplands, and the equally steep scarp faces of the low altitude grit- and sand-stone outcrops. The lowland corridor is widest in the west where it opens on to the hummocky drift-covered Lancastrian plain. It narrows with distance north-eastwards, until at Foulridge its width is reduced to less than half a mile by the impinging uplands of the Pendle axis and the Pennines. Here a low indistinct watershed separates the Calder-Darwen lowlands from the extensive drumlin swarms of southern Craven, which are in the Aire drainage basin.

The Calder-Darwen Valley comprises two river basins of unequal size separated by a low watershed which coincides with a minor anticlinal flexure and is breached by a spillway at Cut Bridge (Figure 1). The smaller western basin is drained by the River Darwen, which rises in Rossendale on Cranberry Moss and flows northward along the fault-line valley bearing its name. At Witton it receives the Blakewater which rises on the lowland watershed, and the combined streams dissect an extensive spread of glacial sands and gravels before leaving the area by means of the deeply incised Hoghton Gorge cut through the western extremity of the Pendle axis. The larger eastern basin is drained by the (Lancashire) Calder, which rises in the Cliviger Gorge close to the source of the (Yorkshire) Calder; it flows along a generally wide valley,
dotted with rounded morainic hills but subsequently characterised by broad alluvial flats and terrace remnants. Its major tributaries drain from the Pendle axis (Pendle Water and its lesser tributaries, Sabden Brook) and Rossendale (the River Hyndburn and its tributary streams): even the minor tributaries have well developed alluvial flats and discontinuous terraces which contrast sharply with their steep valley sides. Below Padiham the Calder valley broadens appreciably, producing an extensive tract of ill-drained flat land, which gives way to the Whalley Gap, where the river breaches the Pendle axis in an impressive gorge much modified by the action of glacial meltwater.

The northern upland margin is dominated by the massive bulk of Pendle Hill (1,831 feet O.D.) and its associated gritstone ridges and moorland expanses, which range in height from 1,200 feet O.D. in the north-east to 500 feet O.D. in the south-west. Pendle Hill, produced by a gently pitching fold with low angles of dip, has a flat-topped summit capped by Millstone Grit and blanketed with hill peat: its north and east facing scarp slopes are cut into the Bowland Shales, with minor bench-like features produced by the inter-bedded Pendleside Sandstones. The southern scarp face, overlooking the Calder-Darwen Valley, is cut into the Millstone Grit, which also gives rise to the belt of foothills between the main upland mass and the lowland valley of Pendle Water. The ridge and vale topography of the foothills is accentuated by the presence of a broad outcrop of the weak Sabden Shales, along which an almost continuous valley
has been excavated from Foulridge in the north-east to Whalley in the south-west. Pendle Water makes use of this through valley in its middle course, having broken through the gritstone ridge at Whitehough by means of a glacially over-deepened pre-glacial channel: it leaves the Sabden Valley by a similar breach in the Kinderscout Grit ridge at Blacko, where the stream enters its lowland valley. The ridge and vale topography of the foothill zone extends across the north-eastern extremity of the lowland at Colne, where the east-west drift-free gritstone ridges, breached by peri-glacial channels and separated by a valley excavated in the shale, are instrumental in restricting the width of passageway between the Calder-Darwen and Craven lowlands.

Southwestward from Pendle Hill the gritstone ridges progressively diminish in height, but the local amplitude of relief is none the less impressive. West of the Whalley Gap the steeply-dipping drift-free outcrop of massive grits produces the double cuesta-form ridge divided by a narrow valley cut into weaker shales which separates the Ribble Valley from the Calder-Darwen lowlands. This low altitude barrier is breached by several peri-glacial spillways, but even so its striking scarp faces restrict the ease of access between the adjacent lowland tracts.

In contrast the eastern and southern periphery of the Calder-Darwen lowlands is bounded by high lying uplands with greater consistency of elevation. It is postulated that the general accordance of summit levels in the Pennines and Rossend-
ale marks the existence of two erosion surfaces at 1,000 and 1,200 feet O.D. respectively. In upland Rossendale lithologic-
al variations in the horizontally bedded Millstone Grits and Coal Measures produce a terraced landscape, which gives way to a series of inward facing scarps on the southern margins of the Calder-Darwen Valley. The uplands are drained by swift-flowing deeply-incised streams (locally termed cloughs) cut into solid and drift formations alike. The long profiles of many streams are broken at knickpoints which probably reflect readjustment to glacially modified base levels, at plugs of glacial debris, and at the outcrop of resistant bands of bedrock. Where upland streams are cut into thick drift, as on the lower slopes of Boulsworth Hill, slumping caused by undercutting and movement along lubricated planes has produced extensive landslips. The dominant valley features of the uplands are, however, the periglacial channels, notably the impressive Cliviger Gorge and the series of spillways cut into the western extremity of Rossendale.

The Calder-Darwen Valley is, therefore, a topographically diverse region. Its lowland sector comprises a variety of physical landscapes largely moulded by glacial deposition and modified by subsequent sub-aerial erosion, producing a gently sloping much dissected terrain, interspersed with alluvial flats, the steep-sided interfluvies of youthful valleys, and scarp-faced drift-free ridges of low elevation. The lowland, broadest in the west where it opens on to the hummocky plain is almost entirely fringed by hills which progressively restrict
its width with distance eastwards. The uplands of the Calder-Darwen Valley form an ever present backcloth of bleak flat-topped moors, craggy scarp faces, and steeply dipping cuestas. Incised into them are the swift-flowing streams which feed the major rivers before they too breach the upland barrier in impressive gorges. But just as the lowlands contain elevated features reminiscent of the hill country so the verdant upland valleys cut in the weak shales and mudstones resemble those of the plain. Everywhere there are reminders that upland and lowland are integral parts of the same regional entity.

**Climate and Water Supply.**

Finally it is necessary to include an outline of the climate of the Calder-Darwen Valley, for it is difficult to resist the conclusion that it ranked high among the physical factors conditioning economic growth. It is also evident that precipitation was the most significant of the climatic elements, for the amount and extent of rainfall, and to a lesser extent snowfall, was important on two major counts: first in restricting the scope of agriculture, and second in providing supplies of surface water for industrial consumption and power generation. Farming suffered the dual problem of heavy leaching of already poor soils and an excessive number of rainy days. The combination of cloudiness, cold impoverished soils - almost equally poor whether derived from moraine, deltaic sands, or Coal Measures and Grits - and heavy autumnal rains discouraged successful arable farming¹⁷, and scarcely encouraged profitable
pastoralism, even in the lowlands. In the uplands these difficulties were exacerbated by even greater climatic extremes, the high costs of clearing and draining land, and the problem of keeping pasture free of the less palatable grasses. Thus the upland farmer faced difficulties that were almost entirely inimical to profitable agriculture, and it is scarcely surprising that many of the farmsteads painfully carved out of the moorlands during times of speculative agricultural expansion were abandoned within a few decades of their foundation. Nor is it difficult to see why many farming families in upland and lowland areas were partly supported by income from other occupations - notably textile manufacture, quarrying and coal mining.

Although excessive rainfall bedevilled agriculture in the Calder-Darwen Valley it brought distinct advantages to the textile trades. The whole of the region lies within the 40" annual isohyet and there is abundant run-off, particularly as the uplands record much higher totals. In the nineteenth century two valuable features resulted from this: first there was a supply of soft and mechanically pure water for the finishing trades and paper manufacture; second, and probably more important, there was a sufficient volume of water to generate power by means of water wheels. The value of soft water to the cotton industry has in the past been greatly overstressed, for it was mainly significant in textile finishing and far less important to the numerically stronger spinning and weaving sections. Furthermore many of the surface sources had become permanently
hard due to pollution by the middle years of the nineteenth century, so that the presence of soft water supplies was diminishing progressively as the cotton industry expanded.

Water power was of far greater consequence, and retained its importance in the topographically broken uplands until the mid nineteenth century. Many ungraded upland streams were harnessed for power, but their value, and that of the major rivers was restricted by limitations of gradient and of volume, and by the vagaries of climate. Although annual rainfall was apparently adequate precipitation was least reliable during the spring months of lowest rainfall. Persistent drought, or its winter counterpart, protracted frost, could seriously dislocate the working of water-powered mills, and even greater damage could result when flash floods turned docile streams into raging torrents. Thus in spite of the initial influence of water power over industrial siting its limitations were soon felt, and many water-powered mills began to employ coal-fired steam engines from the 1830s onwards.

Rainfall and relief also served to produce other economic assets in addition to power, for the uplands were used as sources of water supply with increasing frequency during the nineteenth century. This partly reflected the fact that lowland demand exceeded supply, and was also a product of the excessive pollution of lowland streams. A large number of reservoirs was built both for public supply and for industrial use (Figure 6). In the uplands most were constructed by municipal water boards, either of the Calder-Darwen Valley, or less commonly of distant
towns. Lowland reservoirs were largely built by industrial concerns, and ranged from the small mill lodges created by damming small streams, to the large storage and settling ponds of the print works and paper mills. Finally there were the large reservoirs built to serve the canal, notably at Foulridge summit, which were important not only in maintaining navigation but also as a source of replenishment for the canal's function as a supplier of industrial water. However, canal proprietors were not always fortunate in their quest for water, for the abortive northern extension of the Manchester, Bolton and Bury canal was largely thwarted by competition from other users, notably the textile trades of Rossendale. As with water power plenitude of rainfall was not always to be relied upon even in a region notorious for its excessive dampness.

High atmospheric humidity has itself been accorded much importance as a climatic element favouring the growth of cotton manufacture, but many writers have demonstrated the fallacy of this argument, largely on the score that humidity is greater on the non-industrial coast than it is in the manufacturing districts further inland. Two further observations may be added: first, that as with soft water high humidity was more important in textile finishing than in any other branch of the industry; and second, that by the end of the eighteenth century artificial increases of humidity were being obtained by simple methods capable of adaptation to any stream-side site. Thus however important high atmospheric humidity may have been to
cotton manufacture its widespread distribution, and the ease of artificially creating higher or more even humidities made it insignificant as a physical factor conditioning industrial location.

In several ways the physique of the Calder-Darwen Valley has contributed to the shaping of industrial distribution and the growth of settlement. Water power and coal produced the means of mechanizing industry, just as the inimical climate and thin acidic soils of the area had caused subsistence farmers to seek new sources of income in textile manufacture. In order to stimulate economic growth communications were established with the main centres of trade, often traversing difficult country which had long been a barrier to movement, but in doing so making use of the numerous spillways which breached the encircling hills. The towns of the region also reflected the influence of physique, for they were largely built of local grit- and sand-stone, with the exception of Blackburn, where the widespread use of locally made red brick produced an urban landscape of different hue and texture. The functional structure of towns also owed much to the qualities of site: lines of communication threaded their way along factory-choked valleys, above which rose serried ranks of terraced houses, overlooked by the larger villas which crowned the smoke-free heights. But in every instance the chaotically built towns rapidly gave way to open country — either to the high lying moors, scarred by quarries and pock-marked with coal pits, or to the verdant flat-floored valleys of the lowlands. Everywhere the links
between upland and lowland, and the proximity of town and country reminded the nineteenth-century observer that the transformation of the landscape was a recent event in which the needs of man and the possibilities afforded by the environment were jointly responsible for a series of far reaching changes of persistent importance.

REFERENCES


3 The relevant sheets are 68 Clitheroe (1960); 75 Preston (S 1958; D 1940); 76 Rochdale (1927).


5 Full details appear in the works cited in 4 above.


7 E. Hull et al., "The geology of the Burnley coalfield", Mem Geol Surv U.K., 1875.


9 S.R. Earp et al., op. cit., p. 229.

11 This phase of the retreat sequence is the least perfectly understood.

12 Rodgers op. cit.


14 V. Dean, "The age and origin of the Sale Wheel Gorge", J Manchester Geol Assoc, 2, 1950, 1.

15 Rodgers op. cit. pp. 5-6; the same feature has been recorded in greater detail in Bowland: F. Moseley, "Erosion surfaces in the Forest of Bowland," Proc Yorks Geol Soc, 33, 1961, 173.


17 Although crops such as oats and potatoes were grown in apparently unsuitable localities the high failure rate and the low yields reflected the restrictions of environment.

18 Ogden, op. cit. pp. 22-24 laid heavy emphasis on the significance of soft water. The relative importance of the various physical factors of location is discussed below (p. 29-31); see also H.B. Rodgers, "The Lancashire cotton industry in 1840," Inst Brit Geogr, 28, 1960, 142.

19 The Act authorizing the canal in 1793 made the approval of 75 per cent of other water users obligatory before any lock could be constructed.

20 The importance of humidity was first suggested by S.J. Chapman, The Lancashire Cotton Industry, A Study in Economic Development, 1904. An extreme interpretation appears in A. Demangeon, trans. E.D. Laborde, The British Isles, 1952, p. 204; "... on the damp hill-slopes, which were constantly saturated by mist and rain from the west, the work of spinning was at an advantage".

Chapter 2
The Calder-Darwen Valley c 1780-1830:—
The Antecedents of Industrialization.

The Historical Setting.

One problem of beginning a historical narrative in chronological midstream is the need to explain as briefly as possible what has gone before in order to set the scene for the period of study. To make the task more difficult there is almost a conspiracy of silence among contemporary topographers about the character of the Calder-Darwen Valley in the proto-industrial period of its development. Those who journeyed through en route for Roman Ribchester or the romantic ruins of Whalley Abbey said little about the locality, and have left us with a far poorer heritage of descriptive writing than exists for places further south in Lancashire. This silence serves to illustrate a persistent theme in the early evolution of the region—that its physical remoteness caused it to be overlooked and to develop slowly in comparison with its neighbours.

The evidence of slow growth is recurrently found in examining the history of the region, both from place-name elements, many of which suggest late clearance and settlement after the initial invasion by Anglian and Scandinavian migrants, and from documentary sources. The uplands were colonized at a particularly late stage and for much of the eleventh and twelfth centuries their main value was as forests of the chase. When economic development took place in the thirteenth and fourteenth centuries it was largely in the form of extensive cattle farms.
for meat and dairy produce, which laid the basis of pastoralism over much of the region. The abandonment of the vaccaries from the mid fourteenth century onwards paved the way for their enclosure and sub-division into smaller holdings, a movement which gained momentum during the sixteenth and early seventeenth centuries. Among other things it produced a spread of settlement within the former forests of Accrington, Pendle, Rossendale and Trawden, and a concurrent increase in the size and prosperity of the lowland market towns — Blackburn, Burnley, Colne, and to a lesser extent Padiham. The increase of population and the further sub-division of holdings produced greater pressure on the limited agricultural potential of the region, particularly in the uplands where climate and soils conspired to limit the range of crops that could be grown. Thus there emerged a duality of occupation, mainly combining farming with textile manufacture and less commonly with coal, lead, and iron mining, and stone quarrying. This need to turn to supplementary sources of income was common in areas of agricultural difficulty for similar developments which differed in detail were to be found in other parts of the Pennines and neighbouring areas. Again the nascent towns of the lowland were the principal benefactors from this industrial growth, for they possessed the dye houses and fulling mills and were the principal cloth marts. In spite of this the towns of the Calder-Darwen Valley appear to have been relatively insignificant well into the eighteenth century. Defoe observed of the north Lancashire towns that "Preston and Lancaster are the only (ones) of note", and Holt
considered that the north was to be dismissed as "the subject of mere conjecture" when compared with "the chief seats of trade and opulence further south". It was also noted that Blackburn, which had given its name to one of the remote Pennine 'shires within a shire' — Blackburnshire — was but a shadow of its former significance, for many of its functions had either been lost entirely or usurped by other places.

The apparently low urban status of pre-industrial Blackburn when compared with centres such as Preston was largely a reflection of the relative remoteness and retarded economic development of the region which it served, and the towns of the Calder-Darwen Valley were destined never to emerge as an urban concentration rivaling the cluster of settlements in the Manchester embayment.

The Proto Industrial Period: 1780-1830.

During the eighteenth century there began a series of economic and technical advances which were ultimately to transform much of the Calder-Darwen Valley. Slowly the lineaments of a new pattern of settlement, industry and agriculture emerged, as factory industry began to replace domestic crafts, as means of communication were improved, and as the processes of enclosure and upland reclamation gained momentum. In the years between 1780 and 1830 the rate of change accelerated, and it is with this lengthy but relatively homogenous phase that the first detailed study is concerned. Within its span the range and value of source materials steadily improves, for they include the first reliable county maps, directories and gazetteers.
and the early returns of the census of population. It is proposed to examine in turn the various influences and elements of change that were to lay the foundations of subsequent urban and industrial expansion, and to illustrate their effect by means of three maps which depict the Calder-Darwen Valley in c 1780, c 1815, and c 1825 (Figures 7, 8, & 9 respectively).

I Industrial Development.

From these three maps two points of general importance are discernible: first the persistent importance as industrial centres of the two major towns of the locality, Blackburn and Burnley; second, the establishment of many isolated print works and textile mills in dominantly rural localities that were often to become the foci of new industrial concentrations. The principal industrial changes were connected with the organization of textile manufacture in large factory-based units and the application of powered machinery to various textile processes. Even where power was not employed concentrations of employment arose in hand-loom shops and print works. A high proportion of the early power-driven textile machinery of Lancashire was located outside the Calder-Darwen Valley, but this indirectly affected the local cotton trade by the establishment of commercial links between power-driven spinning mills south of Rossendale and hand-loom weavers to the north.

The application of power to weaving was not achieved until 1804 and the available evidence suggests that power looms were not introduced to the Calder-Darwen Valley before 1825. Thus the early powered factories were spinning mills...
to which hand-loom shops were often added. The first steam-driven mill in the locality was built in Burnley in 1790, but water power was more commonly employed, hence the predilection for stream-side sites revealed by the maps. Even in 1825 steam power was not widely employed in the Calder-Darwen Valley and it was often used as an auxiliary "to supply the deficiency of water". Thus during the period 1780-1830 some twenty cotton mills and a handful of worsted mills had been built in the Calder-Darwen Valley, about one-third of them in Blackburn and Burnley (Figures 7 - 9), the remainder scattered along the banks of streams in the locality. Most of the mills engaged in cotton spinning and weaving, for specialised weaving sheds were a rarity and the locality was unlikely to be able to compete in specialised spinning with the mills south of Rossendale. Consequently the combined mill* was the dominant feature of the pattern of industrial distribution in 1825 (Fig. 13) and there was little indication of the future importance of the weaving section.

Measured against the rise of cotton manufacture in the Manchester embayment the expansion of the industry in the Calder-Darwen Valley was relatively puny, for Bolton alone had over forty cotton mills in 1825. The reasons for the discrepancy are not necessarily easy to explain. Contemporary writers were sure that Luddism had lost Blackburn its position of importance by causing manufacturers to retire "to Manchester

* A combined mill contained both weaving and spinning machinery; a combined firm might operate in a combined mill, or in separate weaving and spinning premises.
and other places where the business was less obnoxious. Such statements probably confused the antiquity of textile manufacture in the town with its eighteenth-century importance, for whatever the deterrent effect of the rioters they could hardly have wiped out any major advantages that Blackburn might have possessed. It is far more likely that distance from the Manchester market and its commercial influences was responsible for differential rates of industrial growth within Lancastria, and the consequent attraction of capital to the Manchester embayment strongly influenced the subsequent growth of the cotton industry. Whatever the reasons, and they may have been complex, the Calder-Darwen Valley emerged late as an area of factory textile manufacture; not until the 1830s did the future shape of the region's industrial pattern begin to emerge with any degree of clarity.

The calico printing industry was a major element in the economic structure of the Calder-Darwen Valley during the period 1780-1830, and was organized on a factory basis from the outset. Print works were largely tied to stream-side sites (Figures 7-9;25-26) partly for their water-power potential but also for more persistent reasons. Print works required large quantities of water for the processes of bleaching, dyeing and washing cloth, and had originally needed to construct ageing rooms over streams in order to hasten colour fixing. Even when chemical methods of ageing were introduced in the early nineteenth century stream-side sites were still important, for power, water supply and effluent disposal, for the latter
became an increasingly difficult problem as mechanization progressed. The colonization of dominantly rural localities by print works partly reflected these heavy uses of water, and was also conditioned initially by the need to secure ample space for outdoor bleaching, and to lesser degree by the benefits of location in dominantly pastoral areas. Thus the locational requirements of print works were far more exacting than those for other textile factories, and their persistent importance meant that the distribution of the calico printing industry was to change far less after 1830 than that of cotton weaving and spinning.

The first print works to be established in the Calder-Darwen Valley was at Brookside (Oswaldtwistle), where the Peel family built the first of many works that were under its control, in 1770. Several other print works were built or converted from other uses — for example Church Bank was a woollen mill until 1772 — and the energies of the Peels combined with the existence of many favourable physical features to produce a major concentration of calico printing in the locality by the 1820s (Figure 9). The major changes in the pattern of distribution, other than those produced by expansion, reflected the shift of works to better sites, or their acquisition by other industries. Thus the Ewood Bridge print works, established in a former corn mill in 1780, were moved further downstream to Mill Hill and a cotton mill was built on the original site. Two print works in Darwen were converted to paper manufacture during the early part of the nineteenth century, thus illust-
rating the adaptability of premises with some locational ties in common.

Calico printing was also responsible for the growth during the early nineteenth century of a more direct industrial linkage in chemicals manufacture. The works marked on Figure 9 were mainly producers of dyestuffs and similar materials, and were therefore largely concentrated in the major locality of calico printing about Accrington. A final belated linkage was that between calico printing and cotton spinning and weaving. Thus during the 1820s firms at Broad Oak (Accrington), Brookside, and Lowerhouse (Burnley) built spinning mills and weaving sheds alongside their print works, thus creating fully integrated textile factories. Such establishments were, however, relatively rare, for the tendency towards horizontal organization militated against such development on a large scale.

A less obvious but nonetheless important connection between the textile trades and other forms of industry existed in the growth of engineering in the Calder-Darwen Valley. Much of the early textile machinery was built at the cotton mills, and the foundries of the locality largely grew to supply mill castings. Railton's machine works at Blackburn, recorded in a directory of 1814, was an early example of a specialized (30) engineering plant, and by 1825 there were several machinery manufacturers in Blackburn and Burnley. Of the other industries depicted on Figures 7 - 9 the majority were concerned with local market demand, notably corn milling and brewing. In addition there were numerous craft workshops, comparable in their
distribution to the still strong domestic branches of textile manufacture.

One final major group, the extractive industries, remains to be considered. Here too there were important links with the textile trades and the local demand which they generated. Coal mining, although long established, derived its major stimulus from the textile factories and the growing urban market. The main coal mining districts of the period 1780-1830 were in the Calder lowlands between Burnley and Clayton le Moors and in the uplands about Darwen and Accrington. In the former locality shallow shafts sunk through the alluvial flats, or short adits driven into the sides of deeply incised valleys were able to tap the Arley Mine at depths of less than fifty yards. Although the coals were often said to be of "middling quality" ease of mining and proximity to an expanding market outweighed this defect. The upland workings also comprised shallow shafts and adits, largely located on drift-free outcrops, and again proximity to market was a significant factor explaining the opening up of otherwise unpromising mineral reserves. Even so it is evident that the Calder-Darwen Valley was unable to meet all its fuel needs, for by 1825 the Blackburn district — an area deficient in coal reserves — was receiving regular shipments of canal-borne coal from the Wigan coalfield.

Two other forms of extractive industry existed in the period 1780-1830, brick and earthenware manufacture and stone quarrying. The former was strongly developed in Blackburn and the uplands to the south-east of the town, where bricks and
crude earthenware were made from Coal Measures shales and mudstones. Stone quarrying was far more widespread, but is not shown on Figures 7-9 due to the difficulty of identifying the precise sites worked at any given date. The Millstone Grit and Coal Measures series yielded a wide range of building and flag stones which were employed in all forms of constructional work. Most localities were worked at one time or another, but the poorest results appear to have been achieved along the northern limb of the syncline, notably around Blackburn. Here the steeply dipping beds were both difficult to work and unproductive of high quality stone, a fact which may explain the greater dependence on brick as a building material in the town.

Although Figures 7-9 give an impression of increasing industrial diversity during the period 1780-1825 this is partly illusory. Much of the diverse industry was in some way dependent upon the textile trades, which were themselves often interlinked. Similarly the patterns of distribution in 1780, 1814 and 1825 differed in detail rather than in principle, for the two dominant elements — urban concentration in two main centres and rural diffusion elsewhere — were persistent, and were further reflected in the pattern of settlement growth and in the development of lines of communication.

11 Communications.

Improvements to communications took two forms during the period 1780-1830 — the building of turnpike roads and the cutting of canals. The first turnpike roads of the locality dated from 1754 (Figure 59) when Acts were obtained to improve a
series of roads, largely to facilitate movement between the woollen and worsted producing districts of the eastern Calder-Darwen Valley and equivalent areas in Rossendale and the West Riding. During the 1790s a second group of roads was built which largely strengthened links with the Manchester embayment — an indication of the growing importance of the cotton trade at this time. In the third phase of road building between 1810 and 1830 a less coherent series of turnpike roads was created, including several branches of existing roads designed to relieve pressure upon them by duplication, or to entirely replace them by following more direct routes. Although some of the earliest turnpikes were up-graded moorland tracks — for example the Burnley-Crown Point-Rochdale and Colne-Haworth-Bradford roads — the most important ones broke new ground. Thus the trans-Rossendale roads followed the lower valley sides rather than the ridge tops favoured by earlier tracks, and crossed the high-lying moors by means of glacial spillways, thus minimising gradients and reducing climatic exposure. The last turnpike roads to be built were in effect the arterial roads of the early nineteenth century, for they avoided most existing settlements but attracted new forms of development along the line of route. The Blackburn-Accrington and Burnley-Accrington roads authorized in 1827 were of this kind, skirting old hamlets such as Stanhill and Huncoat but stimulating the growth of roadside industrial hamlets, as at Church. By 1830 the major elements of the local road system had been sketched in, and a century was to elapse before any major
additions were made to the network.

Unfortunately there are no detailed statistics of the movement of traffic on the turnpike roads, although fragmentary returns survive to illustrate the general growth in volume during the period under discussion. It is, however, possible to measure the volume and destination of traffic on all roads from the lists of scheduled carriers' services published in the various county directories (Figures 65-70). Although the maps must obviously exclude short distance traffic, for example coal cartage, much of this movement might also have avoided the turnpike roads and would not appear in the financial accounts kept by the Trusts. In 1824 (Figure 65) the network of carriers' services was already well developed, with particularly important trunk routes between the Calder-Darwen Valley and the Manchester embayment, Blackburn and Preston, and Burnley and the West Riding industrial towns. There was, however, little internal linkage between the eastern and western halves of the Calder-Darwen Valley, possibly due to competition from the canal. There were only ten scheduled journeys per week between Burnley and Blackburn, compared with over thirtyfive from Blackburn to Preston, and over thirty between Burnley and the Manchester embayment. Although one would expect strong links with neighbouring industrial areas to emerge, the relative weakness of local services was to be a persistent feature of all future traffic flows.

Canal building in the Calder-Darwen Valley proceeded at a less impressive rate than that of turnpike roads, for the
canal proprietors were faced with physical problems of construction and lack of potential traffic which did not impede the road builders. The first canal proposal to affect the area was that for the Leeds and Preston of 1764, amended in 1770 by the Act for a canal to link Leeds with Liverpool. The crossing of the Pennine watershed was to be made at Foulridge (Figure 64), but westward through the Calder-Darwen lowlands two routes were physically feasible. The more northerly via the Whalley Gap into the Ribble Valley was the route initially considered (Figure 64), but after a compromise modification of the line in 1790 had failed entirely to satisfy the potential backers in Burnley and Blackburn, the canal was routed along its present southern course after a further modification in 1794. This final choice, made with the promise of financial support from the two towns which stood to gain most from the canal's diversion, was probably the salvation of the waterway, for not only did it make possible certain economies of construction, it also removed the criticism of lack of originating traffic.

The major economy achieved was that of sharing the southern section of the Lancaster Canal as a means of traversing the difficult terrain west of Rossendale. Even so the canal took many years to complete within the Calder-Darwen Valley (Figure 64), and although it avoided the excessive use of locks which choked many other trans-Pennine waterways, this was achieved by following a circuitous and often expensively constructed route. Thus the Leeds and Liverpool Canal, first
to start building and first to cross the summit was the last of the trans-Pennine canals to be completed (Figure 64) and it is scarcely surprising that the waterway functioned as a series of locally important short sections rather than as a major trunk route.

Only one other canal was proposed to serve the Calder-Darwen Valley, the so-called Haslingden Extension (Figure 64) which was to have been cut through Rossendale in order to link the Manchester, Bolton and Bury canal with the Leeds and Liverpool. The physical difficulties facing the engineers of this waterway were considerable and made less tractable by the opposition of owners of water rights along the line of route, so that the canal was never built. The Leeds and Liverpool canal had solved conflicts over water use more easily, and ultimately became an important source of water for the mills on its banks. The value of canals as a means of communication in the Calder-Darwen Valley was, however, greatly reduced by difficulties of construction and circuitousness of route, and waterways never achieved the industrial importance which they attained in much of southern Lancastria.

iii Agriculture.

Although the major purpose of this work is to examine the evolution of an industrial locality and its landscape it is also necessary to make passing references to agriculture, particularly during the early phases of the study. The various agricultural improvements were, it can be argued, part of the general economic advance of the area, and were often linked
with the growth of an urban market and the development of communications. The observation that "trade is injurious to agriculture" did not apply to an area in which the increased urban demand for meat and milk stimulated pastoral improvement even in those lowland localities where arable farming was possible. The dominantly small farms of the district also benefitted directly from the expansion of industry, for the holding of dual occupations was still common and a writer on the Parish of Blackburn observed in 1807 that "it is by the loom, chiefly, that rents for land are paid". Increasing demand for food produced pressure on space and enhanced land values, even in the uplands where added incentive to extend the area of improved land stemmed from the enclosure awards of the late eighteenth century.

The enclosure of Oswaldtwistle Moor after the award of 1776 provides an example of the impact of agricultural advance in a moorland locality. The effect of the improvements initiated by enclosure was to produce an orderly landscape out of the wilderness by creating large rectangular fields intersected by drainage ditches and bounded by drystone walls. Solid stone-built farmsteads built low into the hillside to shelter from the inhospitable climate dotted the newly enclosed uplands. Their names proclaimed newness by taking those of their initial owners — Brewer Lot, Childer's House, Houlker Barn — or by emphasising the pioneer nature of the enterprise — Bold Venture, Stony Knoll, Hungry Hillock. The links between agriculture and industry were strengthened at Oswaldtwistle
as in many other places by the fact that industrialist landowners were among the most active agricultural improvers.

In the lowlands much of the pattern of enclosure and of rural settlement was of earlier origin, but even here there were significant changes during the eighteenth century as farmsteads were rebuilt, country houses extended and emparked, and the remaining tracts of common land enclosed. For example Enfield Common was enclosed in 1797, an act which was of considerable long-term significance for it influenced the later growth of the town of Clayton le Moors by establishing a distinctive pattern of land ownership. Even in the industrial towns of the lowland the distinction between urban and rural interests was not sharply defined in the 1820s, for in Blackburn and Burnley townspeople still held an interest in farm ownership and salients of farmland penetrated almost to the town centres. The market towns still functioned as agricultural marts, particularly at the time of the sheep and cattle fairs, so that there was still considerable intimacy in the contacts between urban and rural localities. But those contemporary writers who lamented the dreariness of much of the upland and equated it with an agricultural poverty that contrasted sharply with the bustling prosperity of the industrial lowlands were accurately, if somewhat prematurely, pointing to the major trend in the development of the locality after the 1820s. Not only was industry becoming progressively more important but the changes in agricultural prices after the end of the Napoleonic Wars were to make much of the upland reclam-
ation wasted effort and to place hill farming in a precarious position bolstered largely by the capricious market influences of the growing industrial towns. Thus by the 1820s many upland rural townships were beginning to lose population, for neither agriculture nor domestic textile manufacture could support greater numbers in the face of competition from the adjacent lowlands.

iv Settlement.

The impact of early industrialization and agricultural improvement upon the towns and villages of the Calder-Darwen Valley is difficult to assess, as is their early character and functional development. The absence of reliable maps and plans before about 1820, the paucity of information in directories before 1825, the narrowness of census material before 1831, and the conflicting assertions of contemporary observers all make it difficult to piece together a coherent picture of the distribution of population and the character of settlement much before the late 1820s. The salient points which emerge from the limited material evidence are three in number. First the local importance of the three well-established market towns — Blackburn, Burnley and Colne — was little changed during the period 1780-1830, for the new centres of industrial population were weakly developed. Second the pace of physical growth of settlement was still relatively slight both in existing towns and in new industrial localities. Finally, in spite of the adverse observations of most eighteenth-century and some nineteenth-century topographers, Blackburn ranked
as high as most market towns in Lancashire, even though it had failed to gain equality with Preston and had not assumed local primacy in the Calder-Darwen Valley on a scale equivalent to that of Manchester in its lowland embayment.

The growth and relative importance of towns in the Calder-Darwen Valley can only be hinted at before the 1820s. In both Blackburn and Burnley there is evidence that much of the earliest town expansion occurred through the process of building over crofts and gardens within the existing settlement. However, as early as 1796 the Blackburn glebe lands were freed for building and became the sites of irregularly-built chaotically-mixed areas of artisan houses and factories. A similar indication of pressure on space was revealed by the freeing of the Burnley curacy estate from 1823 onwards. Here too a piecemeal jumble of terraced cottages and factories arose, occasionally interspersed with coal pits. It was rare for any systematic approach to be applied to building; thus in Burnley the so-called "Club Houses" built by an early form of building society provided a remarkable exception to the prevalent chaos, for the dwellings were built to a common design on a grid-iron layout. Although this type of plan was subsequently to become commonplace its appearance in the first decade of the nineteenth century contrasted sharply with the haphazardness of early urban growth.

Outside the major long-established centres the most frequent areas of settlement growth were focused upon the new textile factories which often occupied sites distant from the
existing towns of the lowland. The establishment of rural print works and cotton mills led to the construction of cottages at the factory gates, and these "mill hamlets" eventually coalesced to form straggling industrial settlements. Accrington, Darwen and Church were examples of this tendency, for all three were important centres of calico printing, an industry which generated substantial employment and also produced linked forms of industrial growth. Darwen excited comment from a contemporary observer by virtue of its rapid growth in a recently enclosed upland area: "Darwen ... has, since the introduction of the cotton trade become a populous and flourishing district. It is in a bleak and unsheltered situation (where) coals, however, are plentiful". In spite of their growing industrial importance and size (Darwen had approximately 6,000 and Accrington 5,000 (61) inhabitants in 1831) neither had achieved town status in the 1820s (see Appendix A) for both settlements still comprised a loosely knit collection of rural hamlets (folds) and mill communities. There were also numerous "mill hamlets" which had not merged with settlements of like kind, such as the print works settlements of Dugdale's at Lowerhouse and Fort's at Oakenshaw, and the cottages built to serve Fielden's Wensley Fold spinning mills. It is interesting to observe that in many instances the owners of factories which stood outside the towns became substantial land owners and built cottages for their workers, thus exerting a lasting influence of the growth of settlement in the vicinity of their mills.
Landowners who were not primarily industrialists, even though they might have a stake in local economic expansion, exerted a different influence on the growth of industrial centres. Thus Padiham, an old market town, failed to make great headway due to the restrictive influences of the Starkie family of Huntroyde and the Shuttleworth family of Gawthorpe, whose estates dominated the town. The absence of a continuous belt of factories along the banks of the River Hyndburn between Church and Clayton-le-Moors reflected the adverse influence of the Petre family at Dunkenhalgh, for to the north and the south of their emparked house the stream was lined by factories and coal pits. The Petre estate also covered much of Rishton where no factory-based industry of any kind grew before the 1850s, in spite of the presence of turnpike road, canal, and railway, the existence of coal, and the establishment of one of the earliest hand-loom shops in the Calder-Darwen Valley in 1776. The importance of land ownership as a factor of growth of settlement will be examined in greater detail later; suffice it to say that even in the earliest stages of industrialization different rates of industrial expansion within the Calder-Darwen Valley were rarely to be explained solely in simple terms of accessibility or physical endowment.

In 1828-29 when Teesdale's map was prepared (Figure 103) three elements of the settlement pattern were evident: first the dispersed farmsteads, commonly found in the recently enclosed and newly reclaimed lands of Rossendale, Pendle and the Pennines; second the nucleated villages and hamlets of the
longer settled lowland and foothill zones, in many instances inflated by the addition of cottages clustered about the new factories; third the major towns, the largest of them Blackburn and Burnley already beginning to develop distinctive industrial suburbs as physical expansion from the centre began to engulf the "mill hamlets", or as fresh localities were opened up by the release of land and the creation of new factory districts. In 1829 the lineaments of a major urban concentration were being sketched in the Calder-Darwen lowlands as the old towns grew and the new industrial settlements coalesced to form ribbons of continuous building. But most growth was haphazard and ill-regulated, for the monotonous symmetry of the grid-iron blocks and massive mill groupings was yet to come — and even this apparently uniform growth of later years possessed greater intricacy in its evolution than is evident to the casual observer.

Chaos was, therefore, the dominant feature of the early industrial settlements. Burnley in 1827 provided the clearest evidence of ill-organized building, for the town comprised a series of small settlements focused on groups of mills, coal pits and foundries, with wedges of open country penetrating the core of the settlement. The principal market thoroughfare was a jumbled mixture of shops, inns, factories and workshops interspersed with cottages, cellar dwellings and tenements grouped round airless courtyards, a situation encouraged by the piecemeal disposal of land, notably by the Curacy estate. Those contemporary observers who applied terms such as "opulent"
to the towns of the Calder-Darwen Valley can scarcely have looked further than the occasional group of fine town houses — such as those in King Street, Blackburn — or the handful of public buildings and churches erected before 1830. For the most part those writers who considered Blackburn and its lesser neighbours to be mere "manufacturing places" were nearer the mark. The major towns of the Calder-Darwen Valley were never to rise to the eminence of several of their apparent peers elsewhere in Lancashire — Bolton, Oldham, Preston — as an examination of the evolution of the urban hierarchy in the nineteenth century will show (Appendix A). It is all the more surprising that this should be so when it is noted that the area reached a peak population of almost half a million inhabitants and still failed to produce a major regional focus in this relatively isolated locality.

v Population Distribution.

From 1801 onwards the returns of the census of population make it possible to measure the growth and changing distribution of population with greater accuracy and to illustrate these features cartographically. One major defect of the census returns and, therefore, of the maps produced from them is the coarseness of the statistical unit — initially the township — for the accuracy of the interpretation of census figures is inversely proportional to the size of unit for which they are published. A particularly important problem is that of distinguishing between the upland and lowland areas, particularly in the many instances where townships included both types of
locality, and a similar difficulty exists in attempting to separate the rural component of townships from the urban. Although it is possible to recognise major groups of townships with geographical and demographic affinities in order to study long-term general trends (Figure 90) there are considerable problems of definition and several anomalies which are further confused by changes of administrative boundaries from the 1880s onwards. Care has to be taken, therefore, against reading too much into the evidence of the published census returns.

The major changes in the number and distribution of population between 1801-1831 are shown in Figures 72 - 75. During the period as a whole four main points are evident and may be related to the various economic changes outlined above. First is the high absolute and relative increase of population throughout the lowland manufacturing districts, notably in the Blackburn-Darwen area, the Accrington group of townships, and those between Burnley and Colne. Second is the high rate of increase experienced in the Pennine foothills and its contrast with the more modest rate of increment in the Pendle axis and Rossendale. Third is the low rate of increase in the townships straddling the mid Calder Valley between Burnley and Whalley, and finally there is the single example of absolute decline in the lowland township of Rishton.

Examination of Figures 72 - 75 reveals that there were marked fluctuations of growth rate during the period 1801-1831, both in the overall trend for each decennium and in the changes
experienced by individual townships. Generally speaking the rate of increase was at its highest during the period 1811-21 and fell sharply in 1821-31. Several townships reached their highest recorded populations in 1821 (Figure 89) and others attained a secondary peak that was only exceeded after the turn of the century. The upswing in 1811-21 may have reflected external influences — notably those of the Napoleonic Wars — as well as the purely local ones of industrial expansion and agricultural improvement. The reduced rate of increment after 1821 may also be partly explained in terms of post-war economic difficulty, for it is clear that local expansion of the textile trades did not gain its greatest momentum until after 1830. Thus the changes in rates of growth within those townships which were experiencing the early pangs of industrialization may be seen as part of a process of readjustment to new forms of economic growth. Fluctuations of the growth rate almost certainly reflect such features as the halting progress of early industry — the collapse of a print works could, for example, convulse a locality until new owners appeared, as they almost always did — intra-township movement of population between the rural and urban parts of the larger units, and movement away from the Calder-Darwen Valley in times of major economic distress. It is, however, difficult to be precise about the causes of fluctuating change in the manufacturing districts at this time for the evidence of population migration is exceedingly scanty.
Outside the industrial areas the pattern of change in the period 1801-1831 is a little easier to interpret, although here too there are several anomalies. The erratic progress of Worsthorne-with-Hurstwood (1801-1811 = 30 per cent; 1811-1821 + 105 per cent) may have been related to the opening of quarries in the township, but is just as likely to be the product of an error in the 1801 census tabulation, which is known to be less reliable than that of subsequent years. In several other instances apparently high rates of rural increase are the product of small numerical gains — for example that of 95 per cent at Ightenhill Park in 1811-21 involved only 100 people and was a temporary increase that was probably related to the exploitation of coal on the Gawthorpe Estate. There were, however, more important long-term trends which were only partly blurred by inter-censal fluctuations, notably the general loss of population from many of the Pendle and Rossendale townships after 1821. This is generally ascribed in the census notes to "the removal of labourers to the large towns" and to "want of employment for hand-loom weavers". It is not at all certain that the explanation was so straightforward, for the Pennine townships which continued to grow were almost equally dependent on agriculture and the hand loom. The failure of most of the early water-powered mills in Pendle to survive the transition to steam power may have been a feature influencing population loss, for the Pennine townships with their easier access to coal were able to make the change. On the other hand
the presence of coal in the Rossendale townships did little to stem loss of population after 1821, so that the change from water- to steam-powered machinery was not necessarily a function of the availability of coal. The disparities among the upland townships are not easy to resolve partly because many of them, notably in the Pennine foothills, extended into lowland localities that were strongly influenced by the growth of manufacturing districts.

Low rates of increment were also recorded in some lowland townships between 1801-31, and there were instances of absolute decline in several of them during part of the period. The townships of the mid Calder lowlands - Altham, Hapton, Huncoat and Simonstone - all grew slowly in spite of the fact that each one was on the coalfield and traversed by turnpike roads, or the canal, or both. In both Hapton and Huncoat part of the explanation may lie in the extent of the township boundaries to encompass upland localities, but this is almost certainly not the sole reason for retarded growth of population. Rural localities such as these could only expect to grow if they offered positive advantages to industry, or if sites in more favoured districts were scarce. The coal resources of the area were only patchily worked on the drift-free outcrop before 1830, its reserves of water power were relatively slight, and there was little incentive for industry to colonize the remoter lowland townships when already established centres offered ample space for expansion. The same general point can be made
in relation to Reedley Hallows, north of Burnley, and to Rishton, east of Blackburn, but in these townships the influence of land-ownership must also have inhibited industrial growth. Rishton in particular appears to have suffered the detrimental influence of the Petre family, for it was the only township to lose population during the period as a whole.

vi The Calder-Darwen Valley in the 1820s.

From the materials available it is not easy to construct a picture of the landscape of the Calder-Darwen Valley as it was in the 1820s on the threshold of industrialization. To the traveller making his painful way along the turnpike roads or gliding along the canal by packet boat the view was still largely rural, punctuated occasionally by a slender mill chimney or a colliery windlass, until the outskirts of a manufacturing town were reached. Towns appear to have cast a spell over the more literate travellers, for their descriptions were excessively fulsome. Blackburn in particular was considered to be among the leading industrial centres of the day, and one observer claimed that it was "... for its extent and population, one of the richest towns in Europe" while another tempered his praise of the town by noting that its development had produced "an irregularly built town". This point was also made by Baines, who ascribed it to the "intermixture of glebe and other lands" and to "eccentricity of taste and want of convenience", but he too was convinced that the town "at one time proverbial for its rudeness and want of civilization" was a much improved place.
Whether Blackburn or any of its neighbours had improved so greatly during the first twenty years of the nineteenth century is difficult to say, but it is clear that many of the writers cited above were blinded by the technical wonders of the age and seem to have equated industrial advance with universal good fortune. The haphazard growth of towns need not in itself have been a detrimental feature, for the penetration of salients of open country into the built up area helped to maintain an air of spaciousness. But the quality of building and its location steadily deteriorated during the 1820s, with the erection of terraced rows of back-to-back houses that were often built on low lying sites adjacent to stream-side textile factories. The use of large quantities of slack coal, wastefully burned in factory furnaces and domestic hearths, polluted the atmosphere and rapidly blackened the warm golden tones of the sand- and flag-stone buildings, so that the limited aesthetic appeal of the towns was soon lost and writers in the 1840s were passing very different comments upon them. The chaotic spaciousness of the late-eighteenth-century manufacturing centres was by the 1820s being replaced by an equally unregulated overcrowding that was to affect new settlements as well as the old. Thus the urban landscape of the 1820s was far from opulent, for the handful of mansions and residential terraces scarcely compensated for the growing number of cramped, ill-sited, badly built artisan cottages.

The landscapes of rural localities aroused less enthusiasm among contemporary writers than those of the towns, for most were
overcome by the "general air of dreariness and poverty" of the recently enclosed tracts of moor and common. No one except the specialist agricultural writers commended the skill of the upland improvers or applauded the good husbandry and timber planting initiated by the more enlightened lowland land owners. The rural scene was viewed largely in terms of poverty, either of environment or of society, and the villages were thought to be crude and uninviting. Yet the rural scene must have possessed much that was attractive, with its neat quickset hedges and newly laid stone walls, its whitewashed farmsteads and honey-coloured cottages, its gracious country houses standing in well-wooded parks, and the ever-present backcloth of hills. Perhaps then, as now, too many visitors saw the locality beneath a pall of low cloud or through a curtain of driving rain, and they were not impressed by what they saw.

In the 1820s the Calder-Darwen Valley was still in an early stage of transition between being largely rural and becoming dominantly urban and industrial, and this was reflected in its landscapes. In the lowlands the pattern of rural settlement was modified by the incursion of textile factories and their associated "mill hamlets". The towns in turn were still intimately linked with the countryside, for fingers of farmland still penetrated to their centres, townspeople still owned small-holdings, and the functions of rural marketing were not abandoned when industrialization gained momentum. In the uplands much of the man-made landscape was relatively new
in the 1820s, for the ruler-straight roads, the large stone-walled fields, and the farmsteads nestling on the hill sides were almost as modern as the water-powered cotton mills that were strung out along the valleys, or the coal pits which dotted even the highest moorland tracts. Here too rural and industrial landscapes mingled as the technical advances of the early nineteenth century brought transient wealth to localities that were soon to be supplanted by the bustling lowlands. In the 1820s many writers voiced supreme optimism for the age of improvement and mechanical wonders, in words which have an ironic ring to those who now attempt to reconstruct the evolution and the character of the nineteenth-century landscape:

"The vailles (sic) are skillfully cultivated, some of the hills covered by flourishing plantations, and even where the sterile surface seemed to bid defiance to human art, rich mines of coal and limestone have been found ... Hence the Hundred of Blackburn, which a century ago did not contain fifty-thousand inhabitants, the great majority of whom lived in miserable cottages ... now contains about one hundred and fifty thousand inhabitants, the majority of whom live in prosperous and well-built towns, abounding with the necessaries and luxuries of life, where they enjoy all the benefits desirable from industry, instruction, and the communicable sympathies of man." (77)
REFERENCES


4. The Forest of Blackburnshire was divided into the four chases of Accrington, Pendle, Rossendale and Trawden, but the term forest was (and still is) often applied to the chases. For an account of the forest economy see R. Cunliffe Shaw, *The Royal Forest of Lancaster*, 1956, pp. 353-381; and R.B. Smith, "Blackburnshire, a study in early Lancashire history", *Occasional Papers in Local History*, No. 15, 1961.

5. All had statutory markets and fairs by the early seventeenth century. See G.H. Tupling, "An alphabetical list of the markets and fairs of Lancashire", *TLCAS*, 51, 1936, 86; and "Lancashire markets in the sixteenth and seventeenth centuries", *TLCAS*, 58, 1945-46, 1. Tupling (1936) lists a market at Netherton (Great Harwood) from 1338, but this is almost certainly Nethertown (Whalley).


12. "(Blackburn) is, or at least was once, the chief town of this Hundred ... but we find nothing else remarkable of it", *Magna Britannia et Hibernia*, 1720, p. 1286.


14. Many of the administrative functions of the Hundred of Blackburn were assumed by Clitheroe, hence the alternative title for the Hundred - the Honour of Clitheroe. The largest ecclesiastical parish of the area, Whalley, was also controlled from outside the Calder-Darwen Valley.


16. See bibliographical details in Appendix B.

17. The major successful technical innovations were made in cotton spinning in 1764-1770; calico printing 1784; cotton weaving 1804-1807. See G.W. Daniel, *The Early English Cotton Industry*, 1920, and A.P. Wadsworth and J. de L. Mann, *op. cit.*


19. Thus Peel's Bury Ground print works put-out work to handloom weavers in the Calder-Darwen Valley (Graham MS) and several spinners from Bolton maintained warehouses in Burnley from the 1790s onwards; Bennett, *op. cit.*, 3, p. 186.
20. See n 17 above; the first power loom was introduced in 1785 but it is said that their efficiency was poor before 1804 and that only in 1840 were all the major teething troubles finally overcome. Ed. Baines, History of the Cotton Manufacture in Great Britain, 1835, p. 235, notes that even by 1813 there were only 2,400 power looms at work in Great Britain.

21. The dates most commonly quoted are Blackburn (1825), Burnley (1827), Colne (1833): an earlier introduction at Accrington, said to have been made in 1816, is either based on a false report or an abortive experiment, for the first power-loom shed was not built in the district until 1826.

22. Thus the "Dandy Shop" in Blackburn, dating from the late 1790s, was erected by a cotton spinner who wished to have greater control over hand-loom weavers than was possible with the putting-out of work to cottage weavers.

23. Sandygate Mill, built by the Peel family; it was destroyed by fire in 1798.


25. Ibid., p. 505.

26. For a general account of technical improvements in calico printing see G. Turnbull, A History of Calico Printing In Great Britain, 1951.

27. It was claimed that the cheapness of bleachcroft sites in Lancastria hastened the decline of the industry in London, Aikin, op. cit., p. 165; the links between pastoral farming and the finishing trades are examined by S. Fairlie, "Dye-stuffs in the eighteenth century", Econ Hist Rev II, 17, 1965, 488.

28. The dates attributed to the foundation of print works are from the Graham MS.

29. The removal took place in about 1783; Ewood Bridge print works Blackburn (there was a later establishment of the same name in Rossendale) was one of several in Lancashire founded by migrant printers from the London area.

30. There were specialized machine makers in South-east Lancashire at an earlier date, for example Dobson and Rothwell of Bolton (1790). See G. H. Tupling, "The early metal trades and the beginnings of engineering in Lancashire", TLCAS, 61, 1949, 1.

31. The earliest records refer to mining at Trawden in 1295 (De Lacy Compoti, op. cit.). Mining in Padiham, Burnley
and Colne was noted in the fifteenth century; H.T. Crofton, "Lancashire and Cheshire coal mining records", TLCAS, 7, 1889, 26.


34. The much sought after massive flagstone known locally as "lonkey" was absent west of Rishton; W. E. Wright et. al., "Geology of the Rossendale Anticline", Mem. Geol. Surv. U.K., 1926.

35. These roads were branches of separate Turnpike Trusts, and did not make an end-on junction with one another in Accrington.

36. The relevant returns largely survive in the collections of the Lancashire Record Office - see Appendix B.

37. Act of 1770 for the "making and maintaining of a navigable Cut or Canal from Leeds Bridge ... to the North Lady's Walk in Liverpoole (sic)".

38. Aikin, op. cit., p. 125, considered that little was to be gained in trade from the country which the canal was originally scheduled to pass through, and that the idea of linking Leeds with Liverpool had little to commend it as a commercial venture.

39. The most expensive and difficult section of the canal is said to have been the 17 miles between Foulridge and Enfield; L. T. C. Rolt, The Inland Waterways of England, 1950, p. 47.

40. See chapter 1, fn 19 for details of this opposition. The canal proprietors would have had to use inclined planes or short sections of linking tramroad instead of locks, and neither alternative was considered to be worthwhile.

41. The company had agreed to safeguard supplies of water to existing mills and to minimise wastage at locks.

42. Thus Aikin observed that the Leeds and Liverpool Canal would largely benefit agriculture in the cheaper cartage of lime; op. cit., p. 125.

43. Quoted by Holt, op. cit., p. 211; this was the view of an arable farmer who had suffered competition for labour.
44. Bennett, op. cit., p. 94.

45. R.W. Dickson, General View of the Agriculture of Lancashire, 1815, p. 116, observed that the holdings around Blackburn and Burnley were "for the most part small ... only very few reaching 200-300 acres".


47. Rentals of land were said to have increased greatly since the mid eighteenth century; W. Cooke Taylor, Notes of a Tour Through the Manufacturing Districts of Lancashire, 1842, p. 50.

48. Enclosure Award, LRO - PR 25.


50. The rate valuation books of both towns show that many townspeople still owned plots of farm land on the margins of the built up area.

51. Britton, op. cit., pp. 119 & 127, wrote at length about the agricultural poverty of the area, but appears to have been mainly concerned with the paucity of arable farming.

52. Greenwood's map (1818) was the first to illustrate the pattern of settlement in detail; accurate town plans first appeared during the 1820s.

53. E. Baines, op. cit., Vols. I & II, provides the first detailed directory to cover a comprehensive range of information.

54. Although a crude enumeration of employment was attempted the early censuses did little more than count heads. For a note on the early occupational classification see the preface to the 1831 report (pp. ix-xiii).

55. See Appendix A and n15 above.

56. The rate valuation books show that this was a common practice.

57. W.A. Abram, A History of Blackburn Town and Parish, 1877.


59. The Hall Union Club built the property for owner-occupiers in the first decade of the nineteenth century.

60. Darwen entry in Commercial Directory, 1814.
61. In these, as in several other instances, the size and composition of townships makes it difficult to assess the urban population with accuracy.

62. Only very recently (1963) has building been allowed on the emparked sections of these estates. It is said that the Starkie and Shuttleworth families refused to sanction industrial building before the 1840s (R. Millward, *Lancashire the Making of the Landscape*, 1955, p. 60) and it is clear from the Tithe Survey of 1839 that they shared control of most of the township.

63. This was at Tottleworth, still an insignificant hamlet in Rishton, and sent its cloth to Church Bank print works.

64. The estate lands were largely leased in blocks of 500 square yards or so to speculative builders, who in turn often disposed of property to owner occupiers.


66. See Appendix B for index maps to the census returns.

67. For an examination of general population trends at this time see R. Lawton, "Population trends in Lancashire and Cheshire", *THS* 114, 1962, p. 189; J. T. Danson and T. A. Welton, "On the population of Lancashire and Cheshire and its local distribution during the fifty years 1801-1851", *THS* 9-12, 1856-60, in four parts.

68. For example Huncoat township was excluded from the returns in 1801.

69. The notes in the 1831 census, made by the Overseers of the Poor who were also responsible for enumeration, are largely concerned with increases of urban population; not until 1841 were reports of rural depopulation inserted even though this had clearly taken place after 1821.

70. Even in 1830 travellers complained of the hazards of turnpike travel; see for example W. Cobbett on the state of the Rochdale-Blackburn road in "Northern Tour", *Cobbett's Weekly Political Register*, 69, 1830, 103.

71. There was a regular passenger service by canal between Burnley and Blackburn in 1824, which took four hours to complete a journey covered by coach in half the time.


74. E. Baines, *op. cit.*, I, p. 505.
75 Ibid., page 506.
76 J. Britton, *op. cit.*, page 127.
77 J. Corry, *The History of Lancashire*, 1825, Vol. II, page 265. This work is lavish in its uncritical praise of the mechanical wonders of the age.
Chapter 3

The Calder-Darwen Valley in c.1851: Early Industrialization.

The year 1851 is not only the mid-point of the nineteenth century proper, it also marks the middle of a major phase of industrialization in the Calder-Darwen Valley which ran from c.1841 to c.1861. Although no single year can be entirely representative of a period of change, any more than the period itself is uniform throughout its existence, 1851 has much to commend it as the date of a period picture illustrating the first major phase of industrial and urban growth. The manuscript returns of the 1851 census provide the first detailed evidence on employment and migration - those for 1841 being useful only in the first context and those for 1861 being incomplete. The first Ordnance Survey maps and plans of the locality were surveyed in 1844-48, with subsequent revisions in the early 1850s, and the various tithe apportionment surveys were prepared between 1839-51. The publication of Slater's directory in 1851, and of a wide range of parliamentary papers on the textile trades and certain other industries from the mid 1830s onwards provides a substantial amount of raw material, which is augmented by a variety of unpublished documents and manuscript accounts held by libraries and record offices. The weight of documentary evidence alone points to the suitability of 1851 as year to focus upon within the significant phase 1841-1861 which, among other things, saw the coming of the railway, the post-depression textile boom of the 1840s, and the onset of the Cotton Famine. In addition to
examining the character of the Calder-Darwen Valley in 1851 it is also proposed to discuss the general pattern of industrial and urban growth during the period from the mid thirties to the early sixties, employing the mode of treatment adopted in Chapter 2 above.

**i Industrial Development.**

By 1851 the structure of industry in the Calder-Darwen Valley had become much more complex than it had been twenty years previously. This is not merely an impression fostered by the greater range of information provided by the census returns for the range and volume of employment available in 1851 was greater, even though the textile trades and their ramified forms of interlinkage still dominated the economy of the area.

**The Textile Industry: The Initiation of Change — 1830 - 1851.**

In 1830 the cotton industry of the Calder-Darwen Valley was still clearly divided into two sections: the spinning of yarn in power driven mills, and the weaving of cotton cloth, largely by the hand loom, either in sheds attached to spinning mills ("combined mills") or more commonly in the cellars and outhouses of domestic workers' cottages and farmsteads. The power loom had only recently been introduced to the locality, and was not perfected until 1841, so that the rapid growth of the weaving section of the industry came very much later than that of spinning. One result of this was that much of the early investment in weaving machinery was made by spinning firms, and
as a high proportion of these were located in the Manchester embayment this area also attracted the bulk of powered weaving before the late 1830s. Thus in 1835 only 14 per cent of the power looms installed in Lancastria were located in the Calder-Darwen Valley.

The late adoption of powered weaving in what was to become popularly known as the weaving area of Lancashire merits closer investigation, particularly when it is remembered that the locality generated some of the earliest mechanical advances in cotton manufacture and also provided a substantial market for yarn in its hand-loom shops and for cloth in its print works. The importance of hand-loom weaving to the subsequent development of mechanised specialization has often been stressed in both positive and negative terms. It has been suggested that the concentration of power-loom weaving in the Calder-Darwen Valley was a reflection of the long-established tradition of hand-loom weaving, but were this so there could hardly have been so great a gap between the introduction of power looms to Lancashire and their adoption in the Calder-Darwen Valley. Furthermore hand-loom weavers were so widespread in Lancastria that their presence could scarcely have acted as a localizing factor in a single district.

Much has also been made of the inhibiting effect of the established domestic weavers on the introduction of machinery. As noted above anti-machinery riots were probably not solely responsible for the belated introduction of power looms to major towns such as Blackburn (see pages 29-30). Nor does it seem
probable that the supposed objection of hand-loom weavers to factory work was a limiting factor, for in many instances it was the absence of an opportunity to transfer to factory work which caused distress among hand-loom weavers in rural areas. There is no firm evidence that the hand-loom weavers were implacably opposed to the introduction of power, for the manuscript returns of the 1841 and 1851 censuses include many instances of families in which the parents worked at the hand loom while their offspring were employed in power driven mills. It is also known that some weaving concerns recruited hand-loom weavers when machinery was introduced. Even were the belief that hand-loom weavers as a class strongly opposed the introduction of power looms true this animosity would have had little effect on the progress of mechanization. Many concerns recruited the bulk of their labour from unskilled hands, mainly women and young people. Thus whatever the explanation for the emergence of a concentration of power looms in the Calder-Darwen Valley it is clearly dangerous to invoke the presence of a community of hand-loom weavers ready to pass on accumulated skills, and it is equally unwise to suggest that the prejudices of this group greatly retarded the growth of mechanised cotton manufacture in the Calder-Darwen Valley.

The introduction of the power loom to the Calder-Darwen Valley in the 1820s produced little effect on the pattern of industrial distribution, for it was common for spinning firms to add power-loom sheds to their premises, or to convert their hand-loom shops, thus perpetuating the dominance of combined
mills. This process of growth is well illustrated by a series of examples from Blackburn, based on an enquiry made in 1834. Several firms had added loom sheds to their premises during the late 1820s, and most of those originating after 1825, when the power loom was introduced to the area, had built combined mills from scratch. This latter practice became widespread during the 1830s, so that by 1841 it was considered to be commonplace.

The continued dominance of the combined establishment is mainly explicable in terms of the provision of capital by spinning firms and of the economies of integrating yarn and cloth output without the necessity for intermediate merchanting and transport — indeed it is difficult to understand why the system subsequently fell into disrepute, particularly as cotton manufacturers were later to complain of their high costs of transport.

It is, however, almost certain that within the combined mills weaving was beginning to assume greater importance than spinning by the mid 1830s, for the ratio of power looms to operatives was high in both Blackburn and Whalley parishes (1:1.3 and 1:1.4 respectively) compared with 1:5 in Bolton parish and 1:2.4 in Manchester parish, which had the greatest numerical concentration of power looms in 1835. This local importance of weaving was clearly not equivalent to dominance within Lancastria, but it provides slender evidence that the Calder-Darwen Valley was beginning to emerge as a specialized weaving district by the mid 1830s. Further equally slight evidence is given by the returns of the increment of power
installed by various types of mill between 1835-37, for the only instances of separate weaving sheds recorded in the lists were at Preston and in the Calder-Darwen Valley. The number and size of such premises was, however, small, and there is no way of knowing what proportion of the increment of power in combined mills was given over to weaving.

The power loom census of 1835 revealed the lead which Blackburn and Burnley had maintained as centres of cotton manufacture within the Calder-Darwen Valley (Figure 27), for only a few establishments with power looms were located outside these towns. The increment of power between 1835-37 was less strikingly concentrated in these places, although both had a large number of expanding mills (Figure 28). The largest single units were, however, situated outside the towns, mainly in new centres such as Darwen and Accrington, or isolated rural localities such as Dugdale's integrated textile factory at Lowerhouse. Nevertheless both Blackburn and Burnley contained a substantial number of smaller expansions and new premises, notably in combined mills. Figure 28 shows how important this type of mill was in the late 1830s, and it also suggests that the specialized weaving shed was a much smaller unit than either the combined or the spinning mill. But it must be emphasized that the returns relating to increased power give no indication of the proportions used by spinning and weaving machinery respectively in combined premises.

By the 1840s the evidence of growing specialization in
weaving in the Calder-Darwen Valley is a little more emphatic, although even at this time the range of information available is tantalizingly imprecise. Thus the 1841 report of the Factory Inspectorate provides detailed returns for individual mills which cannot be identified due to the mode of tabulation. The published summaries of returns produced on a parish basis are inadequate as a means of measuring change in the Calder-Darwen Valley, for the vast parish of Whalley extended far beyond its confines into Rossendale. The general impression given by these returns is that the combined mill dominated the cotton trade of the locality, but there is no indication as to how the employment afforded by them was divided between spinners and weavers.

Similar reports made by the Factory Inspectors during the 1840s are scarcely more informative, for they too fail to distinguish clearly between spinning and weaving in their statements relating to employment, equipment, and investment of capital. Thus Horner reporting on investment in plant during the period 1844-45 does not indicate its precise nature in combined mills, although the returns offer further supporting evidence of a growing trend to establish weaving sheds more rapidly in the Calder-Darwen Valley than elsewhere. The importance of the power loom in Rossendale and the northern parts of the cotton manufacturing district is also revealed by the sub-inspectors' returns of 1845 which can be compared approximately with those of a decade earlier. The greatest volume of increase in power-loom weaving was recorded in the sub-districts comprising the parishes of Wigan, Chorley, Blackburn, Preston, Whalley and
Rochdale, with much lower rates of increase in the sub-district (19) of the Manchester embayment. The final evidence on the structure of the cotton trade provided by the Factory Inspector reports also supports the view that specialization in weaving had become well established in the Calder-Darwen Valley by the early 1860s. Thus in Accrington and Darwen a high proportion of textile employment was in cotton weaving, whereas in Blackburn the combined mill remained dominant. The information derived from the Factory Inspectors' returns is, however, only broadly indicative of the trend of development in the cotton industry, and although it suggests that weaving was of growing significance from the late 1830s onwards the evidence needs to be supported by that of the census returns in manuscript.

The manuscript returns of the 1841, 1851, and 1861 censuses make it possible to abstract detailed information on the structure of employment; this has been done comprehensively for (21) 1841 and 1851, and for a sample of localities in 1861. The pattern of distribution is examined later (pages 80-89); here it is intended to examine the light which the returns shed on the general evolution of the cotton industry in the Calder-Darwen Valley. One major weakness of the census returns is that they do not consistently distinguish between hand- and power-loom weavers, so that a precise measurement cannot be made of the rise of employment in power driven factories. A second, but less important problem, is that posed by the inclusion of "cotton factory hands" who were not further defined by the enumerators. However, as this group formed only 4.5
Table 1: Textile Workers in 1841 and 1851

<table>
<thead>
<tr>
<th>Occupation</th>
<th>1841 Number</th>
<th>1841 %</th>
<th>1851 Number</th>
<th>1851 %</th>
<th>Increase %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton Weaving</td>
<td>27,084</td>
<td>72</td>
<td>34,500</td>
<td>69.5</td>
<td>28</td>
</tr>
<tr>
<td>&quot; &quot; Spinning</td>
<td>4,613</td>
<td>12</td>
<td>8,249</td>
<td>16.5</td>
<td>78</td>
</tr>
<tr>
<td>Calico Printing</td>
<td>3,169</td>
<td>8.5</td>
<td>3,306</td>
<td>6.5</td>
<td>4</td>
</tr>
<tr>
<td>Others*</td>
<td>2,757</td>
<td>7.5</td>
<td>3,845</td>
<td>7.5</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
<td>37,623</td>
<td>100.0</td>
<td>49,900</td>
<td>100.0</td>
<td>33</td>
</tr>
</tbody>
</table>

* Workers in worsted, silk, and other textile trades not further specified (e.g. 'factory hand', 'cotton mill worker')

Table 2: Cotton Spinning and Weaving Labour in Rural and Urban Townships 1841-1851

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Rural 1841</th>
<th>Rural 1851</th>
<th>Change 1841</th>
<th>Urban 1841</th>
<th>Urban 1851</th>
<th>Change 1841</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton Weaving</td>
<td>4,024</td>
<td>4,079</td>
<td>+ 1.4%</td>
<td>23,060</td>
<td>30,421</td>
<td>+ 30%</td>
</tr>
<tr>
<td>&quot; &quot; Spinning</td>
<td>101</td>
<td>243</td>
<td>+ 140%</td>
<td>4,512</td>
<td>8,006</td>
<td>+ 78%</td>
</tr>
<tr>
<td>Total</td>
<td>4,125</td>
<td>4,322</td>
<td>+ 5%</td>
<td>27,572</td>
<td>38,427</td>
<td>+ 40%</td>
</tr>
</tbody>
</table>

Data in Tables 1 & 2 from Census MS returns
per cent of the total employment in textiles in 1841 its exclusion from both the spinning and the weaving section does not unduly affect the broad structure of the industry as revealed by the census figures (Table 1).

The main points revealed by a comparison of the statistics relating to 1841-51 (Table 1) are first the dominance at both dates of the weaving section. Even if the known total of hand-loom weavers in 1851 is deducted (7,821 - 17 per cent of all textile workers) the power-loom weavers still accounted for 63 per cent of employment in power driven textile mills and 53 per cent of all textile workers. Thus it is clear that the combined mills of the Calder-Darwen Valley must have had a preponderance of weavers, a fact already hinted at by the ratio of workers to looms in the 1835 power-loom census. The second point is seemingly at variance with this evidence of the dominance of weaving, for between 1841-51 employment in spinning grew at a relatively rapid rate in the Calder-Darwen Valley. Several explanations spring to mind as reasons for this apparent anomaly. If all the unspecified cotton workers in 1841 and 1851 had been spinners - an improbable supposition - the rate of increase would have been slightly lower (75 per cent) but even so it would have been much higher than that in weaving. If the owners of combined mills found that demand for yarn was outstripping supply once the power loom had been perfected it is conceivable that a numerically small but proportionately large increase in spinning employment would have been generated by the need to keep pace with advances in powered
weaving. A final possibility is suggested by an analysis of the figures for the rural townships in which only a handful of combined mills were built. Here there was an even greater disparity between the rate of increase in spinning and weaving during the period 1841-1851, as Table 2 shows. This is almost certainly a reflection of the fact that the rate of growth in weaving was a compound of a diminution in the number of handloom weavers and an increase in the number of power-loom weavers, a feature which would have its greatest adverse effect on the total volume of increment in rural areas but would also affect the pattern of change in most urban localities. The growth of spinning was not affected in this way, so that any additional employment provided in this section was not offset by losses in domestic manufacture. Taking all three of the possibilities together it becomes less surprising that spinning should have appeared to move ahead in the 1840s, even though weaving was still dominant in 1851. The evidence of change during the period 1851-1861 is less complete, but the returns suggest that by this time the rates of increase in spinning and weaving were less disparate, thus producing an even greater dominance of the weaving section.

One major question remains to be answered: why did weaving gain the ascendancy in the Calder-Darwen Valley between about 1830 and 1860, and how did this measure against the degree of industrial specialization elsewhere in Lancastria? The explanation must of necessity be both speculative and
incomplete, for it is doubtful whether any source of evidence survives to produce a satisfactory answer. The belated introduction and perfection of the power loom produced a late but sustained demand for unskilled workers, which could most easily be met in an under-industrialized locality with a growing population and, or, access to large supplies of rural labour. The Calder-Darwen Valley was such a locality, and it is clear from the evidence of the census returns that both the local increment of population and short distance movement from rural areas fed the growth of the textile labour force. The pattern of population movement from rural areas will be investigated later (pages 100-111); it is enough to point out here that its causes were not necessarily related to higher wage rates in the towns or to agricultural depression. More commonly movement from rural areas to the towns reflected the wider range of employment opportunities for a family offered by the latter, particularly when the once widespread country textile mills began to close in the face of competition from new industrial centres on the coalfield. Thus the failure of Fielding and Margerison, calico printers of Catterall, in 1830 produced a substantial migration to the Calder-Darwen Valley, an example of the "spur of necessity" which in its several forms helped to propel country dwellers to the towns. The ability of the Calder-Darwen Valley to draw on a large pool of unskilled labour at a time when powered weaving was first being introduced on a large scale must, therefore, have exerted a strong influence on the emergence of intense specialization in weav-
ing, a tendency which may have been greatly reinforced in its critical early stages by lower local wage rates than were being paid in the Manchester embayment.

The degree to which the Calder-Darwen Valley dominated employment in weaving in Lancastria as a whole is difficult to assess, for the published returns of the census do not distinguish between spinners and weavers. The Calder-Darwen Valley contained about 16 per cent of all cotton workers aged 20 and over in 1851, compared with 63 per cent in the Manchester embayment, 16 per cent in the area between Wigan and Preston, and 5 per cent in Rossendale and scattered localities in north Lancashire. The evidence of the Factory Inspectors' report for 1863 is incomplete, but it suggests that heavy specialization on weaving alone was largely confined to new manufacturing centres such as Darwen and Accrington. The Factory Inspectors' reports also indicate that the intense concentrations of spinning in the Manchester embayment, which had been a noteworthy feature in the 1840s, were even more striking in the 1860s. The importance of the combined mill, and the absence of any indication as to the relative importance of spinning and weaving in them, makes it impossible to measure the extent to which specialized weaving in the Calder-Darwen Valley compared with the volume of employment in weaving elsewhere in Lancastria. It is, however, reasonably clear that just as certain branches of spinning were held to be "rooted as it were to the soil" of the Manchester embayment, so the same processes of locational conservatism were initiated in the Calder-Darwen
Valley between 1830 and 1860. The reasons for this specialization may never be perfectly understood — the consequences of it are more easily traced over the past hundred years or so.

The second textile industry of the Calder-Darwen Valley — calico printing — had reached the peak of its territorial extent before 1851, for no new print works were built in the locality after the 1840s, and several earlier ones had been abandoned. Although the abandonments reflected a wide range of personal and local factors, many of them could be ascribed to the growing pace of mechanization and the consequent concentration of manufacture at a smaller number of major sites. Thus in 1841 65 per cent of the locality's labour force was employed in print works around Accrington, and in 1851 71 per cent of the employees were in the Accrington group of townships. In Blackburn and Darwen calico printing was a shadow of its former importance by 1851. At Mill Hill print works, which had given employment to 436 workers in 1841, the plant had been "converted into cotton mills for spinning and power-loom weaving" by 1846. The Livesey Fold print works at Darwen had "for the most part been let off for power-loom weaving and rag grinding", and one of its former owners had become a leading paper manufacturer and stainer. In the Burnley area calico printing did not grow as cotton weaving expanded, largely because the established but newly mechanised works could handle the increased trade, but also because much of the increase of production was of non-printing cloths, as was the case in the Blackburn area.
No other branch of the textile industry was of more than local significance in 1851. The woollen and worsted industries of the Burnley-Colne area survived as vestigial remnants, and one important manufacturer of worsted had also introduced the spinning and weaving of cotton at his mill. In the town of Colne a substantial volume of mousselin-de-laine was still being produced by hand loom in the 1850s, for it was believed that such fine quality weaving could not be carried out by power. Of the other branches of textile manufacture the only notable concentration was that of silk weaving in the uplands south-east of Blackburn — this too was a domestic survival producing fine quality cloth by hand loom. Apart from these relatively small local concentrations and the larger, but static calico printing industry, the cotton trade dominated the employment structure of the Calder-Darwen Valley in the 1850s, and also exerted strong influence over other forms of industrial development.

Miscellaneous Manufacturing Industry.

The chemical industry was largely located in the townships of Church, Altham, and Hapton, where the major users — the print works — and an important source of raw material for coal tar distillates — the coal mines — lay in close proximity, indeed one chemical works at Church was owned by a coal mining and coking concern. Chemicals manufacture was destined to grow very slowly, partly because of the difficulty of competing with an already well established industry in south Lancashire, and partly because of the problem of securing water for process work in areas dominated by calico printing. The
paper industry would also have faced this last difficulty had it not succeeded in almost entirely replacing the Darwen print works, for paper mills were voracious consumers of water and equally prodigious producers of noxious effluent. The growth of paper manufacture reflected several links with the textile trades, including the similarities of locational requirements, the market demand for wrapping papers, and the supply of rags as a raw material. In addition one firm in Darwen had taken "the idea of printing wallpaper from the process used in calico printing", and this was to become a singularly important branch of paper manufacture in the locality.

The textile machinery manufacturing industry had become well established in the Calder-Darwen Valley during the period after 1840 with the creation of several specialized firms, often under the direction of former mill mechanics. The choice of location was often determined by the existence of ties with cotton manufacturing concerns; for example one firm of machinery manufacturers in Burnley was controlled by the owners of a weaving shed. In other instances the location of plant was largely fortuitous, the best example of this being the foundation of Howard and Bullough's machine works at Accrington in 1856. Bullough had worked as a mill mechanic in several places throughout Lancashire before coming to W.H. Hornby's Brookhouse Mills at Blackburn, where Kenworthy was also employed. In 1841 these two mechanics finally perfected the power loom, and shortly afterwards left Brookhouse to operate their own mills elsewhere in the Calder-Darwen Valley.
In 1856 Bullough had moved to the Accrington district and there met with Howard, a foundry owner; the partnership thus established gave rise to the largest textile machinery works in the Calder-Darwen Valley and helped to establish Accrington as a major centre of engineering. There was, however, no reason why Bullough should not have located the plant at one of the other places in which he had settled save for the accident of meeting Howard in Accrington at a time when the growth of cotton manufacture had created a sustained demand for equipment.

The manufacture of machinery was not, however, as strongly developed in the Calder-Darwen Valley as it was in the Manchester embayment, where as early as 1841 there had been 15,000 workers in the "principal mechanical establishments" compared with 930 in Blackburn and Burnley. The early mechanization of the cotton industry in south-east Lancashire had, therefore, helped to secure a lead in textile engineering that was never to be seriously challenged by the growth of the industry in the Calder-Darwen Valley.

**Extractive Industry.**

Coal mining, although of local significance within the Calder-Darwen Valley, was also poorly developed in comparison with other parts of Lancashire in 1851. The published census returns show that the area contained 7 per cent of the coal miners aged 20 and over enumerated in Lancashire, compared with 30 per cent in the West Lancashire coalfield, and 40 per cent in the Manchester embayment. In the Calder-Darwen Valley mining was still carried out on a modest scale in a scatter of
small pits which fell into two major groups — one in the uplands between Darwen Moor and Great Hameldon, the other in the Calder lowlands (Figure 44). In 1841 few pits employed more than 100 hands (Figure 39); the 1851 census manuscripts give few details but suggest that larger collieries, often comprising a number of small sinkings, were in existence by that date. Coal mining was, however, still organized on a much smaller scale than, for example, that of the Wigan area at this time, and the census manuscripts show that much of the mining was controlled by textile concerns. Thus in Accrington and Oswaldtwistle print works owned coal pits, and it is known from other sources that calico printers directly financed the expansion of coal mining in the Accrington district, and that cotton manufacturers did likewise in Darwen. In the Burnley area coal mining was in the hands of larger colliery companies who were to initiate a series of major pit sinkings in the 1850s that gave the district a sizeable lead in local coal production. Even in Burnley coal production was closely tied to the demands of local industry, both for foundry coke and for cheap slack coal to feed mill furnaces.

Although detailed information is scanty three general points may be made about coal mining in the 1850s. First it was generally subservient to other forms of industry, even to other branches of extractive industry in the Darwen area. Second it was unable to meet local demand for fuel — the canal wharves at Blackburn received coal from Wigan and Ince as well as from the Calder lowlands. Third there was already emerging
a sharp contrast between the mines of the upland and those of
the lowland. The former were small, often picking out an easily
worked drift-free seam in a rash of shallow shafts and adits.
Their labour force was small and still included men who both
mined coal and wove cotton or farmed small-holdings. The
lowland pits were larger and were being sunk to greater depths
in order to tap the richer seams which had only been patchily
worked along their outcrops.

The remaining extractive industries — brick manufacture,
pottery, and stone quarrying — had made little progress since
the 1830s and showed few locational changes. Of the three, stone
quarrying was to enjoy greatest prosperity in the 1850s, for
outside Blackburn the bulk of the new industrial and domestic
building was to be of local stone, as were almost all of the
public works schemes throughout the district. The minor extractive industries enjoyed a markedly similar status to that of the
coal trade, subservient to the demands of textile manufacture
and the towns which were growing through its influence.

**Employment Structure.**

The census of 1841 was the first in which detailed infor-
mination on the occupations of the people was collected.
Although the published returns are scarcely more valuable than
those of earlier years the enumerators' manuscripts (Appendix B
provide a source from which a more elaborate analysis of
occupational structure can be made. The imprecision of the
returns, particularly in the lack of consistent distinction
between hand- and power-loom weavers, is almost certainly out-
weighed by the wide range of information on occupations not covered by the Factory Inspectors' returns, and by the smallness of unit area for which data are available. For purposes of mapping the occupational classification has been greatly simplified (Table 3) in order to emphasize the major groupings; the category craft-trades is particularly diverse, largely because the returns do not permit an easy distinction between factory and domestic workers. It also has to be remembered that the data relate to occupations rather than to industrial employment, a feature which makes it particularly difficult to measure the early importance of engineering, an industry which employed a wide range of occupations.

The outstanding and entirely predictable feature of the occupational structure of the Calder-Darwen Valley in 1841 was the dominance of textiles, for two thirds of the occupied population was employed in the various branches of textile manufacture. There were substantial variations in the structure of the textile labour force, and in its relative importance from locality to locality (Figure 40). Cotton weaving was the dominant branch of the industry, as noted above (Table 1), with cotton spinning and calico printing a poor second and third respectively, and miscellaneous branches of the textile industry of limited and highly localized significance. The size of the textile industry in relation to other occupations normally gave it dominance. Only in Altham, Hapton and Worsthorne with Hurstwood were non-textile occupations of greater importance than textiles, and only in Church and Simonstone were the
Table 3: **Simplification of Census MS statistics used in the Preparation of Figures 40 - 41.**

<table>
<thead>
<tr>
<th>Category</th>
<th>Includes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton Spinning</td>
<td>Various specified types of Spinner, Piecer, Creeler, Sluher, Card-room Hand, Grinder, Doubler.</td>
</tr>
<tr>
<td>Cotton Weaver</td>
<td>Various specified types of Weaver, Warper, Sizer, Beamer, Taper.</td>
</tr>
<tr>
<td>Calico Printing</td>
<td>Various specified types of printer, Tierer, Dyer, Bleacher, Singer.</td>
</tr>
<tr>
<td>Woollen/Worsted</td>
<td>All operatives specifically allocated to any branch of the industry.</td>
</tr>
<tr>
<td>Silk</td>
<td>as woollen/worsted.</td>
</tr>
<tr>
<td>Other Textiles</td>
<td>Various unspecified cotton factory workers &amp; labourers, warehousemen, engine tenters; any other textile trades not covered above.</td>
</tr>
<tr>
<td></td>
<td>(In Figure 41 all the above appear under TEXTILES)</td>
</tr>
<tr>
<td>Crafts</td>
<td>Smiths and Metal Trade Workers, Building and Joinery Trades, Dress and Footwear Makers, Cloggers.</td>
</tr>
<tr>
<td>Commerce</td>
<td>Shop keepers, Inn keepers, Pedlars.</td>
</tr>
<tr>
<td></td>
<td>(In Figure 41 combined with Professional Workers, Clerks etc.)</td>
</tr>
<tr>
<td>Mining &amp; Quarrying</td>
<td>Various coal mining occupations, stone hewers, brick &amp; earthenware makers, coke oven workers.</td>
</tr>
<tr>
<td>Agriculture</td>
<td>All workers specifically allocated to farming and horticulture, including agricultural labourers &amp; farm servants.</td>
</tr>
<tr>
<td>Labourers &amp; Servants</td>
<td>All in this class not further defined.</td>
</tr>
<tr>
<td>Others</td>
<td>Workers in Transport; Workers in Other Manufacturing Industries (e.g. Paper Making, Brewing, Flour Milling).</td>
</tr>
<tr>
<td></td>
<td>(In Figure 41 the category Others is used to cover the residue of workers after the major groups have been plotted in the smaller townships)</td>
</tr>
</tbody>
</table>
textile trades, although the largest single category, outnumbered by the remaining occupational groups.

Cotton weaving was not the major form of employment in textiles in every enumerator's district, although in some townships it was present to the exclusion of all other branches of the industry (Figure 40). Cotton spinning was never more than locally important, and in two districts only were spinners more numerous than weavers — Whalley Banks (Blackburn), and Lowerhouse (Burnley). Calico printing on the other hand had well-defined concentrations of employment in Church, Clayton-le-Moors and Accrington. The largest group of non-cotton textile workers was in Trawden, where 113 woollen and worsted weavers (9 per cent of the township's textile labour force) survived of a formerly much greater number. It is clear that cotton weaving dominated the employment structure of the Calder-Darwen Valley by 1841, but the census returns add nothing to our knowledge of the proportion of workers employed in weaving sheds, spinning mills and combined premises. There is, however, the strongest evidence that the combined mills of the locality employed a high proportion of weavers, and that the importance of the weaving section of the industry was already firmly established by 1841 (see above, pages 70 - 73).

The extractive industries were a widespread source of employment in 1841 (Figure 38), with major concentrations of coal miners in the partly upland townships of Darwen, Oswaldtwistle, and New Accrington, in Yate and Pickup Bank, and in the lowlands about Burnley and Padiham. Stone quarrying was a
common rural occupation, but rarely achieved great importance except in some of the Pennine townships, notably Briercliffe with Extwistle and Worsthorne with Hurstwood. Brick making and pottery manufacture were also occupations of limited and localized significance, mainly in parts of Blackburn and Oswaldtwistle townships.

The various craft-trades and commercial occupations were widely scattered throughout the Calder-Darwen Valley in 1841, and all but the remotest townships possessed a modest number of workers in both groups. In the towns there were already substantial numbers of craft workers and those engaged in commerce, often grouped in the central parts of the settlement. This was particularly true of Blackburn and Burnley, where in many of the central enumerators' districts craft and commercial occupations were both relatively and numerically strong. The range of occupations was also wide in the two major towns of the area, and their importance as market centres was further enhanced by the variety of professional occupations which they possessed, again often housed in distinctive quarters.

Agriculture was, rather surprisingly, of apparent insignificance in 1841, although it may be that the true extent of agricultural employment was disguised by the excessively large residue of unspecified "servants and labourers" in many townships. It appears that in most localities agriculture was subservient to employment in textiles, and less commonly mining. In many families only one person was returned as a farmer or farm worker, the remainder being listed as textile operatives or
colliers. In townships such as Blackburn and Burnley agricultural workers seem to have been almost non-existent, for even in their rural parts textile manufacture dominated the occupational structure.

The census of 1851 was carried out more thoroughly than its predecessor, and the manuscript returns are more useful, for they combine greater explicitness with an improved mode of presentation. Between 1841-1851 the enumerated occupied population of the Calder-Darwen Valley rose by 20,000 (36 per cent) at a time when the total increase of population was 28,000 (22 per cent). The higher growth rate of the occupied population was to be expected in a locality where industrialization was providing a greater volume of employment for women and young people, as well as attracting migrants of working age. The largest share of the increase (61 per cent) was predictably taken by the textile trades, but several other occupational groups enjoyed high rates of increase which were largely related to the establishment of ancillary industries and the growing variety and volume of tertiary employment provided by the towns.

The textile industry remained dominant in 1851 and gave employment to two thirds of the occupied population as it had a decade before. As has been shown above (Table 1 and pages 71-) there had been some minor modifications in the structure of the textile labour force, with the decline of hand-loom weaving, the relatively sharp upswing in spinning employment, and the stagnation of calico printing. In most townships textile manufacture dominated the occupational structure, although the expan-
sion of mining in the Calder lowlands had weakened the already precarious hold of textiles in several localities. Weaving was the paramount branch of the textile industry in every township save New Accrington where calico printing was still dominant. Cotton spinning was rarely more important than weaving, and often only marginally so; four enumerators' districts in central Blackburn and three in Burnley had slightly more spinners than weavers, and as these were localities in which there were several large combined mills it seems likely that much of the increment in spinning was absorbed by establishments of this kind rather than by specialized spinning mills. The non-cotton textile industries were, as in 1841, feebly developed, and mainly comprised isolated remnants of the once important worsted and woollen trades of the eastern part of the Calder-Darwen Valley. As Figure 41 shows the cotton industry had retained its supremacy, and weaving remained the dominant element.

Between 1841-1851 employment in mining and quarrying had almost trebled in the Calder-Darwen Valley. Quarrying had assumed particular importance in the Pennine township of Worsthorne with Hurstwood where it provided employment for one third of the occupied population. Coal mining had grown as a source of employment in the upland parts of Oswaldtwistle, but the greatest concentration of new employment in mining lay in the lowlands between Altham and Little Marsden. The brick and tile industry had progressed in Blackburn, a town which lacked the reserves of building stone possessed by most of its neighbours. In general the pattern of employment in the extract-
ive industries reflected that of 1841, for much of the increase in employment represented an intensification of mineral working rather than the exploitation of entirely new areas.

The craft-trades increased their employment by 70 per cent between 1841-1851. In a handful of districts in central Blackburn and Burnley they now formed the largest single group of occupations and comprised an extremely broad range of trades, reflecting the specialized services which the major market towns could support. Even in the medium- and small-sized industrial centres the amount and range of employment in the craft-trades was greater than it had been a decade before. Part of the growth must have been accounted for by the rise of engineering works, but the greater part of the increase seems to have taken place in small workshops and the workrooms of retail establishments. One major problem posed by the returns is that of adequately distinguishing between factory employment and craft work performed by retail establishments, for the use of an occupational classification becomes increasingly difficult as the structure of industry becomes progressively more complex.

Employment in commerce and the professions rose by 60 per cent between 1841-51, and was much more heavily concentrated in Blackburn and Burnley than the craft-trades were. In the smaller towns the volume and range of employment in this group was relatively slight, and in many rural townships shop keeping was a subsidiary occupation to weaving or farming, or was indistinguishable from the craft-trades. The most important feature of the distributional pattern was the heavy concentration of
employment in small localities within Blackburn and Burnley, where several central enumerators' districts had between 50 and 80 per cent of their occupied population in the threefold group craft-trades, commerce, and professions.

The remaining identifiable tertiary occupation — transport — had increased its labour force by 140 per cent between 1841-1851. Employment of "railway servants" was a new and significant source of expansion, notably in Blackburn, Burnley, Accrington, and Colne. Road haulage, notably coal cartage, was another source of increment, as was canal employment, the last named being concentrated at Foulridge where many barges were tied-up on census night. An equally transient form of employment in transport was recorded at Wilpshire and Ramsgreave, where numerous "navigators" working on the Blackburn to Chatburn railway were enumerated. These last two instances excluded there were substantial increases in employment of a more persistent kind, and like those in other branches of tertiary industry they reflected the growing complexity of industrial organisation in the Calder-Darwen Valley.

The remaining occupational groups — agriculture, servants and labourers, and other occupations — provide the least satisfactory evidence of distributional change. The large number of labourers and servants recorded in 1841 had fallen by 41 per cent, almost certainly because of a more accurate allocation of members of this group to other forms of employment. The largest concentrations of servants were to be found in the major areas of commercial and professional employment, and in
the country houses of the locality. Agricultural employment rose by 55 per cent between 1841-1851, an increase which was largely a product of the more accurate classification of labourers. Much of the growth of employment recorded was located in semi-urban townships, and it may in part have reflected a genuine intensification based on the expansion of the urban market. It is, however, much more likely that the enumerators were more successful in distinguishing between the various types of labourer and part-time textile worker, for it was in the mainly urban townships that the 1841 returns appear to have under emphasised the survival of farming on the perimeter of the built up area. In purely rural areas the agricultural labour force either declined slightly or remained static between 1841-1851, and it appears probable that in the Calder-Darwen Valley as a whole the agricultural sector of the economy was in a precarious position by the 1850s.

The pattern of employment in 1851 differed only in detail from that of a decade before, but several features of long-term significance were already beginning to emerge. First was the fact that the apparently retarded growth of weaving was the product of expansion in power driven mills offset by the rapid decline of hand-loom weaving. Almost without exception those enumerators' districts which recorded substantial numbers of hand-loom weavers in 1851 had lost employment during the previous decade and were to lose further population before 1861. Thus once the decline of hand-loom weaving was complete it was reasonable to expect a real increase in powered weaving, and
there is evidence in the 1861 returns that such a process had taken place in the towns during the 1850s. Second was the relatively weak showing of other branches of the textile industry, for the growth of spinning was unimpressively diffuse, and the calico printing industry had passed the peak of its expansionist phase. Third was the steady growth of linked industries which owed their origins and much, if not all of their expansion to the strength of textiles: coal mining, textile engineering, paper making and staining, and chemicals manufacture all enjoyed the beneficial influences of growth in the textile industry. Finally there was the growing volume and diversity of tertiary employment afforded by the industrial towns, a feature that was reflected by the emergence of functional specialization in their central areas, and also exerted important influences on the pattern of migratory movement.

Location and Changing Distribution of Industry.

Four principal sources of information on the size of industrial establishments exist for the period about 1851 — the census returns of employment furnished by factory owners, parliamentary reports on mining and textile manufacture, contemporary records in manuscript or published form, and rate valuation books. No source of data is either uniformly available for the whole of the Calder-Darwen Valley or related to exactly the same period of time, and the maps based upon these diverse materials (Figures 25-651-2) have to be supplemented by a more detailed non-quantitative depiction of the location of industry in 1851 (Figure 10) based on entries in Slater's
Directory. Similarly this directory provides the only information on the types of cotton mill situated in the Calder-Darwen Valley in 1851, and this non-quantitative data appears in Figure 14.

The most complete range of information is that which illustrates the distribution of calico printing in the 1840s. The major concentration of print works around Accrington is clearly shown by Figures 25-6, and this grouping was to become even more impressive when the works situated in the Darwen Valley closed during the late 1840s. The mechanization of printing and the introduction of steam power scarcely affected the industry's pattern of distribution, for the sites that were chosen initially for their water supply were almost all in localities of cheap coal and continued to depend on their waterside positions for process work and effluent disposal. Even a relatively remote print works, such as that situated on Sabden Brook, was able to remain in business by acquiring cheap slack coal from the collieries at Great Harwood. In general the print works were still the largest single industrial establishments of the 1840s, although they were being rapidly overhauled by the major combined cotton mills of Blackburn.

The distribution of cotton mills is shown in Figures 14-51. The map of employment accounts for about 90 per cent of the factory hands recorded in 1851, and is least accurate in the remoter rural areas, either by complete exclusion or by the inclusion of domestic outworkers on the factory payroll. The
greatest number of mills lay, as was to be expected, in Burnley and Blackburn. In both towns there was a twofold pattern of distribution comprising stream- and canal-side mills. Most of the oldest mills, dating from the 1820s and earlier, occupied stream-side sites in the central parts of the towns, but the newer establishments, built in the various trade booms after 1830, were located indiscriminately at stream- and canal-side sites. As is explained in greater detail below (page 156) the canal was often valued more highly for its water supply than as a means of transport, and there was no general abandonment of stream-side sites for those on the banks of the canal. The same point can be made in relation to the distribution of mills in the newer industrial centres served by the canal, for in these places stream- and canal-side sites were developed contemporaneously. The major feature of the distributional pattern was, therefore, the tendency for cotton mills to favour water-side locations, but it appears to have made very little difference whether the water came from a stream or from the Leeds and Liverpool Canal.

The size of mills is shown by Figure 51, but no indication is given as to the type of premises because the census returns do not indicate the number of workers employed in the spinning and weaving sections respectively of combined mills. The type of cotton mill is shown in Figure 14, which reveals the great importance of the combined mill in 1851, particularly in Blackburn and Burnley. Although both towns had separate weaving sheds these were more numerous in the newer centres and
the country districts. An estimate based on the census returns of factory employment suggests that over three quarters of the workers employed in textile mills were in combined establishments in 1851, and that a further 20 per cent were in weaving sheds.

The census manuscripts give relatively little information on non-textile industries; the material which is provided appears in Figure 52, but only gives a partial picture of the range of employment in manufacturing industry and mining. The lack of information about coal mining is particularly unfortunate, for an earlier report on the industry was also incomplete and little can be added to the general observations made previously (pages 78-80). One general feature of the pattern of industrial distribution which lends emphasis to the earlier analysis of occupational structure was the relatively great industrial diversity of Blackburn and Burnley when compared with the smaller centres of the locality (Figure 10).

Changes in the pattern of industrial distribution were as yet difficult to discern, for much of the new growth augmented rather than supplanted earlier patterns. In calico printing changes of location were largely confined to the abandonment of sites or their adaptation to other uses, and in cotton manufacture the principal changes since the 1820s had been the establishment of weaving sheds and the adoption of canal-side sites, neither of which had radically altered the pattern of distribution. Seen in retrospect many of the minor changes initiated at this time marked the beginning of an important phase of
industrialization which, among other things, finally weakened the economic significance of the uplands. It is likely that the process of upland decline had already gone far by 1851, for the limited quantitative data suggest that most of the upland factories and pits were smaller than their lowland counterparts. Were more detailed information available it is almost certain that the relative decay of upland localities could be demonstrated as an important distributional change during the period 1830-1850, for the non-quantitative maps give a mistaken impression of economic vigour in the uplands of the Calder-Darwen Valley.

ii Communications

Without doubt the most important improvement to communications was provided by the coming of the railway in the mid eighteen forties and the early fifties. The first local line, between Farington (on the Wigan to Preston section of the Grand Junction main line) and Blackburn was opened in June 1846 and according to its prospectus was intended to serve the needs of both industrial and holiday traffic. By 1850 the main features of the railway system had been established, providing links with the Manchester embayment, the port of Liverpool, and the industrial West Riding (Figure 71). By 1859 the greater part of the local railway network had come under the control of the Lancashire and Yorkshire Railway, the sole exception being the Midland Railway branch from Skipton to Colne, which made an end-on junction with the Lancashire and
Yorkshire line. In effect the town became the valley head terminus of two systems, for there was little through traffic, a feature which may be both explained by and have contributed to the growing orientation of this locality towards Manchester instead of Bradford and Leeds.

The construction of railways in the Calder-Darwen Valley posed few physical difficulties. The railways penetrating Rossendale made the maximum possible use of glacial spillways, and only in the construction of the steeply graded Sough Tunnel south of Darwen were any delays experienced. Within the lowlands the Blackburn-Colne railway ran sub-parallel to the canal for much of the way, except in Accrington, Burnley, and Colne where the erection of impressive viaducts across broad or deeply incised valleys permitted a more direct route to be followed. However, if there were few physical obstacles to be surmounted others were provided by landowners who were not easily convinced of the benefits of rail travel. Thus the completion of the Burnley-Colne section was delayed by the opposition of the Marriott family at Edgend, largely over the provision of accommodation bridges, and several proposed extensions and branches were rendered abortive by similar opposition.

Several lines that were never built were suggested after 1845 (Figure 71). Many of them were intended to link the lead mining districts of Craven with industrial Lancashire on the one hand and the North-east coast on the other, and others were intended to bring north Lancashire into more direct cont-
act with the West Riding. Viewed in retrospect none of them would have attracted the traffic which their prospectuses optimistically spoke of, and several would have made the same error of judgement as the proprietors of the Leeds and Liverpool Canal in mistaking a low level route for an expeditious one. The proposals to build direct lines across Rossendale were more soundly based as far as originating traffic was concerned, but the physical difficulties of linking Burnley with Rawtenstall or Bacup by rail were considerable. In the event only one new line was built to provide the kind of external link suggested by these various proposals. This was the Lancashire Union Railway, opened in 1869 between Boar's Head (Wigan) and Cherry Tree (Blackburn), and built approximately along a line suggested as part of a through route from Liverpool in 1845. The purpose of this railway as built was to link Blackburn and East Lancashire with the coalfield about Wigan, yet another indication of the inability of local collieries to meet the demand for coal.

Although the coming of the railway did little to condition the precise siting of industry in the Calder-Darwen Valley (see page 157) the general benefits to economic expansion must have been considerable, particularly in the shipment of coal, raw cotton, and cotton cloth. The railway appears to have had a detrimental influence on other forms of transport, for it enjoyed both a greater flexibility than the canal and a higher carrying capacity than the turnpike roads. Figure 66 shows that the frequency of advertised carriers' services fell
appreciably after 1848 on those routes which were in direct competition with the railway, notably on the "trunk services" between Preston and Colne, and those between the Calder-Darwen Valley and the Manchester embayment. The revenue of the Turnpike Trusts fell sharply after 1846 as long distance traffic declined and much of the local movement avoided tolls: for example toll income on the Burnley-Edenfield section of the Manchester road fell by one-third between 1845 and 1858. Data on changes in the volume of canal traffic are less easy to come by, but there is evidence that over the whole of the Leeds and Liverpool Canal the tonnage handled fell by one-fifth between 1848-1858. Of probably greater significance is the fact that receipts fell by almost one third during the period 1838-1858, whereas the total volume of traffic handled fell by only 3 per cent, an indication of short-distance carriage, notably of coal, replacing long-distance shipment. Thus although the canal continued to exert influence on the siting of industry - as a source of water as well as a mode of transport - it is clear that the railway had greatly reduced its significance as a line of communication by the late 1850s.

iii Population and Migration.

Changes in Distribution 1831-1861.

During the period 1831-1861 the population of the Calder-Darwen Valley had almost doubled, as it had done in the first thirty years of the nineteenth century. There were, however, fewer marked fluctuations in the rate of increase, and there were also greater concentrations of population loss as the
contrasting economic fortunes of upland and lowland, or of town and country exerted their influence on the number and distribution of inhabitants. Within the period as a whole eight main zones of population change stood out (Figures 76-79). First the Darwen Valley group of industrial townships - including Blackburn - most of which more than doubled their population. Places such as Witton and Livesey grew most rapidly after 1841, when the increase was attributed to the erection of cotton mills in localities then on the outskirts of Blackburn. In Over Darwen growth of population was said to stem from the opening of collieries (1831-41) and "the prosperity of the paper mills, spinning mills, and power-loom manufactories". Lower Darwen, on the other hand, grew slowly before 1851 and then lost population, a trend which may have reflected contraction of employment in the uplands without a compensatory industrial growth in the lowland parts of the township. The second major growth zone, centred on Accrington, presented a less uniform pattern of growth. Townships such as Church, Clayton le Moors, New and Old Accrington, with their diverse range of textile industries, chemicals manufacture, and coal mining expanded impressively, whereas Oswaldtwistle, with an extensive upland sector, progressed haltingly. Great Harwood, Rishton, and Huncoat emerged late as industrial growth points, and their populations did not begin to increase substantially until after 1851. The third zone of expansion was centred on Burnley, where most of the industrial localities doubled their population. The anomalous townships here were Ightenhill Park, where a
small population, largely dependent on mining, produced frequent fluctuations of growth rate; Reedley Hallows, which did not begin to develop as an industrial and residential suburb of Burnley until the late 1850s; and Hapton, where upland losses greatly outweighed lowland increases before 1851.

The remaining five zones were dominantly areas of population loss between 1831-1861. The first, centred on Colne, merits close examination, partly because it was the only "urban" area to have a poor record of expansion, partly because the census manuscripts shed considerable light on the mechanics of population change in the locality. Between 1851-1861 Colne suffered a population loss of 12 per cent, and several of its lowland neighbours either lost population or recorded slender gains. This was largely a product of the final collapse of hand-loom weaving in a locality which contained, in 1851, 45 per cent of the enumerated hand-loom weavers of the Calder-Darwen Valley, and in which they outnumbered power-loom weavers by 3:2. The published returns are, however, misleading as to the precise nature of population change experienced in the Colne group of townships between 1851-1861. As Figure 88 shows the net losses were a combination of substantial gains in some enumerators' districts and marked losses elsewhere. The areas with the heaviest losses were those with a high proportion of hand-loom weavers in 1851, whether in the town of Colne or in adjacent rural districts. The heaviest gains were recorded in those localities which had attracted the greatest volume of new industrial building, such as Primet (Colne), Reedyford
(Barrowford), and the greater part of Little Marsden. The expansion recorded in Little Marsden had important long-term consequences, especially when viewed against the decline at Colne, for within the township the entirely new industrial settlement of Nelson was to become a major rival to its long-established neighbour.

The other zones of population loss were dominantly rural and four of them were in the uplands. The single lowland area, the lower Calder Valley, comprised the townships of Altham, Read, and Simonstone, in which the fluctuating fortunes of coal mining and calico printing and the absence of new cotton mills largely explained population losses. Of the upland districts the Pendle townships, and their equivalents astride the grit ridges north of Blackburn experienced an almost unrelieved diminution of population after 1831, due largely to the decline of hand-loom weaving which "caused population to flee to the manufacturing towns". Even where there were rural cotton mills and print works the collapse of hand-loom weaving generated unemployment that could not be absorbed locally, for the rural industries were stagnating in the face of urban competition. In the Pennine group of townships Trawden and Briercliffe with Extwistle shared the same history of population loss with a "decrease attributed to migration in search of work as a result of scarcity of employment for hand-loom weavers". In Worsthorne with Hurstwood the rate of decline was tempered by the expansion of stone quarrying and the temporary employment afforded by the construction of
reservoirs to supply Burnley with water. In the remaining area of decline, Rossendale, population loss was again a product of the decay of hand-loom weaving, combined in this instance with the contraction of coal mining and the stagnation of rural industry.

One final observation on the pattern of rural change should be made. In no instance is there any evidence that the state of agriculture was responsible for rural decline, indeed the growth of producer-retailing hinted at by the census returns suggests that in many localities urban expansion benefited farming. Although it is difficult to distinguish exactly between domestic textile workers who were also part-time farm labourers and those who were not, it is apparent that in the Calder-Darwen Valley as in many other parts of Britain rural depopulation was a product of industrial decline rather than the failure of agriculture at this time.

Migration.

The 1851 and 1861 census returns in manuscript provide indirect information about the movement of population. In both years the census schedule required details of the birthplace of each inhabitant, a question which had been asked only in a rudimentary form in 1841. This data provides an imperfect source of information on migration - imperfect because a person's full migratory history is not necessarily revealed by the relationship between place of birth and place of enumeration. The returns do, however, give a general impression of the major
features of migration, and by recording the birthplaces of all members of each family suggest the routes followed by migrants into the Calder-Darwen Valley. The returns for 1851 have been intensively sampled by taking approximately 40 per cent of the enumerated population: those for 1861 have mainly been examined on a smaller sample designed to discover where newly industrialized localities drew their population from.

The most striking feature revealed by the 1851 sample is the high proportion of inhabitants living in the township of their birth — 59 per cent in the Calder-Darwen Valley as a whole, and rarely below 40 per cent in any of its constituent townships (Figure 91). This is not to imply that all the locally born inhabitants were completely immobile, for the returns show that some had moved far afield before returning to the township of origin, and that others had moved within the township of their birth. Evidence of this last kind, which indicates short-distance movement, is only patchily available, but it supports the idea that migration between the rural uplands and the lowland towns did occur in several of the larger townships.

Movement between townships within the Calder-Darwen Valley accounted for 20 per cent of the enumerated population. Much of this was short range migration over distances of five miles or less, for as Figures 95-96 show the movement of population to the towns rarely comprised more than a handful of migrants from the more distant parts of the locality. The remaining 21 per cent of the enumerated population came from
places outside the Calder-Darwen Valley (Figures 92-94), but of the 12,672 persons involved half came from three neighbouring areas — Rossendale, the Ribble Valley, and Bowland with Craven. A further 22 per cent came from other parts of Lancashire and 7 per cent from other parts of Yorkshire, thus leaving only 21 per cent of the non-local migrants, or 4 per cent of the enumerated population, to come from more distant localities. There is, therefore, the clearest evidence that short- or medium-distance migration combined with local natural increase to produce the major sources of population growth before 1851, and that long-distance movement of population was of negligible importance.

The significance of short-distance migration before 1851 has already been demonstrated by Redford in a classic study based largely on an analysis of the published census returns (70). Although Lawton has shown that a major city such as Liverpool was capable of attracting population from far afield, there can be little doubt that the Calder-Darwen Valley largely conforms to Redford's ideas of short-distance movement from dominantly rural to largely urban communities. The published returns of the 1851 census suggest that Liverpool, and to a lesser extent Manchester, were exceptional in having a high proportion of non-Lancastrian inhabitants. The norm was represented by the industrial districts such as Wigan, Bolton, Oldham, and Blackburn with 85 per cent or more of their populations born in Lancastria (see below, pages 307-308). The census manuscripts permit a much more detailed examination of
migration than Redford was able to make, and this reveals several features of the pattern of movement which have hitherto been a matter for conjecture. Fitzgerald and Jewkes came to the same basic conclusion as Redford that much of the population growth of towns in the Calder-Darwen Valley was explicable in terms of proximity to areas of rural population loss. While it is true that much movement of this kind took place it also seems likely that the impact of change was most strongly felt in the areas of loss. Thus in 1851 the Calder-Darwen Valley towns contained approximately 1,600 migrants from the Pendle townships, equivalent to 45 per cent of the population left behind but probably no more than 7 per cent of the volume of migration into the towns. It is very difficult to establish what proportion of the growth of population in towns came from rural migration, but it seems likely that local natural increase and inter-town movement was of greater significance than has hitherto been assumed. Stress must be laid, however, on the problem of adequately defining the extent of rural population loss, for it is evident that some of the intra-township migration would qualify for inclusion were it possible to measure the movement consistently.

Short-distance movement of population is clearly shown by the manuscript returns, even from a crude analysis of the data. Thus of 1,448 migrants from townships in the Calder-Darwen Valley to Blackburn 62 per cent came from adjacent townships, and of 4,444 migrants from outside the region 70 per cent came from places between 5 and 25 miles away. The
returns made by individual families also illustrate that movement often occurred in short stages, and it is possible to trace the migration of population from, say, Northern Craven to Blackburn or Burnley via the Ribble Valley. From the sample studied it seems likely that marked affinities grew between areas of population loss and specific areas of attraction, producing well-defined migratory routes. Thus 70 per cent of the migrants coming from the Ribble Valley followed a well-beaten track to Blackburn and its environs, and 65 per cent of the migrants from Craven found their way to the area between Burnley and Colne. The importance of short-distance movement is, therefore, verified by the manuscript returns, but they also permit further analysis that was denied to Redford and other earlier writers on the subject.

In addition to the migrants who came over short or middle distances there remains in the sample a minority of migrants who had come from beyond the confines of Lancashire and the neighbouring parts of Yorkshire. Of these 2,500 distant migrants about one-third were Irish. The proportion of Irish in the total sample, however, is low (1.3 per cent), particularly when compared with the 22 per cent in Liverpool and 13 per cent in Manchester. The Calder-Darwen Valley did not offer the range of employment for Irish migrants that was offered by these cities, and only in Blackburn was there a substantial number of Irish, mainly living in incredibly overcrowded cottages in the centre of the town. The Irish were the largest distinctive group of distant migrants, and accounted for 15
per cent of this category: a further 9 per cent were from Scotland, and 1.5 per cent each from Wales and a wide range of overseas birthplaces, including among others "off Cape Horn", Van Diemen's Land, and the Barbary Coast! The remaining distant migrants were drawn from every English county save Rutland, but again a large number had come from relatively short distances away — almost half had been born in one of three neighbouring counties, Cheshire, Cumberland, and Westmorland. Thus among the "distant migrants" there was a very strong element which had moved over moderate distances from neighbouring counties, and even those who had been born hundreds of miles away had frequently come in a series of short stage moves (Figure 102).

It is also possible to investigate whether different occupations attracted migrants from varying distances and localities; this has been done for a sample of enumerators' districts including those illustrated by Figures 97-101. Three general conclusions are put forward on the basis of this analysis. First is that a high proportion of the employment in textiles was taken by persons born in the township of enumeration or adjacent townships. Even where an entirely new mill community was involved, with no locally born workers, as at Jewel Mill (Figure 100), two thirds of the enumerated population came from elsewhere in the Calder-Darwen Valley. The same observation is broadly true of employment in coal mining (Figure 97) for very little labour came from other coal working districts, even in Lancashire. Some of the miners employed
in the new pits of the Burnley area had come from the lead mines of Swaledale, but movement of this kind was far less common than that between adjoining coal mining townships in the Calder–Darwen Valley.

The second general observation is that some skilled workers were drawn from areas with existing industrial specialisms. This was particularly true of iron founding, with labour drawn from Sheffield and North-east Derbyshire, pottery manufacture from North Staffordshire and South Derbyshire, and engraving (for the calico printing trade) from Scotland, North-west Derbyshire, and the Wandle Valley. Several master spinners of cotton came from the Manchester embayment, but in general migrant cotton workers did not display any strong affinity between place of origin and type of employment. The third general point is that those occupied in commerce and the professions, and as servants to those in such occupations, displayed the greatest migrational mobility. Most of the oversea migrants were in the professions, and a high proportion of the migrants from distant rural areas were employed as servants in the great houses, or worked as shop assistants and craftsmen. Again there is often evidence that these migrants came indirectly in a series of short moves.

The sample suggests, therefore, that the textile industry derived much of its labour from natural increase or from short- and middle-distance migration. It was rare for artisans to migrate over long distances unless they were highly skilled. A high proportion of the professional and commercial group of
occupations came from more distant places, and even the locally
born shop-keeper and merchant would often recruit his servants
from among the distant migrants. Consequently the largest
numbers of distant migrants were to be found in towns such as
Blackburn or Burnley which offered the widest range of opportu-
unities for employment, or on a smaller scale they were attrac-
ted to the new industrial centres of Accrington and Darwen
where specialized skills were in demand. Colne fared badly in
relation to its size and apparent status, and was also the
only town in the area to lose more inhabitants to other parts
of the Calder-Darwen Valley than it received in return — a
further indication of its incipient industrial decline.

It is more difficult to analyse the outward movement of
population from the Calder-Darwen Valley, largely because the
sampling net would have to be cast wide in order to produce
any satisfactory results. Outward migration is known to have
taken place during the trade depression of the 1840s, and there
are many instances of families who, having left the locality at
this time for the West Riding or the Manchester embayment, had
returned to the Calder-Darwen Valley by 1851. Sampling of
other districts in Lancashire suggests that some textile
workers had permanently moved to Bolton and Rossendale, but
the range of evidence collected as sample material is so
slight as to be almost worthless. The returns of paupers
returned to their home townships under the provisions of the
Poor Law Acts provide another partial source of data, and the
main conclusion which they permit is that the bulk of the out
Table 4: **Huncoat Township 1851-1861; Birthplaces of Selected Occupational Groups**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Total 1851</th>
<th>Total 1861</th>
<th>Change</th>
<th>Born in Township 1851</th>
<th>Born in Township 1861</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton Weaving</td>
<td>46</td>
<td>119</td>
<td>+73</td>
<td>32</td>
<td>78</td>
<td>+46</td>
</tr>
<tr>
<td>&quot;  &quot; Spinning</td>
<td>4</td>
<td>71</td>
<td>+67</td>
<td>1</td>
<td>13</td>
<td>+12</td>
</tr>
<tr>
<td>Coal Mining</td>
<td>54</td>
<td>38</td>
<td>-16</td>
<td>22</td>
<td>19</td>
<td>-3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Born elsewhere in Calder-Darwen Valley 1851</th>
<th>Born elsewhere in Calder-Darwen Valley 1861</th>
<th>Change</th>
<th>Others 1851</th>
<th>Others 1861</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton Weaving</td>
<td>12</td>
<td>22</td>
<td>+10</td>
<td>2</td>
<td>19</td>
<td>+17</td>
</tr>
<tr>
<td>&quot;  &quot; Spinning</td>
<td>2</td>
<td>10</td>
<td>+8</td>
<td>1</td>
<td>48</td>
<td>+47</td>
</tr>
<tr>
<td>Coal Mining</td>
<td>27</td>
<td>15</td>
<td>-12</td>
<td>5</td>
<td>4</td>
<td>-1</td>
</tr>
</tbody>
</table>

Table 5: **Rishon Township (Southwest) 1851-1861; Birthplaces of Selected Occupational Groups**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Total 1851</th>
<th>Total 1861</th>
<th>Change</th>
<th>Born in Township 1851</th>
<th>Born in Township 1861</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton Weaving</td>
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<td>216</td>
<td>+175</td>
<td>37</td>
<td>95</td>
<td>+58</td>
</tr>
<tr>
<td>&quot;  &quot; Spinning</td>
<td>11</td>
<td>11</td>
<td>=</td>
<td>6</td>
<td>0</td>
<td>-6</td>
</tr>
<tr>
<td>Coal Mining</td>
<td>4</td>
<td>56</td>
<td>+52</td>
<td>3</td>
<td>5</td>
<td>+2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Born elsewhere in Calder-Darwen Valley 1851</th>
<th>Born elsewhere in Calder-Darwen Valley 1861</th>
<th>Change</th>
<th>Others 1851</th>
<th>Others 1861</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton Weaving</td>
<td>4</td>
<td>93</td>
<td>+89</td>
<td>0</td>
<td>28</td>
<td>+28</td>
</tr>
<tr>
<td>&quot;  &quot; Spinning</td>
<td>1</td>
<td>4</td>
<td>+3</td>
<td>4</td>
<td>7</td>
<td>+3</td>
</tr>
<tr>
<td>Coal Mining</td>
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<td>51</td>
<td>+51</td>
<td>1</td>
<td>0</td>
<td>-1</td>
</tr>
</tbody>
</table>

Data in Tables 4 & 5 from Census MS returns
migrants from Colne and Burnley went to the West Riding, while the Manchester embayment was favoured by those from other parts of the Calder-Darwen Valley.

The final section of this analysis of migration is concerned with changes between 1851 and 1861, based upon a much smaller sample of evidence largely taken from new industrial localities. Figure 98 shows the origins of selected groups of occupations in Huncoat for 1851 and 1861, and Table 4 illustrates the major features of change during the decennium. The increase of cotton weavers was largely furnished by persons born in the township or coming from elsewhere in the Calder-Darwen Valley; only 17 (23 per cent) of the increment came from outside the locality, almost all of them from Craven. The new spinning labour, on the other hand, came preponderantly from outside the Calder-Darwen Valley — 47 workers, 70 per cent of the increment. About two thirds came from Craven, and most of the remaining non-local migrants were from Preston.

Coal mining declined in Huncoat between 1851-1861, and it is perhaps significant that the bulk of the miners who moved had come into the township previously, migrants who, having moved at least once before to get to Huncoat were prepared to move yet again.

The same kind of analysis of south-west Rishton is given in Figure 99 and Table 5. Rishton was, until 1851-1861, an area of rural depopulation and did not begin to emerge as an industrial centre before about 1856. Here only 16 per cent of the increased labour force in weaving came from outside the
Calder-Darwen Valley, principally from the Manchester embayment. The remainder of the increase comprised locally born workers — 33 per cent of the increment — and those from other parts of the Calder-Darwen Valley — 51 per cent. Half of this last group came from Blackburn, and the bulk of the remainder were from townships adjoining Rishton. The labour force in spinning remained static and gives no guide to migratory trends. On the other hand coal mining grew rapidly and secured almost the whole of its increased labour force from the townships of Oswaldtwistle and Over Darwen, probably as a result of the closure of upland pits.

Comparative analyses of this kind can only be made in those instances where the boundaries of enumerators' districts were coincident in 1851 and 1861, and in many cases, notably in the towns, this was not so. An examination of the origins by birthplace of a further 1400 textile workers enumerated in 1861 suggests that a high proportion of the weaving labour was recruited locally, in the ratio of approximately 4 local to 1 non-local employee; in spinning there were approximately 3 non-local workers to 2 born in the Calder-Darwen Valley. The majority of the migrants in both instances came from other parts of Lancashire and from Craven. It is not clear whether the recruitment of a larger proportion of migrant spinners reflected a local pre-occupation with weaving as the branch of textiles, or a preference for employing trained operatives in a branch of textile manufacture that was more skilled than power-loom weaving. In coal mining there was also a high ratio of locally born workers — 3:1. Most of the non-local miners
had come from Swaledale — for example their number had risen from 11 to 39 in Brierfield — with a handful from the coal working districts of south Lancashire.

In general the pattern of migration in 1861 seems to have differed little from that of a decade earlier, with short- and middle-distance movement dominant, particularly among artisans. But there were important exceptions, of a kind not recorded in 1851, which revealed the existence of mass movements from other textile producing areas. Notable among these was the settlement of 174 migrants from the Coventry area at Garden Vale, Colne. It is known that local cotton manufacturers inserted advertisements in the Coventry newspapers at the time of the 1860 strike in silk weaving. It is not clear why Colne, a town which had suffered severe unemployment in the 1850s, should recruit migrant labour on this scale. It may have been necessary to import workers because movement from the town had been excessive during the period of economic distress, or the Coventry weavers may have been brought in as strike-breakers. Whatever the reason for it migration of this kind was a novel feature of the 1861 returns, and it appears from later evidence that large-scale long-distance movement was to remain exceptional during the remainder of the nineteenth century.

iv Settlement.

The settlement pattern of the Calder-Darwen Valley in 1851 still reflected the recency of sustained industrialization, and although it is premature to observe that "the weav-
ing towns had expanded and were beginning to join together, several of the loosely knit villages of the 1830s were emerging as small towns. It is possible to form a much clearer impression of the character of settlement in the Calder-Darwen Valley in 1851 than at any earlier date, largely from the evidence of the 1:10,560 maps, supplemented by the rate valuation lists and directories. In Figure 109 an attempt is made to depict the major elements of the settlement pattern in a more analytical way than a simple buildings-trace permits (Figure 104). The map (Figure 109) also suggests a hierarchy of settlements, although the basis of classification is not as elaborate as that employed in establishing an urban hierarchy of the period (Appendix A).

The three long-established towns — Blackburn, Burnley, Colne — were still of major importance in 1851 although their status differed greatly in detail. Blackburn was the only city in the Calder-Darwen Valley (one of five in the whole of Lancastria) and from its range of commercial, administrative, and social functions could be considered the major centre of North-east Lancashire. By 1851 it had spawned several industrial suburbs, and although peculiarities of land holding had left great wedges of open country close to the town centre there was already ribbon-like growth linking the old town with the rapidly expanding factory settlements. Much of the suburban growth was directed by cotton manufacturers who, having established new factories beyond the town's lim-

* The terms used to describe settlements of town status are those employed in Appendix A.
its, were obliged to provide some housing at the mill gates. Thus at Nova Scotia, on the banks of the canal, Hopwood (77) secured land for cottage property, and at Brookhouse, in the Blakewater Valley, Hornby erected cottages, a school, and a gymnasium, in what was the nearest approach to a "company village" built in the Calder-Darwen Valley.

Within the town proper it was already possible to recognise the emergence of distinctive functional zones. Commercial buildings dominated the heart of the town, with a mixture of shops, inns, craft-trade workshops and professional offices. The creation of a new Market Square in 1848 had opened up the northern edge of the town centre, and with the completion of the Town Hall in 1856 this locality began to supplant the older cramped shopping area focused on Astley Gate and King Street (Figure 112). A similar northward shift of residential property was seen in the building of new streets on the lower slopes of Revidge, including the "airy, salubrious and well-built residences at Strawberry Bank" (79). The earlier residential areas of King Street and Montague Street, with their elegant Georgian houses, were already being engulfed on the one hand by the growth of the artisan suburb and factory zone at Bank Top, and on the other by the expansion of commercial activity from Northgate, so that although many of the "gentry" (80) still lived in the locality all the new residential building was taking place beyond the industrial and commercial zone.

The town centre was not entirely devoid of industry
even though the largest establishments were located in the new suburbs. The Blakewater Valley east of the commercial core had progressively been built over since the freeing of the Glebe lands in 1796, and in 1851 was a crowded area of factories, workshops, and cramped cottages built around airless courts. The inner zone of industry and artisan housing had spread eastwards to the banks of the canal during the 1830s, and a thin ribbon of cottage property - also on Glebe land - extended along the turnpike road towards the outlying mill hamlet of Furthergate. To the north and south of the town similar ribbon-like growth of settlement stretched out towards the industrial suburbs, and to the west the fields between Bank Top and the old town were rapidly being built over. In 1851 it was, therefore, possible to discern the growth of a ring of artisan houses and factories encircling the old town and broken only in the north, where the steeply rising slopes of Revidge, distant from the river, the canal, and the railway both inhibited factory building and attracted the construction of town houses and mansions set in their own grounds.

Burnley ranked as a minor city in 1851 and possessed a narrower range of urban facilities than Blackburn; it was also less well-developed functionally. In Burnley a single new industrial suburb had arisen by 1851, sprawling for almost one mile along the banks of the canal, the product of the coalescence of several mill hamlets located between Whittlefield and Lane Bridge (Figure 113 ). Between this
suburb and the town proper there lay a discontinuous belt of open country, dotted with coal pits, isolated rows of cottages and large town houses which now found themselves hemmed in by the growth of river- and canal-side factory zones. The town centre comprised an amorphous mass of artisan houses, cotton mills and other industrial premises, and commercial premises, interspersed with gardens, orchards, meadowland and coal pits. In effect central Burnley was little more than a collection of ill-built mill hamlets grafted on to a relatively small market town, just as the canal-side suburb, with which it was linked by ribbon-like growth along the turnpike roads, had grown haphazardly by accretion. The town was, therefore, less striking than Blackburn, and its chaotic layout gave little indication of its relative importance as an urban centre. Burnley suffered from the absence of any form of unified control over its expansion, for it lay within two townships that were not united administratively before 1846.

Colne ranked as a major town in 1851, but this was almost certainly a reflection of its historical functions rather than its contemporary importance. Industrially moribund and lacking a full range of urban facilities it had fallen far behind its nearest rivals Burnley and Skipton. The town was small and huddled compactly around the parish church on its steep-sided ridge-top site. Below in the valley of Colne Water lay the small suburb of Waterside, with its cotton mills and coal pits, but even this locality was barely the size of many mill villages situated further west.
The relative decline of Colne, already examined from the standpoint of population change (pages 98-99) was mirrored in its depressed urban status and feeble industrial development.

If Colne represented a major town artificially buoyed up by its retention of historic functions both Darwen and Accrington ranked as towns whose commercial importance had yet to be supported by a wide range of administrative functions. Both settlements still revealed their origins as products of the boom in textiles during the 1830s and late 1840s, for they had barely progressed beyond being grossly inflated mill villages and as yet possessed the minimum facilities consistent with town status. The third centre holding town status - Padiham - was more reminiscent of Colne than the new industrial settlements. Pinched between the Gawthorpe and Huntroyde estates, with little manufacturing industry, the town had made slight progress before the 1850s and remained a haphazard collection of poorly built cottages. Here was the most striking local instance of the adverse influence of powerful landowners in restricting the growth and economic development of a town.

Outside the principal urban centres and their suburbs there existed a wide range of villages and hamlets. Two types of village are distinguished on Figure 109; rural and mill. Many of the rural villages were entirely devoid of factory industry, notably in Pendle and Rossendale. Others, largely in the lowlands, had almost become industrial settlements by virtue of the creation near by of mill hamlets that were now about to merge with their older neighbours — as for example
at Barrowford and Church. The mill villages were, as their name suggests, settlements of modest size normally built to serve a small group of textile factories. They differed from industrial suburbs partly in size but largely by virtue of their physical separation from the towns. As in most of the suburban settlements the direct interest of factory owners in the provision of housing was a transient influence which normally disappeared once enough property had been built to satisfy the initial needs of the factory. Thereafter speculative builders were largely responsible for the physical growth of towns. In only one instance did a textile manufacturer maintain control over the growth of a mill village: this was at Lowerhouse, where the policies of the Dugdale family were to have a lasting effect on the growth of settlement in the western part of the modern County Borough of Burnley (see pages 279-80).

The remaining settlement type, the hamlet, was normally a small cluster of cottages, sometimes with a chapel or a school, but without the modest range of facilities that would merit village status. The rural hamlets (Figure 109) were mainly occupied by families of farmer- or labourer-weavers. Most numerous in the lowlands they had their counterpart in the scattered "folds" of the uplands. Mill hamlets were based on a single cotton mill or print works and were often a transient form of settlement, for they were largely engulfed by the subsequent expansion of the towns. The same was hardly
ever true of colliery and quarry hamlets, for the latter were generally located in remote upland areas. Most of the colliery hamlets were in the uplands around Darwen and the majority were indistinguishable from the older "folds" save for the presence of coal pits. As coal mining was never a leading industry in the Calder-Darwen Valley no large settlements grew solely through the influence of collieries, for this was a coalfield in which mining villages, if they ever existed, were also centres of the cotton trade.

The character of settlement in 1851 has been examined at some length, for not only is this the first opportunity to produce a detailed analysis it is also within a period of accelerating urban growth. Distinctions were already beginning to emerge in the pace and nature of change among the towns of the Calder-Darwen Valley, and it had also become clear that the mechanics of town growth were not solely a function of physical controls and economic pressures. The pre-existing patterns of land ownership and the attitudes of landowners to industry and urbanization were also of critical importance, as will be more fully demonstrated at a later juncture when the impact of these features can be more fully appreciated. At this point it remains to examine the initial influences of urban and industrial change upon the landscape.

v. The Calder-Darwen Valley in the 1850s.

The picture of the Calder-Darwen Valley produced by contemporary observers of the mid-century scene is less eulogistic than that of thirty years before, for the wonders of the
mechanical age had given way to revulsion at some of its side-effects. This is not to say that the locality had been entirely transformed by the rise of industrial towns, but it does point to the haphazard and irregular growth engendered by the piecemeal expansion of settlement. None of the mill hamlets and villages imitated the example of the early social experiments carried out by textile manufacturers elsewhere in Britain for even the print works, which were the largest single employers of labour, were not attended by planned settlements. Thus as early as 1850 the General Board of Health was enquiring into the sanitary state of Accrington and deploring the low quality of building in what was virtually a new town. Both Blackburn and Burnley introduced major Improvement Acts in the 1850s, largely to secure better sanitation and other main services and to introduce greater control over the processes of town growth. These moves suggest that the towns of the Calder-Darwen Valley merited the criticisms that were levelled at them, a view which is supported by cartographic and literary evidence, as well as by those elements of past urban landscapes which have survived. The towns betrayed their major mode of growth by speculative building in the chaotic mixture of housing and industry, the superimposition of new street layouts on old patterns of land ownership, and the indiscriminate grafting of new settlements on to old.

The settlements which evolved reflected the haphazardness of their growth in many ways. For example modest two-storey cottages, often built back-to-back, were crammed into
sites that were frequently restricted by man-made rather than physical obstacles — a property boundary, the angle of a railway intersection, a canal embankment, the massive bulk of a spinning mill or the blank walls of a weaving shed. The skyline was punctuated by many tall chimneys, and less frequently by the silhouettes of newly erected public buildings that were often the first tangible products of the Improvement Acts. Thus the traveller viewing Blackburn or Burnley from the windswept heights above would see an irregular mixture of cramped courts and terraced cottages interspersed with solidly built factories. On closer acquaintance the chaos of the urban scene would be even more apparent — finely proportioned town houses within a short distance of the most overcrowded tenements, enclaves of open pasture fringed by coal pits and waste tips, and broad thoroughfares opening immediately on to narrow alleys and ill-ventilated courts. Little wonder, therefore, that one writer in the 1840s could acidly observe:

"We next proceeded to Burnley, most unpicturesque of towns, with a hard, cold appearance, tall chimneys, smoke, and a population as little pleasing as their place of residence."

The newer industrial towns were no better than the old-established centres, for the same processes of speculative growth were at work, even in those localities which offered the possibility of a completely fresh start. The mill villages and hamlets were all too often scaled-down versions of town suburbs placed in a rural setting, for no textile manufacturer built the kind of aesthetically pleasing settlement that was
commonly to be found about the cotton mills of Derbyshire at this time.

The increasing urbanity of the countryside was one of the most striking features of the 1850s, but there were still extensive tracts of rural land which had changed only a little during the nineteenth century. Pastoralism, strongly supported by the growing urban market, remained dominant, and there had been few changes in the pattern of farming since the final spate of enclosure and improvement during the first decade or so of the century. Although many rural coal pits and stone quarries survived, as did a handful of textile mills, there was a well-defined trend towards rural decline, either through the physical and economic expansion of the towns, or by the loss of employment and population in the countryside. The landscapes of the Calder-Darwen Valley therefore ranged through a broad spectrum, from heavily urbanised localities in the lowlands to sparsely settled tracts of high-lying moorland. In order to illustrate this range six sample localities have been chosen (Figures 118-129): they also provide detailed points of reference for an analysis of the effects of change during the remainder of the period under study.

The first locality, Hoddlesden (Figure 118) lies on the margins of upland Rossendale, and comprises the Darwen-Waterside interfluve at an altitude of c 850 feet O.D., the deeply incised valley of Waterside Brook and its tributaries, and the steep lower slopes of Pickup Bank. The flat-topped interfluve is largely coincident with a drift-free outcrop
of productive coal measures, but over much of the remainder of the area a blanket of boulder clay or glacial sands and gravels covers the Carboniferous sandstones and grits.

In 1850 the valleys of Waterside and Tinklers Brooks supported six cotton mills and a bobbin factory. They were mainly small establishments employing 200 hands or less, and included spinning, weaving, and combined mills. Although all the mills save one appear to have been water driven there is also evidence that the two largest mills were mainly steam driven by 1850 and that others used steam power as an auxiliary source of energy. It is also apparent that coal owners had a direct interest in textile manufacture, for the mill at Hoddlesden was owned by the Place family who were lessees of coal pits in the district. As the map shows coal mining was concentrated in a series of small pits working the drift-free outcrop. Many of the collieries had more abandoned shafts than active ones, a reflection both of the ease with which new pits could be sunk and of the heavily faulted character of the field. Settlement in the locality mainly comprised scattered farmsteads and loosely knit hamlets or "folds". As well as housing factory workers and miners many hand-loom weavers also lived in these places, some of whom combined domestic textile manufacture with farming or mining. Hoddlesden was typical of many upland coalfield areas at mid century, with its broad expanses of stone-walled pasture speckled by coal pits on the more accessible deposits, its low-built farmsteads, and its cotton mills strung out along the deeply incised valleys.
The second locality - Altham-Huncoat (Figure 120) - is in the Calder lowlands on the gently sloping southern limb of the coalfield syncline. The broad valley of the Calder is floored with thick alluvium, which gives way to extensive spreads of boulder clay on the rising ground between the floodplain and the Rossendale uplands south of Huncoat. The blanket of drift is not continuous, for on the sandstone heights of Whinney Hill and Huncoat, and along the deeply incised valley of Clough Brook, the solid is exposed. The low hills of Huncoat and Whinney Hill (c 600 feet O.D.) are separated from one another and from Rossendale by depressions which are of fluvio-glacial origin, either as meltwater channels on the margins of Lake Accrington, or as easterly extensions of the lake floor itself.

In 1850 this was a locality in which industry was barely represented. The corn mill at Altham stood on the site of an early abortive attempt to introduce mechanized cotton spinning (91) to the Calder-Darwen Valley, but no attempt was made to reintroduce the industry here. The coal pits were shallow shafts or adits, and all suffered problems of drainage, particularly where they worked below the alluvial flats. There were, therefore, numerous engines and waterwheels designed to combat this difficulty as well as to wind coal to the surface. Altham Colliery provided employment for 100 workers in 1841, (92) and was then the largest recorded in the Calder-Darwen Valley. Although there were no major local consumers ease of transport by tramroad to the canal provided access to a wider
market. The canal bank was also the site of Altham vitriol works, an ancillary to the calico printing industry of the Accrington district.

The major settlement of the district, Huncoat, was untouched by manufacturing industry in 1850, in spite of the proximity of the turnpike road and the recently opened railway. Huncoat village, situated on a low sandstone height, provided an excellent example of an old settlement that was avoided by the new lines of communication, in this instance because they followed the depressions to north and south. Thus when industry did develop it produced a new settlement independent of the old; the same was to happen in Altham township, where the small hamlets strung out along the turnpike road were destined to remain rural settlements.

The third sample locality, Newchurch (Figure 124), straddles the ridge and valley tract of the Pendle axis on the steeply dipping northern limb of the Burnley syncline. The productive coal measures outcrop approximately along the line of the 700 foot contour above Wheatley Lane, giving way to a series of Millstone Grits which form the ridge crest. The lower slopes of Pendle Hill, upon which Newchurch stands, are also of Millstone Grit, and the intervening valley is cut into the Sabden Shales. The various grits are almost entirely drift free, but Sabden Valley is entirely covered by boulder clay which forms the low watershed south of Newchurch.

Newchurch had been created a parochial chapelry in 1544
to serve the townships of Pendle, an indication of its local importance at a time when agricultural advance and the emergence of domestic textile manufacture were bringing prosperity to the uplands. By the mid nineteenth century Pendle had become an area of population loss, and contemporary accounts revealed the difficulties faced by relatively remote rural districts in competing with the manufacturing towns. The eighteenth-century textile mill at Thorneyholme, sited at the point where Pendle Water breaks through the Millstone Grit, provides an excellent example of the upland mill tied to a location that was difficult to maintain with the advent of steam power. In 1851 it provided employment for 500 hands by putting out work to domestic hand-loom weavers, of whom there must have been approximately 400 to the 100 or so spinners and other factory workers employed at the mill.

The settlement pattern of the locality comprised three major elements, the nucleated village of Newchurch, the linear hamlets strung out along the Barrowford-Padiham highway, and the dispersed farmsteads. Newchurch, with its stone-built houses clinging precariously to the lower slopes of Pendle, retained vestiges of its importance as a rural centre in its range of craft trades and commercial activities, but the growth of new hamlets on the margins of the coalfield at Wheatley Lane and Harpers indicated a significant shift of emphasis towards the lowlands. The dispersed farmsteads largely dated from the sixteenth century onwards when a prosperous farming community, protected by the copyhold tenure
of Pendle Forest, built anew or enlarged existing property. The farm holdings were mainly between 15 and 25 acres in extent, and it was observed by Baines that rentals were still low, particularly in comparison with the more fertile Calder lowlands. Neither industry nor agriculture appeared to offer a prospect of increased prosperity, thus emphasizing the existing contrast between the locality and the adjacent lowlands to the south.

The fourth sample locality, Nelson (Figure 126), lies in the relatively narrow lowland corridor between the Pendle axis and the Pennine foothills, towards the eastern extremity of the productive coalfield. Almost the whole of the area depicted is covered by boulder clay or, along the valley of Pendle Water, by alluvium. Although still a largely rural area in 1850 the district had begun to industrialize, and there was a clear distinction between the untouched rural settlements and the new mill hamlets. The rural hamlets, typified by Little Marsden and Barrowford, possessed little or no manufacturing industry that was factory based, although both were centres of hand-loom weaving. Little Marsden, perched on a sandstone bluff on the margins of the uplands, was yet another example of the formerly important settlement that had been avoided by the new lines of communication, for the turnpike road, the canal, and the railway had in turn chosen low level routes. Barrowford was in a slightly better position, for here the turnpike road to Gisburn closely followed the right bank of Pendle Water. During the first half
of the nineteenth century several textile mills were built on the banks of the stream, and by 1851 ribbonlike growth of settlement had occurred to north and to south of the original hamlet, thus beginning its transformation into a small industrial town.

The mill hamlets which constituted the newer parts of Barrowford were more strikingly represented by Nelson. This mill hamlet had grown at the junction of two turnpike roads, at a point where the valley of Waiverden Water intersected a broad terrace-like spread of boulder clay. The stream had been harnessed to drive small cotton and corn mills, but the two large mills built during the 1840s were steam driven, for the locality lay on the productive coalfield and great hopes were entertained of its mining development. The site of Nelson, between the ill-drained alluvial flats of Pendle Water and the steep lower slopes of the Pennine foothills, was enhanced by the proximity of the turnpike roads to the canal and the railway, lines of communication that were themselves partly guided by the existence of the broad terrace-like feature upon which the settlement stood. Yet in 1850 there was little to distinguish Nelson from a host of mill hamlets in the Calder-Darwen Valley, and it is doubtful whether anyone could have foreseen its subsequent massive growth, or its retention of a name derived from the inn which stood at the turnpike junction.

The fifth sample locality, Wilpshire (Figure 122), lies to the north of Blackburn, astride the relatively low
lying grit cuestas which form the western extremity of the Pendle axis. The ridge tops are drift free, but the backslopes and the intervening valley bottoms are blanketed with boulder clay. At Wilpshire the double ridge is penetrated by a major glacial spillway which affords a gently graded route between the Darwen and Ribble valleys. In 1851 Wilpshire was an entirely rural locality dominated by pastoral farming, and the settlement pattern comprised various types of rural hamlet, nucleated as at Bankhey and Pyethorn, or linear, where cottages and farmsteads were strung out along the lanes. The new Blackburn-Whalley turnpike, built along a low level route, in contrast to its predecessor which followed the ridge, had as yet not attracted any settlement, and it remained to be seen what influence the railway, being built along a route sub-parallel to it in 1851, would have on the district.

The final sample area, the Towneley district of Burnley (Figure 128), illustrates several facets of major town growth. The locality depicted comprises part of the Calder and Brun Valleys and the interfluvial ridge which separates them. The Calder Valley is broad, flat floored and alluvial; the remainder of the locality is covered by boulder clay, except for a drift-free patch of coal measures along the north-eastern flank of the ridge, and the entire area is underlain by productive coal measures.

In 1851 the area depicted fell into three major settlement zones. In the west the town of Burnley straddled the valley of the Brun in a complex of terraced cottages, shops,
inns, workshops, coal pits and textile factories. The cotton mills picked out the two major locational choices of the period — stream- and canal-side: all were large steam-powered establishments, employing between them over 1,500 workers. The intermingling of factories and houses was made all the easier by the piecemeal disposal of leases on the Curacy Estate after 1819, which permitted a rash of speculative building to accompany the erection of cotton mills. In contrast the restrictive influence of land ownership was to be seen at Bank Hall, where the Hargreaves' Estate prevented the expansion of settlement. On the southern edge of the town the Hargreaves' Estate inhibited growth in a different way, for here were its coal bearing lands which were actively being exploited in the 1850s.

The second zone of settlement represented a relatively recent expansion east of the canal, on land recently made available for building by the Curacy and Fulledge Estates. Only a small area close to the canal had been built over by 1851, for expansion was restricted by the working of coal on the Calder flats, and by the non-availability as yet of several parcels of land. The incipient suburbs of Burnley Wood and Fulledge were marked by ribbon-like growth of settlement along the turnpike road, for as in many parts of the Calder-Darwen Valley the great expansion of suburban settlement was foreshadowed by the advance of housing along the main roads.

The third settlement zone lay to the east of the canal
and the Todmorden turnpike road. This area was still largely rural, and largely lay in the hands of two families. To the north of Brunshaw the Hargreaves' Estate controlled rich coal bearing lands which had previously been worked by adits ("bee holes") along the drift-free outcrop, but had yet to be exploited by deep mining techniques. To the south Towneley Hall, with its extensive deer park and numerous large farms, provided an even more impressive reminder that landscape evolution in the Calder-Darwen Valley was not entirely a matter of urban and industrial growth, and the contrast of scene was emphasized by the fact that Towneley Demesne lay but a short distance from the urban chaos of Burnley.

The six localities described above have been taken to illustrate the landscapes of the Calder-Darwen Valley as they were at mid century: the impact of subsequent changes is discussed below (pages 253-61). At this point it may be observed how broadly similar several of them were in 1850-51, dominantly rural but possessing to greater or lesser degree evidence of early industrial growth. Even the Towneley sample shows how rapidly town gave way to country and emphasizes how slight the changes were that had occurred by mid century. The period after 1851 was to witness a much swifter metamorphosis as the pace of industrial development, and with it urbanization, quickened.
REFERENCES.

1. The manuscripts were transferred to the Public Record Office in 1962; some of the enumerators' books are damaged and incomplete, others appear to have been lost while in the care of the Registrar General.

2. The date of the re-surveys can only be fixed by reference to changes on the maps themselves; for example at least three versions of the 1:10,560 map depicting Blackburn exist, all dated 1846, but probably relating to that year, c 1849 and c 1852.

3. Slater's Royal National Classified Commercial Directory and Topography of the County of Lancashire, Manchester, 1851.

4. Most contemporary newspaper advertisements for cottages with loom space refer to outhouses or cellars as suitable places; the so-called "weavers' attics" (of which there were very few in the Calder-Darwen Valley) were mainly used for fustian cutting or cloth over-looking.

5. The final major improvement to the power loom (before the introduction of fully automatic machinery at the end of the nineteenth century) was patented in 1841 by Kenworthy and Bullough, at the time mechanics in the employment of W.H. Hornby's Brookhouse Mills.


9. Eccles Shorrock at Darwen recruited hand-loom weavers to his steam driven mill and shed in the 1820s: HC 20 (1834) 304.

10. For example a weaving shed established in Burnley in the 1830s employed 245 hands - 53% women, 30% young people, and 17% men: HC 5 (1840) 607.


12. HC 7 (1841) "Report from Select Committee on Machinery", Q 1291: "These factories are so constructed that both the spinning and the weaving go on in the same building
are they not? — often, not always".
Q 1292: "Is not that the general plan now adopted? — yes".

13. HC 13 (1881) 131 et seq., where manufacturers claimed that transport costs were too high in the assembly of raw cotton, yarn, and in the dispatch of cloth (see below page 156).

14. HC 18 (1837-38) 506.

15. HC 22 (1842) 337 — a singularly valuable report.

16. Individual mills are listed but identified by code numbers and Parish only; as the key to the code has not survived it has proved impossible to map individual sites.

17. HC 25 (1845) 431. In his report for 1844 (HC 39 (1844) 208) Horner noted that he kept detailed manuscript records of the premises visited, but these do not appear to have survived either.

18. HC 20 (1846) 578.

19. Roughly 60% of the increase was recorded in the first group of sub-districts, which had possessed only 30% of the power-looms in 1835.

20. In the Factory Inspector's Report for 1863 an incomplete survey of the structure of the cotton industry showed that Accrington (78%) and Darwen (87%) had the highest recorded proportion of weavers: Blackburn had 25%, with 65% in combined mills; Bury, Preston and Rochdale were other major centres of weaving (30% each), but no returns were made for the towns in N.E. Cheshire, for the Burnley area, or for Manchester.

21. For details of the areas sampled see Appendix B.

22. For a detailed examination of this point see J.D. Marshall, "The Lancashire rural labourer in the early nineteenth century", TLCAS, 71, 1961, 90.

23. The impact of peripheral contraction in the cotton industry noted by Rodgers ("The Lancashire Cotton Industry in 1840", Inst Brit Geogr, 28, 1960, 142) must have been partly responsible for the movement of rural factory workers.

24. G. Henderson, Reports on the Operation and Administration of the Poor Laws, 1834, page 924. Many of these migrants can be traced in the 1851 census returns to the print works of the Accrington district.

26. Contemporary evidence suggests that the lower end of the wage scale was often lower in Blackburn and Burnley than in Manchester, but that the upper end was relatively uniform. Wages paid to calico printers were, according to the *Graham MS*, much lower in N.E. Lancashire than in the Manchester Embayment.

27. *loc. cit.*, see n 20 above.

28. This is revealed by Horner's report of 1841 (*loc. cit.*).

29. J. Aitkin, *Description of the country ...*, 1792, page 262.

30. The *Graham MS* lists a wide range of "personal" reasons for the collapse of firms, from violent death to flight from the excise officers.

31. HC 14 (1843) pages 76-77.

32. Data from 1851 Census MS returns.

33. *Graham MS* entry for Mill Hill.

34. *Graham MS* entry for Livesey Fold.

35. Wm. Ecroyd of Lomeshaye appears in the 1851 directory under both textile trades.

36. J. James, *History of the Worsted Manufacture in England*, 1857, quotes extensively from Wm. Ecroyd who claimed that the weaving staple of Colne, mousselins de laine, was incapable of production by power loom.

37. Evidence of directory entry for 1851.


40. HC 7 (1841) 230.

41. The published figures are for Registration Districts which only approximately coincided in extent with the various coalfields.

42. HC 13 (1843) page 791; the report upon which this observation is based was incomplete.

44. The evidence for Accrington is in Crossley op.cit. page 151 where it is noted that the owners of Broad Oak print works controlled several collieries and in 1867 jointly leased coal bearing land with a local colliery company. The evidence for Darwen is in Slater's Directory, 1851.

45. Thus Parsonage Mill was able to get coal almost from the factory yard, and many other mills in the town paid very low cartage costs.

46. Shaw, loc.cit.

47. Slater's Directory, 1851.

48. Census 1851 MS returns; little is known of these upland pits, for as early as 1854 the inspector of mines complained of the inadequacy of their records (HC 19 (1854) 657).

49. These appear alongside the family particulars of individual factory owners and cover about 65% of the cotton factory workers; a further 25% are covered by other near contemporary sources. Information about other industries is much slighter.

50. Most of these date from the 1840s; eg. HC 13 (1843) 791 on coal mining, and HC 14 (1843) 76-77 on calico printing.

51. Such as the Graham MS on calico printing, and P.A.Whittle, Blackburn as it is, 1851.

52. Those for Blackburn have survived in greatest volume (LRO - PUK).

53. op.cit.; this is also of great value in tracing the location of mills listed in the census under owners' names only.

54. In HC 13 (1843) 791 the inspector observes that "the returns are by no means complete, and the time allowed for investigation was not sufficient to enable me to make them so."


56. LRO DDBd 55:4 - maps and prospectuses of various railway companies.
57. This company acquired the East Lancashire Railway, which had itself absorbed several smaller concerns in the area, on August 13th 1859.

58. The line between Blackburn and Darwen was opened in August 1847, but not completed beyond Sough Tunnel until June 1848.

59. LRO DDBd 27:11 - Marriott Papers; the bridges were not built but the landowner was paid substantial compensation, and the legal tussle is audibly recorded in perpetuity by the fact that locomotives must sound a warning as they cross the level-crossings that were erected instead!

60. The East Lancashire and Airedale Extension (Colne to Addingham, 1846) was largely defeated by opposition from a landowner at Carrhead, near Cowling (LRO DDBd 55: 4).


63. Miscellaneous papers on Turnpike Trusts; LRO DDBd 57: 1; LRO TTA, TTB, TTI - QDT.


65. Returns are given in HC 56 (1870) page 679; although the figures are not detailed a table indicating the volume of coal shipment lends support to this assertion.

66. Explanatory census note; these notes appear in the published returns and were probably inserted by the superintendent registrars in each district. They were not based on notes made by individual enumerators, for only one or two descriptive comments appear in their manuscript returns.

67. Explanatory census note.

68. Enumerator's note in manuscript; this did not appear in the published returns.

69. Explanatory census note.

70. A. Redford, op. cit.


73. The same point is made by Lawton, op. cit.

74. During 1860 several manufacturers in Blackburn inserted advertisements for labour in the Coventry Argus.

75. The factory inspectors' report for 1860 mentions heavy migration from the Coventry area to Lancashire at the time of this strike.


77. P. A. Whittle, op. cit. page 270.

78. Even so this was a feeble development when compared with most "industrial villages" of the period: see W. Ashworth, The Genesis of Modern British Town Planning, 1954, Chapter V; S. Pollard, "The factory village in the Industrial Revolution", EHR 79, 1964, 513.

79. Whittle, op. cit. page 271.

80. The list of residences of "the gentry, nobility and clergy" in Slater's Directory provides a useful indication of the fashionable residential areas.

81. Burnley and Habergham Eaves had been jointly controlled between 1740-1796 but the arrangement was abandoned at a time when it might have prevented the worst excesses from taking place. The Burnley Act of Parliament (1846) marked the first step towards effective joint control over town growth, but borough status was not acquired until 1861.

82. Report to the General Board of Health ... New and Old Accrington, 1850.

83. Blackburn Improvement Act 1853-54 (LRO DDBd 5: 4/2); Burnley Improvement Act 1853 (LRO DDBd 10: 3/1).


86. Census MS.

87. Evidence of Teesdale's map, and of 1:10,560 maps (First Edition 1846).

88. Evidence of power-loom census of 1835.

89. LRO DDBd 15; the Places had come to Hoddlesden from Craven via Clitheroe (Census MS).
90. Census MS.

91. Altham Mill was one of the Peel family's early attempts to introduce mechanized cotton spinning to the area; it was destroyed by mob violence in c 1779 according to Wadsworth and Mann, op.cit. page 498.

92. LRO DDLx 4:49 discusses this problem in relation to mines on the Lomax estate at Clayton Hall.

93. HC 13 (1843) 791; it must be remembered that this report did not record all the pits of the district.


95. Thus in E. Baines, History of the County Palatine of Lancaster, 1836, III, page 234, it is noted that the locality still depended heavily on hand-loom weaving and was unable to attract factory-based weaving; the 1867 edition of the same work observed that nothing then survived of hand-loom weaving.

96. Census MS.

97. Begun in 1507 the Copyholds provided both security of tenure and low rentals; M. Brigg, op.cit. (1963).

98. Rate Valuation Books; Census MS returns of farm holdings.

99. Thus in 1836 rentals in Newchurch Chapelry (17/- to 25/- per acre), were half those obtained in Altham Chapelry: Baines, op.cit. (1836), III.

100. Kelly's Directory, 1856, noted in its entry for Little Marsden that a large and flourishing coalfield was about to be opened up. As noted above (page 8 ) the quality and thickness of the productive coal seams diminished greatly in the vicinity of Colne.

101. The place-name Nelson merits extended comment. It was derived from the Lord Nelson Inn, and appears to have been applied to part of the cross-roads hamlet of Hibson Houses in 1836, when the first documentary use of the name is recorded in a survey of Marsden (LkO DDBd 27: 4/3) Hibson Farm was demolished in 1848, and the place-name Hibson, which appears prominently on the 1:10,560 map of 1848 was replaced by Nelson on the revisions of c 1860. In the 1851 Census MS the name Nelson only appears as a pencilled afterthought, but by 1861 its use was accepted. The East Lancashire Railway had two stations in Little Marsden township; that which subsequently became Brierfield was initially called Marsden, while that which lay
nearer Little Marsden was named Nelson from the outset. It may be, therefore, that the action of the railway company in 1849 determined the name by which the town became known.

102. Census MS.

103. The Hargreaves family and their successors were the major coal owners in Burnley from 1754 onwards. In 1851 Bank Hall was occupied by the managing director of Hargreaves' Coal Company.

104. The evidence of land ownership comes from the Tithe Award Maps for the townships of Burnley and Habergham Eaves; see Figure 115.
The 1850s marked the end of a major phase of industrialization in the Calder-Darwen Valley, for they gave way immediately to the economic distress of the Cotton Famine between 1861-1865. After 1865 the cotton trade experienced fluctuations of fortune that were regarded as normal and inevitable occurrences, as long as each slump was followed by an unprecedented boom. By the late 1880s the cotton industry of the Calder-Darwen Valley had begun to assume its final shape, for one effect of successive down-turns in trade had been to weaken spinning much more severely than weaving in the locality. A period picture for the years 1885-1895, therefore, depicts the Calder-Darwen Valley at an important stage in its growth, poised for the great era of industrial expansion that was to end with the outbreak of war in 1914. In addition to providing an impression of the Calder-Darwen Valley in 1885-1895 this chapter will also survey the main changes that had taken place since the 1850s in the location of industry, the distribution of population, the character of settlement, and the evolution of the landscape.

i Industrial Development: The Cotton Industry 1861-1890.

Without doubt the most important change in the cotton industry between 1851-1890 was the growing importance of the weaving section and the relative decline of spinning. Quant-
itative data are not easily come by, but the information which does exist reveals a growing disparity between the rate of increment in spinning and weaving, culminating in the absolute decline of spinning from about 1880 onwards. Thus in Burnley and district the number of spindles installed between 1853-1880 rose by 120 per cent compared with an increase of 250 per cent in the number of looms. Between 1880-1890 the number of spindles had fallen by 30 per cent, whereas the number of looms had risen a further 70 per cent. Several features appear to have contributed to the decline of spinning in the locality, most of them reflecting the growing preoccupation with weaving that had been apparent in the 1850s. Many of the combined mills abandoned their spinning sections as a means of securing more space for looms, and as a comparison of Figures 14-16 shows combined mills lost ground heavily throughout the Calder-Darwen Valley between 1865 and 1887. In 1865 they had accounted for almost half of the cotton factories, but by 1887 their share had fallen to about one-fifth. Furthermore in 1887 75 per cent of the spinning spindles installed in the Calder-Darwen Valley were in combined mills, as opposed to only 37 per cent of the looms, so that the decline of the combined mill was likely to work to the greater disadvantage of spinning in the locality. Elsewhere in Lancastria the reverse was true, for combined mills had a high proportion of the looms (73 per cent) and a low proportion of the spindles (38 per cent) located outside the Calder-Darwen Valley. It seems, therefore, that combined mills were often responsible
for the persistence of a "minority element" in the industrial structure of the cotton manufacturing districts.

The spinning section in the Calder-Darwen Valley was, therefore, starved of capital, and it is clear that the mills of the locality were unable to compete on equal terms with those of the Manchester embayment. The rise of large and heavily capitalized joint-stock spinning companies in Oldham is held to have discouraged competition, and to have made it cheaper for weaving firms to buy yarn rather than to produce it in their own mills. The adoption of the ring spindle at Oldham in the 1880s, with its cheaper costs of production, almost certainly hastened the demise of spinning in the Calder Darwen Valley, for after 1885 scarcely any new combined mills were opened and only a handful of spinning mills was built. The eclipse of spinning was soon to be followed by public assertions that it had never been significant in the locality, and it was not long before the term "weaving area" was being applied to the Calder-Darwen Valley in such a way as to infer that spinning had completely disappeared, and had never been of any consequence.

From 1887 onwards it is possible to plot the locations of cotton mills by size of establishment with far greater accuracy than hitherto by means of the returns published in Worrall's Directory. These list each cotton firm, indicating the number of looms and, or spindles installed in the company's premises. Use of the returns presents two problems: first they refer to equipment in place rather than at work, a dist-
inction which could be important in times of slack trade. Second, and more important from the standpoint of plotting data cartographically, the fact that equipment is listed by firms rather than by premises can make the compilation of an accurate distribution map difficult, particularly where a single firm had plant in more than one mill. Although it is often possible to establish the size of such establishments from figures revealed by changes of ownership a handful of mills survives for which no separate information can be derived. This explains any discrepancies between the quantitative and non-quantitative maps for 1887 and 1913, for the latter depict all mills, including those whose identities are submerged in larger mill groupings for statistical purposes.

The Cotton Industry in 1887.

The general pattern of distribution in 1887 is shown in Figure 16, which reveals three main points. First is the dominance of weaving sheds, particularly in the newest centres of industry such as Great Harwood and Nelson, but also in the older industrial towns. Second is the relative weakness of the cotton industry in the Accrington district, where calico printing and engineering were major sources of employment. Third, and contrary to expectations, is the sustained importance of the rural mill, often situated in or close to the uplands. Some of these were survivors from the earlier water-powered phase, but many were new projects in which the lower costs of rural labour offset the higher costs of transport.
borne by the remoter locations. The granting of "disadvantage allowances" to certain mills (Figure 23), coupled with lower initial costs and lower rates made it possible for cotton manufacture to persist in areas which might otherwise have ceased to support any form of industry.

A more detailed picture of the pattern of distribution is shown in Figures 29-37, where the data taken from Worrall's Directory are employed. In Blackburn three major discontinuous zones of location could be discerned in 1887. The first comprised the mills built on the banks of the Blakewater and its tributary streams, with its largest concentration at Bank Top. This locality had developed as an industrial suburb on the western fringes of the town in the 1840s, and by 1887 the banks of the Blakewater and Snig Brook were crowded with cotton mills, most of which were weaving sheds, many of them formerly housing spinning spindles in combined premises. At Brookhouse a smaller group of stream-side mills centred on that originally built by W.H. Hornby in 1838. Here the width of the Blakewater Valley was restricted by its impingement on the lower slopes of Revidge, and space for industrial growth was further reduced by proximity to the commercial centre of Blackburn and by the hold over land that was maintained by the Hornby family. Between this lesser concentration at Brookhouse and the major one at Bank Top only two mills stood on the banks of the Blakewater, for many of the early premises in the town centre had been swept away as commercial building increased, or had been converted to other industrial uses when their inability to expand had reduced their value as
cotton mills.

The second belt of cotton factories lay on the banks of the Leeds and Liverpool Canal, with particularly heavy concentrations at Greenbank, Eanam and Nova Scotia. Building at canal-side sites ran concurrently with that in the Blakewater and Darwen Valleys from the 1840s onwards, for the two elements of the distributional pattern — stream- and canal-side sites — were not the product of different locational requirements at widely separated dates. Stream-side mills appear to have incurred no great disadvantage from their situations in relation to transport costs, for although mill owners in general (11) complained of high railway rates, total charges for the assembly of yarn and the disposal of cloth amounted to only (12) 10 per cent of the costs of production. Comparable figures are not available for costs of canal transport, but it must be noted that the canal offered no useful alternative to land carriage of cotton yarn and cloth, for it provided a singularly circuitous link with the Manchester embayment. The main value of the canal appears to have been as a means of shipping coal and as a source of water, with the latter function gaining in importance as the importation of rail-borne coal became commonplace. The advantages of a canal-side site were, therefore marginal, and there was no great shift from stream- to canal-side sites at any time in the nineteenth century.

The third major group of mills lay on the banks of the River Darwen between Ewood and Mill Hill. Several of them occupied water-powered sites, and at least one, appositely
named Waterfall Mills, was partly water-driven in the late 1860s. As the district had originally stood outside Blackburn's municipal limits it had also proved attractive on the score of lower building costs and rates, and was well-served by canal and railway. The westward expansion of this zone was restricted by artificial influences of land ownership, for the Dugdale family at Griffin Lodge, and more persistently the Fielden family of Witton Park opposed industrial expansion in this part of the Darwen Valley.

Few mills lay outside the three zones noted above in 1887 (Figure 29): those which did occupied sites in the valleys of minor streams where small reservoirs (mill lodges) could easily be built to supplement town's water. In Audley large weaving sheds had been built on land recently released by the Ecclesiastical Commissioners, and to the north of Brookhouse a group of weaving sheds had been built along the line of the turnpike road and railway. The apparent rail-side concentration here is illusory, as it is elsewhere in the town, for only one mill had a private siding. Generally speaking direct rail access was unimportant for a weaving shed, for it took its supplies of yarn and sent its finished cloth to a variety of outlets and from a variety of sources. Even where mills made extensive use of rail transport they appear to have relied heavily on road cartage to and from the railway warehouses; similarly coal supplies were often carted from rail- and canal-side wharves to those premises which did not have facilities for direct handling.
In Darwen (Figure 29) the linear pattern of industry along the valley floor and its lower slopes again revealed the importance of stream-side sites. Here too the rail-side location of some mills is misleading, for the variety of outlets for cloth and of sources of yarn made direct rail access unnecessary. The contrast between the valleys of the Darwen and Grimshaw Brook is revealing in this context, for in spite of the construction of a branch railway in 1876 the latter locality had fewer cotton mills in 1887 than in 1851. The dominance of extractive industry at Hoddlesden, and the growth of paper manufacture at Grimshaw Bridge must provide a partial reason for this relative decline, as must the poor road communications for which the railway was no effective substitute.

A substantial volume of information about the cotton industry in Darwen during the 1880s makes it possible to examine features which cannot be analysed for other parts of the Calder-Darwen Valley. Thus in Figure 31 it is possible to show the size of cotton mills in terms of employment, and from this data a general idea can be gained of the labour force employed in cotton mills elsewhere in the locality. Broadly speaking mill employment provided a workers to looms ratio of 1:2.5 and a workers to spindles ratio of 1:400. Even in 1929 the workers to looms ratio, based on a larger sample covering the entire Calder-Darwen Valley, scarcely differed, and it is reasonable to suppose that the maps of equipment installed also give a rough guide to the amount of employment provided by applying the ratios quoted above.
The range of information for Darwen also comprises evidence of the relative importance of the cotton trade in the 1880s. In 1867 the town's petition for borough status revealed that 87 per cent of the town's industrial output by value came from the textile trades, and that cotton weaving alone accounted for 70 per cent of the total. Employment in the cotton industry remained at about 80 per cent of the total in mining and manufacturing throughout the period 1862-1885, for as Table 6 shows, the textile trades, other than calico printing, kept pace with other forms of industrial development.

In the Accrington district (Figure 32) the distributional pattern was much more diffuse than elsewhere in the Calder-Darwen Valley in 1887. Several independent centres existed, many of them small mill villages separated by belts of open country or by other industrial sites, notably those of print works. Again stream-side sites were of great importance, notably along the valley of Tinker's Brook in Oswaldtwistle, the River Hyndburn in Accrington, and most strikingly of all, on the banks of Harwood Brook in Great Harwood. The latter settlement had emerged as a cotton manufacturing village almost entirely since 1851, largely through the initiative of Blackburn firms. Moreover this development had gained momentum before the construction of the railway in 1877, thus providing further evidence of the insignificance of rail transport to the detailed evolution of the pattern of industry. A second new industrial settlement was Rishton, where a canal-
Table 6: Employment Structure of Over Darwen 1862-1885.

<table>
<thead>
<tr>
<th>Occupation</th>
<th>1862</th>
<th>1867</th>
<th>1885</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarries/Brick Works</td>
<td>115</td>
<td>80</td>
<td>430</td>
</tr>
<tr>
<td>Collieries</td>
<td>494</td>
<td>477</td>
<td>770</td>
</tr>
<tr>
<td>Engineering</td>
<td>180</td>
<td>196</td>
<td>595</td>
</tr>
<tr>
<td>Paper Making</td>
<td>718</td>
<td>440</td>
<td>930</td>
</tr>
<tr>
<td>&quot; Staining</td>
<td>350</td>
<td>850</td>
<td></td>
</tr>
<tr>
<td>Calico Printing</td>
<td>215</td>
<td>220</td>
<td>0</td>
</tr>
<tr>
<td>Cotton Manufacture</td>
<td>6,297</td>
<td>7,750</td>
<td>14,989</td>
</tr>
</tbody>
</table>

Data for 1862 from S.A.Nichols, *Darwen & the Cotton Famine*; 1867 from Petition for Borough Status; 1885 from J.G.Shaw, *A History of Darwen*, 1889.
side concentration of mills had emerged since 1851. Here retarded development had been a product of the Petre family's reluctance to release land for industrial development. In spite of their change of attitude in Rishton itself the Petre estate still prohibited industrial building along the banks of the Hyndburn between Church and Oakenshaw, and actively discouraged it in the area between Rishton and Blackburn, in spite of the excellent communications possessed by the locality. Similar restrictions, by the Petre and Lomax families, curbed the industrial expansion of Clayton le Moors, where factory building maintained a precarious foothold on the Barnes' estate at Oakenshaw, and on the former common land at Enfield.

Further south the cotton industry's expansion was largely inhibited by competition for sites with the finishing trade. Thus in Oswaldtwistle the greatest concentration of mills lay upstream of Foxhillbank print works, and in Church cotton manufacture was poorly developed. In Accrington most of the cotton mills stood on the banks of the River Hyndburn, but there was also a smaller concentration of plant on the eastern slopes of the valley, at sites which could derive some of their water supply from mill lodges. As in the Audley district of Blackburn, and in north Burnley the ability to construct mill lodges, coupled with the greater volume and reliability of town's water had liberated the industry from its earlier dependence on large streams or the canal. In contrast to these new factories the Accrington district also
contained survivals from an earlier phase of industrial expansion. On the upper reaches of Tinkers Brook two small water-powered combined mills were still active in 1887, located at breaks in the long profile of the stream. Although formerly more numerous — there had been at least two other mills of like kind in the 1850s — the survival of these premises in a remote rural location indicates that the collapse of upland cotton manufacture was a protracted affair.

In Burnley and district (Figure 34) the same broad locational elements were to be seen, with most mills occupying sites along major streams or the canal. The stream-side mills fell into two groups, that in central Burnley and that in the industrial suburb of Fulledge. The central group of mills was already in decline, for it was here that many of the early combined and spinning mills had been abandoned or converted to other uses. The principal survivors lay on the northern edge of the Calder industrial zone, hemmed in on the one side by an expanding town centre and on the other by the inviolate open country of the Royle estate. In Fulledge most of the mills were modern foundations dating from the period 1856-1866, but here too expansion was restricted by the existence of a major landed estate, in this instance Towneley Park. Further restrictions on the use of apparently suitable stream-side sites occurred in the Brun Valley, where the Hargreaves family of Bank Hall prohibited industrial building, thus causing alternative sites to be sought.

The first canal-side mills dated from the 1840s and lay
immediately to the south of the Calder industrial zone at Sandygate. During the 1850s a further group of mills was built on the margins of the Royle estate at Whittlefield, and in the late 1860s yet another canal-side concentration had emerged at Daneshouse, also on the margins of the Royle estate. Between Daneshouse and the River Calder at Fulledge there were few cotton mills, partly because the canal was carried through the locality on an embankment, but largely because it also passed through Hargreaves' land at this point.

Few cotton mills lay outside the central concentration of stream- and canal-side plant in 1887. The isolated country mills at Harlesyke and Worsthorne were examples of those benefitting from the lower costs of rural locations. In north Burnley three weaving sheds located on the banks of minor streams were precursors of a much greater shift in location that would occur when all the central sites had been occupied, but as yet they still retained the characteristics of their origin as country mills. To the west of Burnley a few mills had been built on the canal bank, but further expansion was largely precluded by the control exerted by the Dugdale family of Lowerhouse. Dugdale, a substantial land owner in the locality, still owned the combined mill at Lowerhouse, but had leased the adjacent print works to another firm, for there was a well-defined trend throughout the Calder-Darwen Valley to separate manufacturing from finishing, even where integrated factories had previously existed.

To the west of Lowerhouse lay the small industrial town
of Padiham (Figure 32). Although the major land owners had relaxed their stranglehold over industrial growth the range of factory sites was still limited. The major group of cotton mills lay in a small river-side area between the old town and Gawthorpe Park. The only locality suitable for further expansion lay to the south of the town along a tributary of the River Calder, but even here the Towneley and Huntroyde estates restricted the amount of land available for industrial growth. Consequently Padiham remained a relatively weak centre of the cotton trade, and was no better placed than many of the new industrial settlements of the lowlands to the west.

In the Colne and Nelson area (Figure 36) the pattern of location was diffuse, for it comprised elements of old and new industrial development, of relative decline and of massive expansion. In Colne most of the cotton mills stood on the banks of Colne Water, often at sites originally chosen for their water power. Locational conservatism had been encouraged by the fact that coal was available and easily worked on the southern flank of the valley, and both the turnpike road and the railway served its western end at Primet. The ridge upon which the town stood offered little attraction for cotton mills, and the two weaving sheds located here had almost certainly originated as hand-loom shops. Beyond the ridge the broad flat-floored North Valley, drained by a sluggish stream, had attracted little industry, for it possessed no advantages over the valley of Colne Water save the amount of space it offered, and this was not yet at a premium in Colne.
To the east of Colne there were several old-established mills at water-powered sites, all of which had secured "disadvantage allowances" due to their relative remoteness. Another locality in which old mills at water-powered sites survived was Barrowford: here also several mills had secured "disadvantage allowances".

The largest mills in the locality lay outside the traditional manufacturing districts in the new settlements of Brierfield and Nelson. In Brierfield there was a cluster of large mills occupying canal-side sites which were also close to the railway station, the turnpike road, and Marsden Colliery. The pattern of distribution in Nelson comprised three elements. The first, isolated mills at water-powered sites, had one surviving member, the large Lomeshaye Mills which had been built to manufacture worsted. The second group comprised a number of weaving sheds built on the banks of Walverden Water, at a point where the valley broadens and is crossed by the turnpike road and the railway. An important factor of location here was the construction in 1866 of Walverden Reservoir, which minimised the risk of flooding and provided adequate compensation water for industrial use. The third concentration of mills lay on the canal bank, for as was the case in Blackburn and Burnley stream- and canal-side sites were developed concurrently. Most of the weaving sheds in Nelson were large establishments (Figure 36 ), but the majority of them housed a large number of small firms who leased their premises from room and power companies. This was particularly
advantageous to manufacturers who wished to establish themselves in the fine quality cotton trade with its small and diverse market outlets. Many firms which were subsequently to erect large mills of their own began as small enterprises housed in premises rented from a room and power company.

**Trends in Location**

These detailed local surveys make it possible to derive several generalizations about the evolution of a pattern of industrial location before 1887. The local dominance of weaving is clearly to be seen, and was to be expected from the trend of the period 1830-1860 previously investigated. In the Calder-Darwen Valley the ratio of looms to spindles was 1:16 in 1887, compared with 1:70 in the North-west generally, and 1:150 in the Manchester embayment. The Calder-Darwen Valley contained 42 per cent of the looms and 10 per cent of the spindles installed in the North-west, compared with 30 per cent and 63 per cent respectively in the Manchester embayment. Thus although the Calder-Darwen Valley had greatly improved its position since the 1830s the initial strength of power-loom weaving in South-east Lancastria deprived the locality of the degree of industrial leadership possessed by the Manchester embayment in spinning. The spinning industry in the Calder-Darwen Valley was not only weak in relation to that of Lancastria as a whole, it was also declining within the locality. This was largely due to the demise of the combined mill and the inability of firms to compete on equal terms with the
larger, better equipped mills of the Manchester embayment. Thus the major capital investments in cotton continued to be in weaving plant throughout the Calder-Darwen Valley, and the term "weaving area" became a commonly applied, if not entirely accurate, regional title for the Calder-Darwen Valley.

The pattern of industrial location which had evolved by 1887 revealed a series of influences, many of them no longer important but continuing to exert pressure through inertia. Many water-powered mill sites continued in use, partly because fuel could easily be carried to all but the least accessible of them, but also because water rights continued to be important long after the water wheels had been abandoned. Almost all the mills of the Calder-Darwen Valley occupied waterside sites, for it was common to derive some water from streams and the canal even where piped supplies were available. The enquiry into the pollution of rivers in 1868 showed that many cotton mills drew their water from a variety of sources according to use. Soft water was not considered to be a locational requisite of the cotton trade, for as one leading manufacturer in Darwen observed "pure water is not essential for purposes of cotton manufacture (although) pure water is better then foul for engines and boilers". Most mills appear to have used polluted water for boiler-feed, and to have taken that used in process work from unpolluted streams, wells, and piped supplies. One indirect advantage which stemmed from the widespread construction of mill lodges was the control exercised over
the regime of streams, for disastrous flash-floods became relatively rare in the latter part of the nineteenth century. (21)

Canal-side mills drew much of their water from the canal, but as noted above derived less value from water-borne transport than might be supposed. Although many mills had facilities for handling coal and raw cotton the canal was rarely suitable for traffic in yarn and cloth. There is no evidence to suggest that canal-side mills secured cheaper fuel, for rail haulage of coal was said to be relatively cheap, and many cotton factories enjoyed cheap costs of coal cartage by land from pits that were situated almost at the mill gates. A canal-side location was not, therefore, a product of special industrial needs nor did it reflect the peculiar circumstances of a distinctive phase of development. It was a form of waterside location which may have possessed marginal advantages in terms of transport facilities, but even these were eroded as more coal came in by rail and less raw cotton was used in the locality.

The growing importance of rail transport to the cotton trade is revealed by an enquiry into freight rates of 1881. Blackburn alone imported 35,000 tons of raw cotton from Liverpool and 36,000 tons of yarn from the Manchester area, and shipped 60,000 tons of cloth for finishing and packing. The complex links between sources of raw cotton, yarn, finished cloth and the wholesale warehouses were held to be a source of excessively high transport costs, which were about 12 per cent of the cost of manufacturing. Much of this expense would have been avoided had the combined mill survived as a form of organ-
ized integration, but it was argued that the benefits of intense specialization outweighed the problems of transport costs and fragmented production.

Although the railway was an important mode of transport — the 1881 enquiry also reveals that growing amounts of coal were being brought by rail from the Wigan area, and less commonly from South Yorkshire — it hardly ever affected the siting of cotton mills. Few mills had private sidings, and many "rail side" plant lay alongside cuttings, embankments or viaducts, where direct access was impossible. The railway was, therefore, of general rather than particular importance to industrial growth and location, and most mills were linked to it by road cartage that was in the hands of private carriers or the railway company itself. The influence of the railway on the general development of cotton manufacture was considerable but is not to be over-estimated: for example both Padiham and Great Harwood had appreciably expanded as industrial centres before the railway reached them.

The pattern of industrial location in 1887 cannot solely be related to the influences of physique and lines of communication. Many apparently favourable sites were not built on because landowners were opposed to the erection of factories on the whole or selected parts of their estates. Thus although parts of the Royle and Towneley lands in Burnley were built on the land close to the principal residences on the banks of the Calder was not released for factory construction. Similarly canal-side sites close to the Petre seat at Dunkenhalgh were avoided by industry although the family had made comparable
sites available on the canal bank in Rishton. Many industrialist landowners were also keen to protect their land, and presumably their water-rights, from the expansion of manufacturing, for the Dugdale family at Lowerhouse and the Ecroyd family of Lomeshaye barred industrial building on their estates. The survival of many rural mills also appears to have owed more to chance than to physical advantages of site, particularly in the granting of disadvantage allowances. The details of the pattern of distribution must often be explicable in terms of influences that are incapable of rationalization, for the ability of a textile firm to weather the many cyclical fluctuations of trade was not entirely a function of physical siting. While it is true that some mills went out of existence largely because they were poorly sited, others disappeared through commercial ineptitude or from competition for land for other commercial and industrial purposes. Even where industrial expansion is concerned the location of cotton mills in detail may often reflect circumstances that are now obscure, particularly the availability of plots of land at a given moment in time. As very little documentary evidence survives to illuminate the precise reasons for individual choices of site it is impossible to explain the details at length. We are, therefore, obliged to analyse the broad pattern of location, and to seek general explanations which, while they may hold good for the majority of sites, will not satisfactorily serve them all.

Sub-regional Specialization.
This aspect of the cotton industry's development merits attention in that it was to be responsible for important differences in the size of firms and the ability of localities to weather economic change after 1914. Just as local specialisms had emerged in the spinning section of the industry so they arose in cotton weaving. The origins of local specialization within the Calder-Darwen Valley are difficult to trace, for the distinction between types of cloth is less easily defined than that between different counts of yarn. Worrall's Directory lists spinning mills according to grade of yarn produced, but does not attempt to provide an equivalent list of weaving sheds. Instead each entry in the directory cites the range of cloth manufactured, and from this it is possible to produce a rough classification of types as shown in Figure 21. It has to be noted that many firms indicated an ability to supply many different kinds of cloth, but it is normally possible to grade these according to quality.

In 1887 the pattern of local specialization was already well established, although not as sharply defined as it was to become in the heyday of cotton weaving during the years before 1914. The area centred on Blackburn concentrated mainly on cheap cloth production, notably for the Indian market, and this specialization was particularly noteworthy in the smaller centres founded by Blackburn manufacturers at Rishton and Great Harwood. Hardly any sheds in the Blackburn area advertised the manufacture of high quality cloth, and the handful which did mainly comprised isolated rural mills which could not compete
in the production of dhooties and similar cheap wares. In the weaving sheds of the Accrington district the principal cloths produced were for printing and were again at the cheaper end of the price scale. The older mills of the Burnley area were still largely producers of cheap to medium price printing cloths and shirtings, but some of the newer establishments and the rural mills of the locality were manufacturing colour-ed goods of a higher value. The greatest concentration of fine quality cloth production was, however, already to be found in the Nelson and Colne area, but even here there were still many firms which wove the less expensive printing cloths and shirtings. Thus although the main features of regional specialization were sketched in by the 1880s it had yet to reach its greatest intensity.

The origins of regional specialization are not easily traced for few company records survive to shed light on what may well have been a singularly haphazard process of decision taking. Any explanations must, therefore, be exceedingly tentative, and those which follow are difficult to verify in detail. The dominance of the Indian trade in the Blackburn-Darwen area may have reflected both the loss of a local market for printing cloths and the final freeing of the East India trade during the 1840s, at a time when there was much investment in the newly perfected power loom. The importance of printing cloths in the Accrington-Burnley area is perhaps more easily explained by the great local concentration of
calico printing works, but even the most obvious of reasons is not necessarily the only one, for it is said that the importance of printing cloth in Burnley finally resulted from technical improvements made during the 1860s. The concentration on fine quality cloth production in Nelson and Colne may have stemmed from the initial local importance of the worsted trade — even in the 1880s there were still firms which wove both worsteds and cottons — and the tradition of high quality hand-loom weaving, but it is just as likely to have emerged as a response to other influences. The mills of this locality had developed at a relatively late stage and could scarcely have hoped to capture the cheaper market for bulk cotton cloth that was served by Blackburn and Burnley. Those mills which did manufacture lower quality cloth were almost entirely old-established concerns occupying large premises, which lends support to the view that later foundations were unable to share in this section of the trade. It has also been suggested that the presence of room and power mills greatly facilitated the growth of small firms producing high quality goods, but it is difficult to know whether the room and power companies stimulated initial growth, or were themselves a response to existing demands for space. It can be seen that a full explanation of local specialization could only be discovered with great difficulty; indeed it may in many instances hinge on a series of accidents and coincidences rather than on rational decisions for which documentary evidence survives.
A final aspect of sub-regional differences which merits brief examination is the existence of local wage rates. Until 1892, when a uniform list was introduced, wage rates varied appreciably even within a single locality. Attempts to bring order to this chaos had been made in Blackburn as early as 1853, but in spite of this the wage structure of the industry remained singularly complex and extremely flexible in the 1880s. One consequence of this was that certain districts might be able to attract labour by offering favourable rates, while others, particularly in rural localities, could retain industry by offering lower rates of pay. The importance of "disadvantage allowances" which permitted reductions of up to 8 per cent on standard rates as late as the 1920s has already been referred to as a means of supporting rural industry. In the towns wage rates differed appreciably according to the type of cloth produced and the number of looms worked. Thus in 1892 the weekly wage of a four-loom weaver in Blackburn was 16 sh., compared with 20 sh. in Accrington and 24 sh. in Burnley. Even more important was the great disparity between these rates and those awarded in spinning, which were generally of the order 35-40 sh. per week in the Calder-Darwen Valley. In many instances the combined income of man and wife in a loom shed would be no greater than that of a single male spinner, and as female wage rates were normally the same as those earned by male weavers joint incomes became the general rule. Thus there emerged a tradition of employment of married women as an economic necessity, a feature which was to become one of the
central problems of industrial readjustment in the years after 1918. Intense specialization not only in cloth weaving but also in specific types of cloth manufacture was another feature that was to prove a source of weakness after 1918, and we can now see that the causes of future economic difficulties were firmly established by the 1880s.

The Finishing Industry

Increasing specialization was also a feature of the finishing section of the textile trade. In the 1850s most of the finishing processes had been carried out at print works which also dyed and bleached cloth. By 1887 a wider range of finishing plant existed, for the number of separate dye- and bleach-works had increased, a change that was partially counterbalanced by the closure of some print works (Figure 11). There were also important changes in the pattern of distribution which had the effect of producing an even greater concentration of print works in the Accrington area. This was partly a result of closures in the Darwen area, where paper manufacture had gained complete supremacy, and of other conversions to paper making at Burnley and Brookside, but it was also a product of expansion in Accrington itself. In general calico printing was a declining, or at best static industry in the Calder-Darwen Valley, no longer attracting investment in entirely new plant. In view of the local importance of cotton weaving this may seem surprising, but the location of print works was not entirely conditioned by access to supplies of cloth. Physical features such as pure water supply and means of effluent disposal were
still of great importance, and during the second half of the nineteenth century the largest new print works were located in Northwest Derbyshire where these conditions could best be met. The rivers pollution enquiry of 1868 clearly revealed the problems faced by and resulting from the calico printing industry of the locality. Thus the works on the River Hyndburn together poured 852,000,000 gallons of untreated sewage into the stream each year, and it is little wonder that firms on its lower reaches complained of the excessive pollution. On the other hand Baxenden print works, situated on the headwaters, complacently observed that "the condition of the stream is as good as ever" while giving a detailed breakdown of the types of untreated effluent which were tipped into the river. Oakenshaw print works, which was furthest downstream, observed that pollution cost roughly £150 per annum in additional charges, a figure roughly equivalent to 20 per cent of its fuel bill. Although print works were not forced out of business by pollution — competition from the paper industry which faced similar problems was a prime cause — the lack of expansion in the locality almost certainly reflected physical difficulties.

The growth of independent bleach and dye works, some of which occupied the sites and abandoned premises of print works, was largely a consequence of the growing complexity of specialized requirements in the cotton trade. Finishing firms existed to dye yarn for the coloured cloth trade as well as to bleach and dye lengths of cloth. In the 1880s most of the finishing works were still located in the major areas of calico
printing, partly through the relative ease of securing water rights from this contracting industry. The same districts were also centres of chemical manufacture, an industry which had barely expanded since the 1850s and was unlikely to do so in the face of competition from the much larger dyestuffs works in Huddersfield and Manchester. The finishing trades and their ancillaries were not, therefore, striking growth points in the Calder-Darwen Valley after the 1850s, a feature which greatly emphasized the dominant position of cotton manufacture.

Miscellaneous Manufacturing Industry.

As in the 1850s engineering and paper making were the principal non-textile industries, but both were still partially dependent on the cotton trade of the locality. Most of the engineering firms manufactured textile machinery and were heavily biased towards the production of weaving and finishing equipment. Figure 11 depicts the distribution of the industry in the 1880s, and reveals the importance of Blackburn, Burnley and Accrington as centres of engineering. The last named had the greatest diversity of engineering firms, including concerns which had switched from textile engineering to the production of domestic appliances. Although strong in Accrington the engineering industry of the Calder-Darwen Valley as a whole was largely overshadowed by textile manufacture, and some engineering firms were still directly controlled by cotton mills. The relative weakness of engineering is indicated by the low contribution of plant to the municipal rate fund. Thus in Blackburn in 1885 engineering works accounted for only
As Figure 11 shows the paper industry was still largely confined to the Darwen area in the 1880s, where it employed about 10 per cent of the town's labour force, having completely replaced textile finishing. Paper mills and print works had broadly similar water-supply requirements, and were also blamed for much stream pollution. Unlike calico printing, however, the paper trade had entered an expansionist phase after 1850, and was able to overcome its water-supply problems in several ways. Thus in Darwen paper mills began to draw water from wells and town supplies in order to produce high quality paper, while retaining their rights to use polluted stream sources for the manufacture of lower grades. Paper mills had good reason to stick to their original locations rather than to move in search of better water supplies, for they derived a substantial volume of their raw materials locally — notably rags, 57 per cent by weight, and lime, 14 per cent — as well as enjoying a considerable local market for printing paper and coloured wrappings.

The Darwen Valley could not, however, support unlimited expansion of paper manufacture, largely because its reserves of surface water had been heavily drawn upon. The location of new mills opened after 1850 largely depended on the type of paper which they were to produce. Four mills manufacturing coarse grades where polluted water could be used lay on the banks of the Darwen or the Calder, in the latter instance at
the site of the former Burnley print works. A further six mills producing higher grades of paper were situated on streams that suffered little or no pollution. The Sun and the Star paper mills at Feniscowles, built to produce "long elephants" used in wallpaper manufacture, took their water from the River Roddlesworth, which was protected against pollution by its function as a gathering ground for Liverpool Corporation's Withnell reservoirs. The remaining four mills all occupied the sites of earlier industrial premises — Brookside print works, Whiteash cotton mill, Waterside cotton mill, and Rishton corn mill. Thus as in the early development of calico printing the adaptability of premises and sites to other industrial uses had proved to be a valuable asset.

**Extractive Industry**

The continued growth of industry in the Calder-Darwen Valley was reflected in the expansion of coal mining, for as in the 1850s the collieries of the district depended largely on local market demand, and on the financial support of the textile industry. The major changes in the pattern of mining between 1854-1892 are shown in Figures 45-8. The most important development was the sinking of deep shafts in the Burnley basin, and to a lesser extent in the lowlands between Hapton and Rishton, in order to tap hitherto inaccessible seams which had largely been exhausted along their upland outcrop. Many of the new pits were located close to the existing line of the canal and/or the railway (Figure 11), and those which were not were easily linked to the staithes and sidings by gravity tramroads (Figure 62).
The growth of deep mining, encouraged by technical advances and local market demand, decisively swung the emphasis of coal production from upland to lowland collieries, but did not entirely eclipse the former. As Figure 48 shows many upland pits were still at work in the 1890s, and their survival reflected three main features. First was the ease with which shallow shafts and adits could be opened up at low capital cost. Second was the maintenance of local markets, either in the uplands where several textile factories survived, or in adjacent lowland localities. Third was the possibility of working brick- and fire-clay with the coal, which made small-scale working more economical than might otherwise have been the case. In the Darwen area it was said that coal mining had already become subservient to other forms of extractive industry in the 1880s, and by the 1890s many of the pits were mainly worked for fireclay. The cluster of small pits south of Accrington partly depended on fireclay mining for the manufacture of bricks, tiles, and coke oven linings. Thus the pits of the uplands relied upon the presence of fireclay as a means of survival, whereas the deep mines of the lowlands regarded its presence as a hindrance to expansion.

The difference in size between upland and lowland pits is difficult to measure with accuracy but it must have been considerable. The rateable values of the deep mines ranged from £ 1,000 - 5,000, whereas the smaller shallower workings were valued at £ 300 and less. The output of upland pits was small, for in 1867 the dozen or so collieries at Darwen prod-
duced only 102,000 tons of coal in all, about 8 per cent of the total mined in the Calder-Darwen Valley. As some of the older lowland pits were also relatively small — Great Harwood colliery produced about 10,000 tons per annum in the 1860s — the deep mines of the locality must have had outputs of 100,000 tons or more each at this time. However, the total coal production of the Calder-Darwen Valley in the late 1860s — about 1,225,000 tons — was only one-fifth of the amount produced in eastern Lancastria. In 1882, during a period of recession in the coal trade, production in the Calder-Darwen Valley and Chorley districts was only 1,419,000 tons, one-seventh of the total output of eastern Lancastria. The figures for 1882 suggest that output in the Burnley area was no greater than it had been in the 1860s, and that the sinking of new pits around Accrington had been offset by the closure of existing ones, mainly in the uplands.

More significant than this poor relative position was the cost of coal in the Calder-Darwen Valley, for the pit-head price was high even by Lancashire standards. The average price of 8 sh. 4d. per ton in Burnley compared unfavourably with 5 sh. 9d. in Leigh and Bolton and 5 sh. 8d. in West Lancashire. Even with added transport costs of about 2d. per ton-mile pits in the Wigan area could easily undercut Burnley collieries at Blackburn. The Wigan Coal and Iron Company maintained large canal- and rail-side yards in the town, and pits in the Wigan area also had regular contracts to supply industrial concerns in the Blackburn district. There is however, little evidence
about the volume of coal traffic entering the Calder-Darwen Valley in order to make up the deficiency between local demand and output. Very little coal left the Calder-Darwen Valley for other areas, for most pits had purely local markets which did not extend beyond adjacent rural localities, as for example the Ribble valley, which was partly supplied from Great Harwood colliery.

The links between coal mining and other local industries were not confined to fuel supply and provision of fireclays. The Calder-Darwen Valley possessed substantial reserves of coking coal and at several of the lowland pits there were batteries of bee-hive ovens built to produce foundry coke, much of it for local engineering works. Although the presence of coking coal enhanced the value of mining it did not free the collieries of the Calder-Darwen Valley from their heavy reliance on local market demand. Coal mining never became a leading industry in its own right, although the interest of the major coal owners in the production of coke, chemicals and bricks made them major employers of labour on a par with the large engineering and paper making firms.

Brick making had grown in importance since the 1850s, and in effect comprised two main elements. The manufacture of common bricks was still largely confined to Blackburn, where a chain of small brick works was strung out along an outcrop of shales and mudstones to the south of the town. Similar Coal Measures horizons were worked on a small scale at Burnley, Nelson, Colne and Accrington (Figure 11). The second element,
manufacture of fireclay ware, was concentrated in Darwen, where the mining of coal was overshadowed by the extraction of fireclay for the manufacture of glazed brick, sanitary pipes, and refractories. Earthenware was also produced from Coal Measures clays at potteries to the south of Accrington, thus emphasising the concentration of the fireclay industry in or near the uplands. Few lowland collieries worked fireclays at this time, and only one was directly concerned with brick manufacture, but this was a significant exception. During the 1870s the Altham Colliery Company had discovered an exceptionally fine-grained mudstone in a trial boring for coal at Whinney Hill, north of Accrington. A small brickworks was established to exploit these reserves, which were subsequently to support the largest concentration of plant in Lancashire. In the 1880s, however, brick was not a widely used building material in the locality except in Blackburn, where, as in previous periods, the quality and amount of building-stone was poor.

Throughout the remainder of the Calder-Darwen Valley the various sand- and grit-stones formed the major building material. Several large quarries were opened after the 1850s to meet the local demand for housing, factories, and various types of public works. The largest workings lay on the gently dipping southern limb of the syncline, even though this often meant siting quarries at some distance from the main lines of communication: the principal sites were at Catlow (Nelson), Hameldon (Hapton) and Warmden (Baxenden). A second but smaller group lay between Blackburn and Great Harwood, close to both
the canal and the railway, but remaining of minor importance because the stone was of low quality and fit mainly for setts and other forms of road metal. In addition there were many small quarries scattered about the Calder-Darwen Valley, notably close to the towns, in which a variety of building- and road-stone was worked. It was, however, rare for quarries in the Calder-Darwen Valley to share in the wider trade in stone that was an important feature of the economy of Rossendale at this time, for this was yet another instance of the subservience of extractive industry to mainly local demand.

The General Pattern of Industry.

There is far less detailed information about the structure of employment and the size of industrial establishments in the 1880s than exists for the 1850s. The manuscript returns of the census are not available, and the published data are of restricted value, for the occupational tables of 1881 and 1891 have a limited territorial coverage. The rate valuation books provide one means of comparing the size of establishments in different industries, but these are not available for the whole of the Calder-Darwen Valley. Thus although a greater amount of information is available for certain industries from trade directories and similar sources it is difficult to make quantitative comparisons, and it is, therefore, necessary to use simple non-quantitative data in order to depict the pattern of distribution more fully.

The pattern of industry in 1890 is depicted in Figure II:
A comparison with earlier maps in this series (Figures 7 - 10) shows how complex the range of economic activity had become. However, even a generalized map of this kind shows the great importance of textile manufacture and its dominance in many of the smaller towns. The maps of industrial distribution based on the rate valuation books emphasize this feature in detail. Places such as Nelson and Colne (Figures 53-55) had few industrial establishments other than textile mills, and even where there were other branches of manufacturing, as in Burnley and Blackburn (Figures 53-54) the textile trades were clearly dominant. This is further supported by the contribution of textile factories to the total value of industrial premises as shown in Table 7. In the Nelson and Colne districts 90 per cent or so of the industrial rateable value was in cotton mills, and even in Blackburn the proportion was 81 per cent. The lower share in Burnley, Padiham and Rishton was largely a product of the high rateable value ascribed to coal mines, which was based on a formula applied to the areal extent of workings as well as to fixed plant. The rateable value of collieries fluctuated wildly according to which seams were being worked at a given time, and this partly accounts for distortion of the returns in mining districts.

Details of occupational structure in 1881-91 are only available for Blackburn and Burnley, and the mode of tabulation largely fails to make a clear distinction between manufacturing industry and craft trades associated with retail premises. The census of 1901 provides a much wider coverage with a class-
Table 7: *Rateable Value of Industrial Premises*

<table>
<thead>
<tr>
<th>Locality</th>
<th>Total Value (£)</th>
<th>Cotton Mills' Value (£)</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackburn</td>
<td>50,272</td>
<td>40,647</td>
<td>81</td>
</tr>
<tr>
<td>Burnley</td>
<td>53,696 *</td>
<td>31,662</td>
<td>59</td>
</tr>
<tr>
<td>Colne</td>
<td>13,687</td>
<td>12,267</td>
<td>89</td>
</tr>
<tr>
<td>Nelson</td>
<td>22,750</td>
<td>22,000</td>
<td>97</td>
</tr>
<tr>
<td>Padiham</td>
<td>17,067 **</td>
<td>8,522</td>
<td>50</td>
</tr>
<tr>
<td>Rishton</td>
<td>5,436</td>
<td>3,470</td>
<td>64</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>162,908</td>
<td>118,568</td>
<td>76</td>
</tr>
</tbody>
</table>

* Colliery valuation £ 9,500; ** Colliery valuation £ 5,800

Data are from Rate Valuation Books; all industrial premises other than small workshops are included in the total values.
ification that more closely resembles modern practice, and although the data do not strictly refer to the period under discussion they do shed some light on the structure of employment at the end of the nineteenth century. The published returns are available for urban administrative areas with 5,000 or more inhabitants, accounting for about 94 per cent of the total population in 1901.

In 1901 138,169 males and 98,281 females aged 10 years and over were employed in the towns of the Calder-Darwen Valley (Figure 42): 38 per cent of the men and 78 per cent of the women were in the cotton industry. An important feature of female employment was the large number of married women at work, ranging from 24 per cent of married women at work in Accrington, a town with much well paid male employment, to 42 per cent in Great Harwood, a centre dominated by the cotton industry. Of ten towns in Lancashire which had more than 30 per cent employment of married women nine were in the Calder-Darwen Valley, all of them places with an intense concentration of cotton weaving. The structure of employment shown in Figure 42 clearly demonstrates the dominance of the cotton industry in most of the small towns of the Calder-Darwen Valley, and also reveals that the degree of industrial diversification in many of the larger centres was relatively feeble, particularly when the ties between textiles and other trades are remembered. Tertiary employment was most strongly developed in Blackburn and Burnley, but by 1901 many of the newly created industrial towns also supported a wide ranging if numerically weak group of tertiary occupations.
Communications.

The network of railways in the Calder-Darwen Valley had been completed by 1880 with the addition of four branch lines. Two of these handled local traffic – the Great Harwood Loop between Burnley and Blackburn (1875-77) and the Hoddlesden freight line (1876). The remaining two augmented the main line system of the locality by linking Blackburn with Wigan – the Lancashire Union Railway of 1869 – and with the Midland main line at Hellifield – the Chatburn Extension of 1879. Although the railway was clearly of general importance to industrial expansion (see pages 156-57) it exerted little influence over the siting of manufacturing industry. Extractive industry with its need to move bulky freight of low value showed a greater propensity for rail-side locations where geological structure permitted, and several of the collieries opened after 1850 lay close to the railway. In addition a network of mineral tramroads was created, mainly in the Burnley area, to link pits with the railway and the canal (Figure 62).

No statistics of local rail traffic have survived and the impact of the railway has to be measured in terms of its impact on other forms of transport. Thus the total volume and value of traffic handled by the Leeds and Liverpool canal fell by 10 per cent between 1858-68, a continuation of the trend initiated in the 1840s. The construction of the Wigan-Blackburn railway, with its explicit purpose of providing cheap coal for Northeast Lancashire, must have greatly damaged canal traffic. Road transport by advertised carriers' services also
continued to diminish in volume and to change direction. By 1890 the formerly important long-distance services had almost entirely disappeared and were only of significance where no direct rail link existed — as for example between Burnley and Rochdale (Figure 69). The heaviest road traffic was over short distances, often to railheads, and even this had decreased in volume since the 1860s, largely due to the better organization of railway controlled road haulage using flats and containers capable of transfer from one mode of transport to the other. The reduction in advertised carriers' services was also a response to the development of the passenger tramway system. As Figure 62 shows a modest system of horse- and steam-drawn tramways had been created during the 1880s, including some lengthy sections of inter-urban track between Blackburn and Darwen, Blackburn and Accrington, the Rossendale Valley and Accrington, and Padiham and Nelson via Burnley. The passenger tramways exerted a little influence on the growth of towns, but neither they nor the railways dominated the character of urban expansion as so frequently happened in major cities at this time.

The pattern of communications in the Calder-Darwen Valley appears to have changed less radically than any other major aspect of economic activity between the 1850s and the 1880s. The additions to the railway system were modest both in comparison with the spate of building in the 1840s and with the rash of projects suggested at that time. The ambitious proposals for long distance lines had largely faded away, to be
replaced by a plethora of suggestions for local branches. Two main proposals, in different guises, were put forward: first the construction of links between Burnley and Rossendale, and second the opening up by railway of the Pendle foothills and the Ribble valley. The trans-Rossendale routes were largely defeated by engineering difficulties, and those traversing the Pendle area by lack of sufficient financial support. It ought to have been evident that rural localities would not necessarily industrialize with the advent of the railway, for Great Harwood had risen as an industrial settlement before its arrival, whereas Whalley had scarcely been altered by the coming of the railway. While there can be no doubt of the general benefits which accrued to the Calder-Darwen Valley through the creation of its railway system it is also clear that improved transport alone was not responsible for economic expansion after 1850.

iii. Population.

Between 1861-1891 the population of the Calder-Darwen Valley rose from 206,815 to 401,794, an increase of 94 per cent. Thus although there had been a temporary slackening of growth during the Cotton Famine and rural depopulation continued to afflict several townships (Figure 90) a strong recovery in the industrial towns after 1865 had wiped out these adverse trends. The intercensal changes during the period are shown in Figures 80-82, and for 1861-91 in Figure 83. From these maps it is possible to make several general observations on
the changing pattern of population distribution, for as in
previous periods the rate of overall growth masks many local
variations.

An important feature of the period was the slackening
rate of growth in Blackburn, for although the town continued
to enjoy a great numerical increase this was proportionally
lower than in any other centre of consequence in the Calder-
Darwen Valley. Parts of the town were already losing populat-
ion, for in Saint Mary's Ward, the commercial centre of the
town, a reduction of 1,433 inhabitants (38 per cent) was
recorded between 1871-1891. Set against this was the high
rate of increase in Livesey and Little Harwood, ascribed in
1861-1871 to the "influx of persons from neighbouring town-
ships to gain employment in the cotton mills". After 1871
the growth of these artisan suburbs was paralleled by the
emergence of Wilpshire as a select residential district, a
reversal of the earlier trend of rural depopulation experienc-
ced in the township. This decline continued in neighbouring
Ramsgreave, and as late as the 1860s was attributed to "mig-
ration in search of employment in consequence of the depression in hand-loom cotton weaving."

Over Darwen continued to expand at a substantial rate
due to "the prosperous state of its numerous manufactures". Elsewhere in the Darwen Valley and the adjacent uplands loss of population or stagnation was more common. Eccleshill, Yate and Pickup Bank, and Tockholes all showed losses of population
during this period which reflected the collapse of domestic textile manufacture and small-scale mining. The opening of the Hoddlesden branch railway in 1876 and the resultant expansion of extractive industry in Eccleshill failed to arrest the decline, an illustration of the slight impact made by new economic developments in upland areas which had supported large populations. Lower Darwen did not begin to grow rapidly until after 1881 when, with the advent of the tramway, part of the township became an artisan suburb of Blackburn.

The group of industrial towns centred on Accrington experienced some of the heaviest increases of population seen in the Calder-Darwen Valley between 1861-1891. The population of Accrington itself more than doubled, and of the other centres only Church had an interrupted growth record and a sluggish recovery after the Cotton Famine. The most spectacular transformation occurred in Rishton which experienced a five-fold increase (1198 to 6010) after the release of parts of the Petre Estate for industrial building during the 1860s. In the dominantly rural townships which separated the Accrington and Burnley group of towns little change took place, for the coal, brick, and cotton industries had scarcely developed before 1891. Consequently the Calder lowlands remained a dominantly rural area forming a distinctive break between the urban areas to the east and the west.

The townships centred on Burnley enjoyed marked increases of population after 1861. As in Blackburn the rate of growth in Burnley itself had slackened, but there was a compensatory
high rate of increase in Habergham Eaves, Ightenhill Park, and Reedley Hallows. To the west Padiham continued to grow at a slow rate, largely due to the shortage of land for industry and housing, and a much greater rate of expansion was experienced by Hapton, to the south. This was a large township, and growth occurred at three points within it: in the southern industrial suburb of Padiham along the valley of Green Brook, in Hapton village, with its chemical works and cotton mills, and in the upland mill hamlet of Clow Bridge, on the Burnley-Bury turnpike. It is probable that other parts of the township were losing population at this time, an indication of the difficulty of categorising places with generously drawn boundaries.

The eastern sector of the Calder-Darwen Valley contained three main zones of population change between 1861 and 1891. To the north the Pendle townships had experienced almost unrelieved population loss which was only slightly tempered after 1881 by the revival of rural cotton mills. In 1871 it was observed that the entire Pendle sub-district had suffered a "decrease attributed to migration and emigration". In the south the Pennine townships had, by 1891, managed to overcome the earlier downward trend. The growth of textile manufacture in parts of Trawden and Briercliffe, and of stone quarrying in Worsthorne produced increases that must have masked continued rural losses elsewhere in these townships. Finally there were the partly urban townships which lay in the lowlands
Table 8: Growth of Population in Marsden 1871-1891.

<table>
<thead>
<tr>
<th>Township</th>
<th>1871</th>
<th>1891</th>
<th>Increase</th>
<th>Increase %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great &amp; Little Marsden</td>
<td>10,284</td>
<td>31,339</td>
<td>21,055</td>
<td>210%</td>
</tr>
<tr>
<td>(Combined Townships)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brierfield</td>
<td>3,115</td>
<td>5,834</td>
<td>2,719</td>
<td>88%</td>
</tr>
<tr>
<td>Nelson</td>
<td>5,580</td>
<td>22,754</td>
<td>17,174</td>
<td>305%</td>
</tr>
<tr>
<td>Marsden*</td>
<td>1,589</td>
<td>2,751</td>
<td>1,162</td>
<td>73%</td>
</tr>
</tbody>
</table>

* viz. that part of Great Marsden attached to Colne and Marsden Urban Sanitary District.
between these rural localities. Here Colne had begun to grow again after the mid-century phase of stagnation, but the most impressive feature was the increase of population in the townships of Great and Little Marsden, which rose from 7,324 inhabitants in 1861, to 31,339 in 1891. It is possible to breakdown this growth into its constituent parts from 1871 onwards, for the combined township was split into three administrative areas, the Urban Sanitary Districts of Brierfield and Nelson, and the southern part of Colne and Marsden U.S.D. The rates of growth in the three sub-divisions of the township are given in Table 8, which clearly shows that the growth of Nelson was the dominant element of the overall increase. By 1891 this new town was half as large again as its long-established neighbour Colne, the most striking example of urbanization in the Calder-Darwen Valley.

Little can be said about the origins of population after 1861, for no source of material similar to the census manuscripts exists for later years. The Cotton Famine is said to have caused substantial movement of population to other industrial areas, notably the West Riding, and to have promoted schemes of assisted emigration, particularly to Australia. Although the effect of the Cotton Famine is to be seen in the arrested growth rates of the period 1861-71, it was not as disastrous locally as in parts of southeastern Lancastria — Stockport, Brinnington, Dukinfield, Ashton under Lyne — where a "decrease due to migration of population during the American War" was noted in the census of 1871. Similarly it is diffic-
ult to substantiate the claim made by Bennett, that the decline of spinning produced migration in search of employment during the 1870s and 1880s. The only positive information about the source of population increase comes from the generalized statistics relating to natural change, from which it is possible to deduce whether nett gains or losses were occurring by migration. The information is published for entire Registration Districts only, and cannot, therefore, be used to illustrate sub-regional variations. The principal points which emerge from these statistics are that absolute losses by migration did not occur during the period 1861-1891 in the Burnley and Blackburn districts, and that the former enjoyed a higher rate of increment than the latter after 1871, a feature which may well reflect the growth of Nelson.

In comparison with other textile producing areas in Lancastria it is clear that the Calder-Darwen Valley continued to experience a relatively high rate of inward movement long after other centres were beginning to lose population by migration or to attract a diminishing number of migrants. It must be stressed that the published returns do not permit a detailed analysis of migration, particularly that over short distances which was so important before 1861, and almost certainly continued to be significant thereafter. The evidence suggests that the towns of the Calder-Darwen Valley continued to enjoy high rates of both natural and migratory increase after the 1860s. This must have reflected the relatively late industrialization of the locality and the belated growth of its towns, for in most other textile manufacturing centres of
Lancastria the power to attract population had waned after the 1870s.

iv. Settlement.

The pattern of settlement in the Calder-Darwen Valley had largely assumed its modern shape by the 1890s, for the two minor conurbations centred on Blackburn-Accrington-Darwen and Burnley-Nelson-Colne respectively had already emerged (Fig 105). Change was not restricted to the physical expansion of the built-up area, for there had also been changes of urban status. Blackburn and Burnley still ranked as city and minor city respectively, but Accrington and Darwen ranked equal with Colne as major towns, and Nelson had entered the hierarchy with town status (Appendix A ). The morphology of settlement had also become more highly developed, particularly in the larger towns where distinctive land-use zones had emerged.

Blackburn remained the principal town of the Calder-Darwen Valley, but it clearly had not established sub-regional primacy of the kind enjoyed on a larger scale by Manchester in its embayment. The administrative lead which it had gained by achieving borough status and parliamentary representation in 1851 had been whittled away as other centres in the locality gained similar authority after 1860. Its commercial and social importance, judged by the size of hinterland suggested by an examination of local newspapers, had also been weakened by the emergence of rival centres. Nevertheless Blackburn was an important town, with a wide range of commercial and admin-is-trative functions, as well as a great volume of employment in
textiles and engineering.

The urban morphology of Blackburn reflected its dual function as a commercial centre and an industrial town (Fig 172). The central part of the town comprised a complex of shops, offices, warehouses, and public buildings, interspersed with workshops occupied by various craft trades. Many of the shops still had living quarters above and cellar workrooms below, but already there were custom-built premises functioning solely as shops, as for example in Thwaites Arcade. The principal shopping area centred on the market place and the adjacent streets. The largest shops stood in King William Street, which had been built as a residential thoroughfare from 1832 onwards; many of its houses had been partly converted into shops with rateable values between £60 - £120. Church Street, Lord Street, and Victoria Street contained the remaining large shops, which had rateable values ranging from £40 - £80. The main shopping area gave way to a zone of mixed commercial premises and workshops, in which there were less fashionable shops - rated from £15-£40 - inns, warehouses, workshops, small factories and offices. The latter were mainly situated in Richmond Terrace, where residential property largely occupied by members of the professional class in 1851 had been converted into offices. Functional change had also overtaken the once fashionable King Street, which had been replaced as a major thoroughfare by the commercial developments around the market place and the emergence of Corporation Park as a residential area. Similarly the old market and shopping centre around Fleming
Square now contained shops and offices of low rateable value. The centre of commercial activity had, therefore, shifted to the northeast, along an axis linking the town hall and market square with the railway station and tram terminus.

Outside the central core much of Blackburn comprised a mixture of industrial building and small to medium sized terraced houses (Figure 112). Only in the northwest quarter of the town was there a substantial residential zone, which formed a continuation of the central axis noted above. This locality lay on the slopes of Revidge, and although it overlooked the factory-choked Blakewater Valley its elevation and position made it a relatively smoke-free district. The presence of a public park enhanced the value of an already attractive site, as often happened in Lancashire towns during the nineteenth century, and the broad carriageway of Preston New Road, a continuation of King William Street, provided swift means of access to the town centre. Consequently a distinctive suburb grew on the margins of the park, comprising large detached houses rated between £80 - £120. On the lower slopes of Revidge and on Preston New Road most of the properties were valued at £15 - 25, and mainly comprised large terraced houses; similar houses lined Montague Street which was, however, beginning to decay as a residential thoroughfare, for many of the premises at its southern end had been converted into offices. Few residential areas existed outside the Corporation Park - Montague Street zone, and they were generally small blocks of modest houses hemmed in by rows of cottages, as for example at St Albans Place, Brookhouse. To the west of the town (beyond
the limits of the map) stood several very large houses which formed a quasi-rural extension of the Corporation Park district. Here, on the well-wooded slopes of Billinge Hill, the leading industrialists of the town lived in houses valued at £125 - £250. The diversity of residential building in the north-west sector of the town was completed by the existence of Witton Park, a country house surrounded by an extensive park which effectively blocked the westward expansion of the town.

The artisan suburbs reflected the fusion of several different phases of building and possessed a much greater variety of houses than a casual glance at the urban landscape might suggest. The variations cannot adequately be depicted on a morphological map, but it was commonplace for a district to have a mixture of housing for different classes of occupant. Generally speaking the more important thoroughfares were lined by houses of a higher rateable value than those in the side streets; thus houses along Larkhill (the main road to Whalley) were rated at £12, compared with a general level of £5 - £8 in adjacent parts of Brookhouse.

The morphological map (Figure 112) distinguishes between two types of artisan dwelling — the small terraced house, with a rateable value below £5, and the medium sized terraced house with a value between £5 - £12. The small terraced houses were of two principal kinds: first the rural cottage which had either been engulfed by the town's growth or lay within the municipal limits, as, for example, at Bottomgate and along the crest of Revidge respectively. Second, and far more numerous,
were the blocks of cottages mainly built since about 1820 to house the great increase of artisans. Districts such as Nova Scotia, Bank Top, Larkhill and Eanam contained a large number of lowly rated terraced houses, including the bulk of the town's back-to-back and cellar dwellings. Many of these early artisan suburbs had been built by factory owners, and although owner-occupiership was widespread in them by 1885 there were still large blocks of cottage property in the hands of textile firms or the trustees of deceased cotton manufacturers.

The districts containing medium sized terraced houses largely dated from the 1860s and thereafter, and had mainly been built by speculators. The main exception lay in Hornby's cottages at Brookhouse, built by the company during the 1840s and still largely under its control in 1885. The major areas of medium sized housing were at Audley in the east, where a large block of land had been freed for building during the 1870s, Brookhouse and Daisyfield in the north-east, Bank Top and Wensleyfold in the west, and Mill Hill in the southwest. Although dominated by large tracts of terraced houses punctuated by large cotton mills the settlement pattern of the artisan suburbs did not reflect a complete break with the past. Changes in the alignment of the grid-iron plan often indicated the influence of a previously existing property boundary, as did many of the variations in style and density of building. The monotony of the streets was broken by the ubiquitous corner-shops, and by the schools, churches and chapels which were dotted about the suburbs. In each locality, however, the
dominant feature was the factory block which seemed to close
every vista. Even though industry and housing were not as
chaotically mixed as in the 1850s the closeness of workplace
to home provided a constant reminder of the town's raison d'etre.

Two major and several minor zones of industry were recognisable in 1885 (Figure 112). The largest, in terms of size
and total rateable value, was the canal-side complex of textile mills, engineering works and miscellaneous small factories,
which stretched in an almost unbroken line from Greenbank to
Nova Scotia. Next in size came the Bank Top - Snigbrook
centration of cotton mills, with its outliers along the
Blakewater valley to the east. The remaining industrial areas
largely comprised single factories, or at most groups of two
or three, as at Brookhouse, Audley, Mill Hill, Ewood and Lower
Darwen. Audley typified the new industrial suburb with a scatter
of large cotton mills located on small streams, each surr-
ounded by ranks of terraced houses. In the Darwen valley the
small groups of mills, often located at former water-powered
sites, formed a discontinuous belt of industry which linked
the major concentrations along the canal and the valley of
the Blakewater. A similar discontinuous belt was formed by
the brick works and stone quarries which lay along the south-
ern margins of the town between Mill Hill and Audley. A final
land-use category comprised transport installations, most of
which reflected Blackburn's importance as a minor railway
centre and point of textile warehousing.
A striking feature of Blackburn in the late 1880s was its compactness, for the town depicted in Figure 112 had 121,000 inhabitants. Although the overall density of population was low - 17 persons per acre - the inner wards of the town had densities ranging from 70 - 103 persons per acre. In spite of its haphazard origins Blackburn displayed well-defined functional divisions in the 1880s, largely because industry was still tied to waterside locations and had scarcely begun to spread into the artisan suburbs. This is not to suggest that the town was neatly parcelled out into distinctive land-use zones, but that the processes of growth had created clearly recognisable differences within the urban fabric.

The pattern of growth in Blackburn reflected a variety of physical and human influences which cannot always be separated with ease. For example the route of the canal, which in turn became the location of a major factory zone, was determined by the need to follow the contour, but the precise choice of the line to be taken was dictated by non-physical considerations (see above pages 37-38). The attraction of the Blakewater and Darwen valleys for industry was obviously great, but was partly diminished by the rigid prohibition of factory building on the Witton Park Estate to the west. The influence of land ownership on town growth was also to be seen in the early release of the vicarage glebe (see above p42) which was rapidly covered with a chaotic mixture of housing, industry and commercial property. In contrast the much later suburb of Audley was more regularly built over, with a rigid grid iron plan and a greater separation of industry and housing.
The distinctive residential area around Corporation Park again reflected a combination of the physical attractions of site and the influences of land ownership. Thus in spite of its apparent monotony and similarity to any other industrial town of the period Blackburn possessed great internal variety and functional complexity, as did most of the places that were branded "insensate industrial towns". (62)

The truth of this assertion is strongly supported by an examination of the urban morphology of Burnley in the 1890s. Second in rank to Blackburn, with 87,000 inhabitants in 1891, Burnley lacked the cohesion of its neighbour. This partly reflected its initial division between two townships and its belated rise to borough status, but it was also a product of the control over urban expansion exercised by several major land owners. (63)

The core of Burnley in the 1890s centred on the intersection of St James Street and Manchester Road, which had been the focus of commercial activity since the movement of the market from its traditional position outside the parish church in the early 1800s. (64) During the 1880s much rebuilding had taken place in the town centre and there were many custom-built shops as well as converted houses. In the principal thoroughfares - St James Street, Manchester Road, Hammerton Street - shops were rated at values between £40 - £100; a portent of future developments in shopping was provided by the Co-operative Society's departmental store in Hammerton.
Street valued at £678. In adjacent streets there were shops of lower value, but more commonly offices, banks, inns, and warehouses. The commercial core also contained the principal public buildings - the market house (1870) and the town hall (1888). Unlike Blackburn, however, no attempt had been made to produce the nucleus of a civic centre which might also serve as the focus of commercial development, for the belated acquisition of borough status meant that the opportunity to refurbish the central part of the town was not grasped.

The commercial centre of the town rapidly gave way to an encircling ring of factory buildings and small artisan cottages (Figure 113). The intersection of the town centre by the rivers Brun and Calder, and the proximity of the canal largely accounted for the close impingement of industry upon the commercial quarter. Two major discontinuous zones of industry existed; that along the canal stretched from Gannow in the west to Reedley in the northeast, with major concentrations at Whittlefield (dating from c 1875), Danes House (c 1878) and, largest of all, that close to the town centre (largely dating from before 1860). Industrial building on the canal bank at Whittlefield and Danes House was largely controlled by the estate of Townley Parker of Royle, which covered much of north Burnley (Figure 115). Mills were not to be built north of the canal, so that in both districts a single line of factories lined its banks. The Danes House industrial zone was also limited in size by the presence of Bank Hall which blocked expansion to the south.
The second industrial zone lay along the banks of the Brun and the Calder between Fulledge and Stoneyholme (Figure 113). The mills in Fulledge largely dated from the late 1850s, but those in the central part of the town and at Stoneyholme had been built at various times since the beginning of the nineteenth century. Again there were restrictions imposed by landowners to prevent factory building on what would otherwise have been physically suitable sites. The Fulledge zone stopped short at the entrance to Towneley Park, and the factories in Stoneyholme mainly lay on the Curacy Estate with an equally sharp break between the industrial belt and the parkland of the Townley Parker family seat at Royle.

The remaining industrial premises were scattered about the town, for as in Blackburn the trend was towards isolated factories in the artisan suburbs. In Gannow these formed a continuation of the canal-side zone, but elsewhere the cotton mills were built in an apparently haphazard manner on the banks of small streams. Some of the suburban mills had originated as rural premises but were engulfed by the spread of settlement; only Dugdale's industrial settlement at Lowerhouse stood aloof from the expanding town. Finally there were the numerous collieries and coke ovens that were dotted about the locality. Many of them lay outside the town, but the existence of coal bearing lands almost certainly inhibited later urban expansion, particularly to the east of Bank Hall and to the south of Gannow.

The pattern of housing in Burnley was dominated by the
small and medium sized terraced dwelling rated at £12 or less. Much of the housing in central Burnley - the area enclosed by the canal and the railway to Colne - was valued between £2 - £5 and included large tracts of back-to-back houses. Outside the centre low value terraced cottages were largely confined to rural localities - as at Burnley Lane Head - or to early pit and mill settlements - as at Gannow and Lowerhouse. The areas of medium sized houses largely lay in the suburbs which had grown since the 1850s. In most instances the property was built by speculators who had leased land from the Curacy Estate and the major landowners. Most houses were owned by their occupants or by small renters of property; very few were held by industrial concerns, for the practice of providing homes for workpeople had largely been confined to the earlier isolated factory communities. The land was leased in (66) blocks of varying size, and the grid-iron layout reflected this, changing its alignment wherever major property boundaries intruded. This mode of piecemeal building produced many variations of the basic terraced house, thus giving rise to a less monotonous urban landscape than a casual glance would suggest.

Burnley possessed no principal residential area to compare with the Corporation Park district of Blackburn. Instead there were scattered blocks of housing in the valuation range £13 - £25, notably on the margins of Bank Hall (Ormerod Road), and along sections of Briercliffe, Colne, and Padiham Roads. In addition there was an embryonic residential area to the
south of the town along Manchester Road and around the site of Scott Park - which was being laid out in 1895. Here there were a few large houses rated at values between £30 - £130, as well as several streets of large terraced houses valued at £20 - £25. A similar residential quarter lay on Todmorden Road at Towneley but this locality, in addition to overlooking the extensive deer park, also lay close to the collieries and coke oven batteries which occupied part of the Towneley lands. Consequently the Scott Park district became the most fashionable locality, standing as it did on an elevated site to leeward of the great industrial concentration in the valley below.

By 1895 Burnley had assumed the crescentic ground-plan which later growth was to emphasize rather than obliterate. The reasons for this eccentric growth about the original centre merit examination even if they cannot entirely be explained. In most instances it appears that the restrictions upon building enforced by the major landowners were responsible for the curious shape of the town. Thus industrial building along the Calder valley stopped short at the Royle and Towneley Estates: although the introduction of piped water in the 1870s had reduced the importance of waterside sites it seems likely that the failure to acquire further land in the Calder valley was a prime reason for the dispersal of factory building to the new artisan suburbs in the 1880s. The presence of coal-bearing land may have had a deterrent effect, although this appears also to have been a product of the attitude of coal owners (notably the Hargreaves' Company of Bank Hall).
rather than a reflection of the possibility of subsidence. Much of Burnley was underlain by coal workings, but subsidence was never a great problem, due to the relative thinness of the seams, the heavy faulting of strata, and the retention of pillar and stall working until a late date. The coal owners were not the only industrialists to curb expansion of settlement, for the land controlled by Dugdale of Lowerhouse (Figure 115) was almost entirely devoid of buildings other than those owned by the family; even the large houses built on Padiham Road were rented to their occupants. Houses built on Towneley land close to the hall were also of high quality, as were those built near Bank Hall; thus even where building was allowed its character was largely determined by the landowners. Consequently the artisan suburbs had to grow up the steep slopes to the southwest of the town, or on new sites to the north of Bank Hall after all the available land along the Calder valley had been taken for housing. It is, therefore, difficult to resist the conclusion that the pattern of land-ownership in Burnley exerted strong influence on the character and direction of the town's growth, and that the evolution of an industrial settlement of this kind was greatly complicated by the pre-urban form of land holding.

The Colne and Nelson district (Figure 114) provides contrasting examples of the urban morphology of small industrial towns during the 1890s. Colne was still the principal town of the locality, although this partly reflected the retention of historical functions that were not possessed by Nelson.
Colne had, by 1895, assumed a compact form, for the expansion of settlement down the south-facing slope below the ridge upon which the old town stood had coalesced with the industrial suburbs of Primet and Waterside. The main road along the ridge was the principal shopping street, with a mixture of shops, offices, banks, inns and private houses rated at £15 - £40. No highly rated commercial premises existed, and most shops still possessed living quarters, unlike many of those in Burnley at this time. Most of the houses had values of less than £12, for there was no major residential area. The terraced cottages of lowest quality mainly lay close to the church, or in the early industrial suburbs along the valley of Colne Water. Many were built back-to-back, and some were three storied, having originally housed hand-loom weavers. During the period of industrial recovery after 1865 medium sized terraced houses had been built to a more rigid grid-iron plan, but as in the other towns of the area the effect of small-scale speculative building was clearly to be seen in changes of alignment and style of architecture.

Nelson was a substantially larger town than Colne in 1895 and differed from its older neighbour in several ways. Medium sized terraced houses were dominant and there were no back-to-back cottages. The town had risen very rapidly and was built by a handful of large speculative building concerns. Consequently minor variations in the alignment of the gridiron were less common, although major ones still occurred at property boundaries. Each builder erected a variety of house
styles within the basic type, and most property was for owner-occupiers. It was rare for a textile concern to own houses, although some of the Room and Power companies also built blocks of cottages. No major residential area had emerged by 1895 apart from a small group of terraced houses in Carr Road, for Nelson was essentially a town of pioneer industry and limited social development at this time.

Although largely new Nelson also contained some older cottage property mainly rated at less than £5. Much of this was in the pre-urban hamlets of Bradley and Little Marsden, and in the mill hamlet at Lomeshaye. Ecroyd's of Lomeshaye were unusual in that they continued to erect some houses for their workpeople after the 1860s, and the family also became owners of extensive lands to the west of the town; this effectively blocked expansion, an action that was in keeping with Ecroyd's opposition to the granting of local government powers in the 1860s.

The smaller centres - Barrowford and Brierfield - were equivalent in mode of growth to Colne and Nelson, but of lesser stature. Barrowford was the largest village of Pendle Forest, and the only one to become an industrial settlement. The initial stimulus to expansion had come from water-powered cotton mills strung out along Pendle Water, and the modern pattern of industry still reflected this influence. The settlement was itself attenuated, and comprised a series of mill hamlets with small terraced cottages, linked to one another by ribbon-like expansion along the main road. Only in the relatively modern artisan settlement at Newbridge were there blocks of medium-
sized terraced houses laid out on the conventional gridiron plan. Brierfield, on the other hand, was a compact and recently built industrial settlement. Small cottage property was confined to pre-urban dwellings and to some short rows of miners' houses. Most of the terraced houses were of medium size, and had been built by speculators when large cotton mills were erected in the township after 1865. Although larger and newer Brierfield was, like Barrowford, little more than an inflated industrial village; its isolation from both Burnley and Nelson was very largely a product of restrictions imposed by landowners — principally the Towneleys — on factory building along the canal and railway to east and west of Brierfield.

The growth and character of settlement in the Colne-Nelson district poses several problems, not least of which is why Nelson should have grown at the expense of its older and formerly important neighbour. It is not easy to explain the emergence of this entirely new town so close to a well-established market centre, but the following short analysis attempts to do so. Colne was an industrially conservative settlement during the period between about 1830-1860, for it clung tenaciously to the hand-loom and to its weakening links with the worsted trade in Bradford. This led to stagnation at mid century, which was heightened by the inability of the town to compete in the market for coarse cloths that was already being served by centres further west. Colne was ill-served by its
lines of communication, being distant from the canal and in effect the terminus of two branch railways (see page 94 ). Sites for industry in the valley of Colne Water were restricted both by physique and the controls exercised by the Derby estate, but more important was the fact that no attempt had been made to regulate stream flow or to augment sources of water by a piped supply. Innate conservatism and the disadvantages of position therefore combined to restrict Colne's growth during the second half of the nineteenth century.

The rise of Nelson was entirely a product of the growth of cotton manufacture, but even this new town, created after 1865, was greatly influenced in its mode and direction of growth by earlier events. Nelson provides an excellent example of the influences of land ownership on town expansion. The valley of Pendle Water was largely avoided by industry not because of its flood risks but through the opposition of E.E. Clayton of Carr Hall, and W. Ecroyd of Lomeshaye. As has been noted above the extent of the Ecroyd lands to the west of Nelson was instrumental in curbing the town's growth. Thus the land at Edgend was to have been sold for building but it was acquired by Ecroyd and much of it remains devoid of building to this day. Similarly the existence of Towneley land between Lomeshaye and Brierfield, and of the Marsden Hall estate between Nelson and Colne restricted expansion on to otherwise suitable sites for industry and housing. Set against these restraints was the fact that certain landowners were
interested in the gains to be made from speculative building, and they ensured a steady supply of land, even though this often meant building on steeply sloping ground while more level sites were avoided because they were not on the market.

In spite of the restrictions on building in such localities Nelson offered a generally better site for town growth than was provided by Colne. The centre of the new settlement lay on a gently sloping bench-like feature which was followed by the turnpike road, the railway, and the canal. Although the ground rose steeply to the southeast of the town centre this provided few problems until the pressures on space in the closing years of the nineteenth century caused housing to spread upslope. The town site also had the advantage of being intersected by the valley of Waiverden Water, which was deeply cut into the Pennine foothills to within a mile or so of the town centre. At this point the valley broadened slightly, and although steep sided was floored by a series of discontinuous flats and terrace-like features, upon which several cotton mills were built. The final section of its gorge-like course was dammed in 1866, and this reservoir both restricted flooding and provided a steady supply of compensation water throughout the year. Industrial development was encouraged by these physical attributes, but also derived great stimulus from the low wage rates that were paid in a new centre of textile manufacture, for during the 1890s wage-rates were lower in Nelson than in any other part of the Calder-Darwen Valley.
The growth of Nelson as a new town was therefore a complex product of the quality of its site, the concentration of lines of communication, the attitudes of different landowners to building, and the possibility of paying low wages during the initial phases of industrial expansion. It is difficult to determine to what extent the stagnation of Colne and the rise of Nelson were interrelated, for it is too facile to suggest that the two features had simple causal links. It is apparent that several forces were at work in producing these strikingly different industrial towns, but it is difficult fully to explain why two independent centres evolved rather than a single one centred on the older settlement. Suffice it to say that a complex of social, economic, and physical features was responsible, but we are unlikely to know precisely how they combined to produce the dissimilar twins of Nelson and Colne.

Numerous other examples of the influence of landownership on the growth of nineteenth-century towns in the Calder-Darwen Valley can be cited, although the evidence is not as comprehensive as that quoted above. In Accrington, for example, the progressive retirement of the Peel family to estates outside the industrial districts which they had helped to create led to the sale of Accrington House and its surrounding park in 1889. A large block of grid-iron streets was laid out on the site, aligned along the broad axis of Avenue Parade, which follows the line of the original carriage drive. In Clayton-
le-Moors the Lomax and Petre families prevented building over much of the township, with the exception of parts of Enfield Common, enclosed in 1790, and the land to the north of it which was owned by Richard Fort the calico printer of Oakenshaw. If these major property boundaries are transferred to the modern map (Figure 116) it can be seen how persistent the influence of the various estates was. Very little of the Petre land was built over before the establishment of an aero-engine plant in about 1942, and equally little building was permitted on the Lomax lands around Clayton Hall before about 1930.

The Petre family is known to have restricted building in the township of Rishton, and the controls exercised by the major landowners at Padiham, the Shuttleworth and Starkie families, continued to operate throughout the nineteenth century. There is, therefore, the strongest evidence that the pre-urban and pre-industrial pattern of land ownership was singularly important in helping to determine and influence the way in which towns grew, and that only the most superficial of explanations would fall back on physical features as the main forces shaping towns during the nineteenth century. It can also be seen, from the morphological maps of selected towns*, that there were considerable variations in the pattern and character of settlements, and that these too were more than a simple response to physical features.

* The information used in compiling these maps does not survive for all the towns of the locality: the general pattern of settlement is shown in Figure 105.
v. The Calder-Darwen Valley in 1895.

The landscape of the Calder-Darwen Valley in 1895 had a far greater affinity with that of fifty years later than that of fifty years before, particularly in the towns. Indeed it is only in the past decade or so that the beginnings of an attempt to transform the urban landscapes of the area have weakened the impression that the locality is largely a fossilized remnant of Victorian Lancastria. By 1895 the towns had achieved their dominant functions and had largely assumed their modern shape. The ranks of terraced houses which, in spite of their infinite variety of design and alignment, appeared to spread monotonously over valley side and ridge top alike were the major elements of the scene. Interspersed among them were the factories, mainly low-built weaving sheds but also including the multi-storied spinning mills and the diverse shapes of engineering works, paper mills and chemical plant. Some localities also possessed the more dramatic elements of the Victorian industrial landscape, the flaring blast-furnaces at Darwen and the lattice-work headstocks of the Burnley coalfield, but these were exceptional features in a largely tame urban and industrial scene.

The towns of the Calder-Darwen Valley contained roughly 95 per cent of the locality's population in 1891, compared with about 65 per cent in 1851, an indication not only of the growth of existing centres but also the urbanization of many villages and the depopulation of several rural townships. As
has been shown the industrial towns varied appreciably in status and structure, for even where they shared common industrial identities the influences of physique and land ownership produced radically different settlements. Most of them were built of local stone and they must have looked singularly pleasant for a brief period before the golden tones of the sandstones were replaced by an all pervasive black encrustation of soot. The granting of municipal status to many of the towns after 1850 had produced a crop of public buildings - town halls, public libraries, market houses - but nowhere in the Calder-Darwen Valley erected the magnificent, if somewhat over-decorated edifices which graced places like Bolton, Rochdale and Preston. Such architectural flamboyance as did emerge was largely the prerogative of church and chapel builders, for the modest style of municipal building was emulated by most of the factories in the district. Weaving sheds did not provide the same opportunities for architectural elaboration that were offered by spinning mills, so that the eclectic styles of industrial building found in the towns of the Manchester embayment were rarely repeated in the Calder-Darwen Valley. The urban landscape was therefore largely tame and sombre, and even the larger towns such as Blackburn and Burnley had little to distinguish them in the quality of building from their smaller neighbours.

The countryside had changed little since the 1850s and what changes there were reflected urban influences of one kind or another. In the uplands the construction of reservoirs and
the excavation of quarries were the main urban influences, coupled with the decline of some rural industry. The survival of many country textile mills, aided by the artificial support of disadvantage allowances, allowed several rural communities to prosper, but where the process of industrialization went further, as at Harle Syke and Hapton, the resultant settlement was indistinguishable from an industrial suburb in the towns. The large estates survived as important elements of the landscape, particularly in the many instances where parkland was preserved against industrial encroachment. In spite of the maintenance of country houses, the relative prosperity of those farms which served the urban market for dairy produce, and the survival of many rural mills it is difficult to resist the conclusion that the rural parts of the Calder-Darwen Valley were either stagnant or in decay at this time. Their population was still falling, although at a less dramatic rate, and agriculture in particular was having to face competition from an increasing volume of dairy products imported from low-cost producers elsewhere. Many of the upland farms went out of existence during the 1880s, and land painfully reclaimed a century before reverted to rough moorland. This was not always a product of agricultural depression, for urban water catchments often had to be kept free from livestock. This was yet another facet of urban influence in rural areas, and it must have seemed to observers of the contemporary scene in the 1890s that the expansion of towns and industry, and the demotion of rural localities knew no limits.
REFERENCES


5. According to J. O. Shaw, A History of Darwen, 1889, page 154, spinning costs in Oldham, using ring frames, were about £20 per thousand spindles cheaper than in Darwen using mules.


7. In evidence before the Royal Commission on Labour a Burnley witness observed "there is little or no spinning at Burnley, we are not a spinning district" — this was in 1891!

8. This short title is used instead of the more ponderous The Cotton Spinners' and Manufacturers' Directory and Engineers' and Machine Makers' Advertiser for Lancashire: first published by Worrall of Oldham in 1882 the 4th edition of 1887 was the first to provide comprehensive data.

9. A third problem, which has no immediate relevance to this study, is that statistics of equipment in place do not, over a period of time, give an adequate idea of output; it would not, for example, be profitable to compare the figures for 1887 with those of the present day.

10. "Disadvantage allowances" were officially sanctioned reductions of standard wage rates, ranging from 2 - 12 per cent according to location of the mill. The lower cost of land and of local rate burdens was often advertised as a reason for founding new rural mills.

11. The complaint was made by witnesses at an official enquiry into railway rates in 1881 (HC 13, 1881, 131).

12. Ibid.

13. Of 170 h.p. installed in 1868 30 h.p. was derived from a water wheel; the mill had been built in the late 1840s on
14. The material appears in Shaw, op. cit.

15. Data from Skinners' Cotton Trade Directory, 1929.

16. S.A. Nichols, Darwen and the Cotton Famine, 1893, page 82 quotes this evidence, as do several other sources on Darwen.

17. Evidence for this assertion comes from various of the Petre estate papers (LRO - DDPt) and from the rate valuation books for Rishton (LRO - PR 855-856).

18. The evidence of the 1851 edition of Slater's Directory and of the Colne Tithe Award of 1842 suggests that this was so.

19. According to W. Bennett, History of Nelson and Marsden, 1960, the earliest suggested room and power company dated from 1838, but the first to come into being (Victoria Mill) dated from 1857. Rate books and similar surveys support this view.

20. Evidence before the Rivers Pollution Commission (HC 40, 1870)

21. ibid.

22. HC 13 (1881) loc. cit. quoted coal haulage rates by rail of 2.3d per ton mile, compared with 4.0d for raw cotton and 6.0d for cotton cloth.

23. Details appear in the minutes of evidence and in statistical appendices; many of the witnesses appeared to believe that rail transport was no cheaper than the road cartage which it had ousted (HC 13, 1881, loc. cit.)


27. For a discussion of the complexities of wage rates see the series of papers written by G.H. Wood in JRSS, 73, 1910; a wide range of tabulated information on local variations in wage rates accompanies each section of the account.

28. The range of local variations was greater than these figures imply, for some weavers in Blackburn could, by operating more looms, earn half as much again. It appears that the standardization of rates in 1892 was far from universal.

29. HC 40 (1870); evidence was collected by means of questionn-
aires and published in such a way as to reveal information provided by individual firms.

30. Approximately 500,000,000 gallons of effluent were put into the Hyndburn by this concern; the greater part came from cloth washing, but 3,000,000 gallons of waste were from the dyehouse, and 6,000,000 gallons comprised soapsuds.

31. Oakenshaw printworks is known to have received most of its coal from Great Harwood colliery at this time, and it is possible, therefore, to estimate its total fuel bill from information in the colliery records (LRO - CYC).

32. For example the Ewbank Company, founded in 1864-65 to make textile machinery, was producing washing machines, mangles and carpet sweepers in 1888; R. Crossley, Accrington Captains of Industry, 1930, page 175.

33. Data from rate valuation books (LRO - PUK)

34. Details appear in the evidence published by the Rivers Pollution Commission, op.cit.

35. Paper mills making fine quality paper required mechanically pure water free from solids in suspension rather than soft water. The large Hollins Mill in Darwen used river water for coarse grades but tapped other sources - wells, piped supplies - for the finer qualities.


37. Particularly in the Accrington district where increasingly strong ties developed between textile firms and collieries; Crossley, op.cit., pages 151-52.

38. The term is here used in its original limited sense, i.e. that part of the field formerly termed Middle Coal Measures bounded by the outcrop of the Arley Mine.


40. This was particularly the case when the longwall advancing technique of mining was introduced; very few of the deep mines regularly worked fireclay which was much more easily extracted on a small scale by pillar and stall mining.

41. Data from the minutes of evidence and appendices presented to Committee E of the Coal Commission Enquiry, 1871.
42. The production statistics include output from a group of small pits in northern Rossendale, but output in the Calder-Darwen Valley proper must have been about 1,225,000 tons.

43. Great Harwood Colliery records and sales ledgers (LRO - CYC)

44. In addition to the tonnage produced in the east (6,379,000 tons) a further 5,000,000 tons or so was mined in the Wigan-St Helens area; thus the Calder-Darwen Valley's share of the grand total came to about 10 per cent.

45. Of this output 70 per cent came from the Burnley district, the remainder from Accrington, Darwen, Chorley; the figures are from the Coal Commission Report of 1883.

46. In 1883 the United Kingdom average was also 5 sh. 8d., which indicates how unfavourable the costs at Burnley were.


48. This firm ultimately controlled most of the coal, brick and chemical plant in the area to the north of Accrington.

49. Data, which refer to the entire canal, appear in HC 56 (1870) 679.

50. The last scheme of this kind, the projected Manchester, Newcastle and Grand Trunk Railway of 1892 was to have passed through Burnley and Craven; M.D. Greville and G.O. Holt, "Railway development in Manchester", Railway Magazine, 1957, 769.

51. Changes in the boundaries of municipal wards make it difficult to investigate such trends in greater detail.

52. This and subsequent observations are based on the explanatory notes in the census volumes.

53. In these districts growth was partly explained by "the erection of suburban residences".


56. op. cit., page 96.

57. For a more detailed analysis of this topic see T.A. Welton, England's Recent Progress, 1911. Comparisons with other towns appear in diagrammatic form in R. Lawton, "Population

58. For a general account of the development of industrial towns and the contribution of migration to their expansion see the papers cited above (57) and A.J. Cairncross, "Internal migration in Victorian England", MS 17, 1949, 67.

59. G.C. Miller, Bygone Blackburn, 1950, page 85; although largely devoted to antiquarian reminiscence this work contains some useful information on the dates of individual streets and buildings.

60. Corporation Park had originally been the site of the town's waterworks; it was common for public parks to attract the best residential areas to their margins in Lancashire towns at this time (see below page 293).

61. G.C. Miller, Blackburn, the Evolution of a Cotton Town, 1951, page 23.

62. This point is examined at greater length below (pages 288-99), the phrase appears to have been coined by L. Mumford.

63. See Chapter 3, fn 81; borough status was acquired in 1861.

64. Bennett, op. cit., page 85.

65. A proposal to erect a combined town hall and market house by clearing away cramped courts and factories was made in 1881 but never proceeded with. This compares badly with the great schemes of civic rebuilding in places such as Bolton, Rochdale and Preston.


67. According to W. Bennett, History of Nelson and Marsden, 1960, page 160 Ecroyd wished the Lomeshaye area to be excluded from the proposed Nelson Local Board District.

68. According to the papers of the estate trustees it was intended to sell much of the land as building plots; LRO – DDBd 27 – 11, dated 1846-47.

69. Ecroyd owned the land by 1885, but the precise date of the purchase cannot be traced.

70. Most of the land at Edgend is publicly owned and part has been used for school building; the remainder of Ecroyd's estate is still largely as it was in the 1880s, even though the firm of that name ceased to exist during the 1930s.

71. Notably the Ridehalgh family of Scholefield, and the Sagars of Whitefield.
At first sight this is difficult to reconcile with the town's subsequent importance as a centre of high quality weaving. The rate quoted by G.H. Wood was 18sh Od, slightly higher than the lowest weekly wage in Blackburn, but inferior to the average in that town. It appears that low wages were a transient feature in Nelson, for by 1914 the area offered higher than average pay. See J.W.F. Rowe, "Wages in the cotton industry 1914-1920," Economic Journal, 34, 1924, 200.

R.T. Lomax, A History of Clayton le Moors, 1926, page 149, suggests that restrictions on building in the township east of the turnpike (i.e. on Clayton Hall land) were not relaxed until 1886, and that only a limited amount was then permitted.

The extensive catchment areas acquired by Darwen Corporation were sterilized in this way, as were several of the farmsteads around Hapton Reservoir at Clow Bridge.
Chapter 5

The Calder-Darwen Valley in 1914-1921: Industrial Zenith

The choice of a terminal period for this study presents few problems, for the 1914-1918 War marked the end of an era throughout Britain, but more particularly in areas of basic industry with a strong dependence on low-cost export markets. Although it would be possible to concentrate on the single year 1914 this would rob the period picture of some valuable information, notably the returns of the 1921 census and the revisions of the Ordnance Survey maps of the locality. The period is not, however, extended to 1921 merely to employ this material, for although the war initiated many changes the post-1918 boom in the cotton industry was thought by many observers to be the continuation of the pre-war expansion of trade. Not until 1921 did it begin to become apparent that defects in the structure of the industry which had mattered little during the nineteenth century were to produce its down-fall in the twentieth. Thus the span of time covered by the final period picture has an element of cohesion in that it marks the final phase of expansion in the cotton industry, for from 1921 onwards the trend was to be one of almost unrelieved decline.

1 Industrial Development

The Cotton Industry

By 1920 the cotton industry had reached the peak of its activity in the Calder-Darwen Valley, with 410,000 looms (52
per cent of the total in Lancastria) and 2,100,000 spindles (3.5 per cent of the total). Since 1887 the number of looms installed had risen by 58 per cent, compared with an increase of only 21 per cent in the remainder of Lancastria. The great strength of weaving was further reflected in the decline of spinning, for the number of spindles installed had fallen by 40 per cent between 1887-1920, compared with an increase of 50 per cent elsewhere in Lancastria. Coupled with these changes was the continued diminution in importance of the combined mills, which contained only 15 per cent of the looms (compared with 37 per cent in 1887) but still retained a high proportion of the spinning spindles (64 per cent compared with 75 per cent in 1887). Almost the whole of the contraction in spinning had occurred in combined mills, for many of these had become weaving sheds since 1887. Only a handful of combined mills had been converted to spinning only, and their contribution to the size of the spinning section was slight in comparison with that of the three new spinning mills erected in the Blackburn area since 1887.

The general picture which had emerged since 1887 (Figure 18) was, therefore, of an even greater concentration of weaving in the Calder-Darwen Valley, largely accounted for by the establishment of weaving sheds, either as entirely new structures or, less commonly, as conversions of combined mills. Further evidence of the local importance of weaving is furnished by the 1921 census returns. Of 110,000 workers
ascribed to cotton spinning and weaving 96 per cent were employed by the weaving section. The Calder-Darwen Valley contained 52 per cent of the total recorded number of weavers in Lancastria, as opposed to 2.5 per cent of the spinners, an indication that although weaving was locally dominant it did not enjoy the supremacy within Lancastria enjoyed by spinning in the Manchester embayment. The relatively late start of industrialization in the Calder-Darwen Valley and the early growth of power-loom weaving south of Rossendale were disadvantages which had not been wiped out by the meteoric rise of the locality after 1865. It seems likely that the Calder-Darwen Valley never grew at the direct expense of the Manchester embayment but took a disproportionate share of the increment in weaving after the 1840s.

The Cotton Industry in 1913.

The final spate of mill building had almost ended in 1913, for few new premises were opened after 1918 and they were projects conceived in the pre-war phase. Between 1900 and 1920 (but mostly between 1905-1913) 94 weaving sheds and 2 spinning mills appeared as new entries in Worrall's Directory. The new sheds contained about two-thirds of the net increment of looms installed between 1900-1920, and about one-fifth of all the equipment installed in 1920. Moreover the average size of the new establishments was larger, at about 750 looms per shed compared with 500 before 1900. The distribution of the new premises was not uniform (Figures 18, 20), for there were particularly heavy concentrations in Great Harwood, northern
Burnley, Nelson, and Colne. The proportion of looms in new weaving sheds was high in places such as Great Harwood (45 per cent of the total installed in 1920) and Nelson (35 per cent): conversely it was low in some of the older centres of the industry, notably Church (4 per cent) and Oswaldtwistle (nil), where, however, a large ring-spinning mill had been erected. The location of new mills was governed by a number of features, notably availability of land, the level of competition for labour, and the state of market demand for different types of cloth. Changes in the distributional pattern were, however, not confined to the erection of new buildings, for by 1920 a modest number of cotton mills had ceased to function (Figure 19). Of the 56 closures recorded 8 were of spinning mills and 24 each of combined mills and weaving sheds. The large number of abandoned weaving sheds appears to be anomalous in an area that was experiencing unprecedented growth in this branch of manufacture, but many of them were small antiquated plant, and others in the densely crowded parts of Blackburn and Burnley may have been absorbed by other adjacent mills, or even have been re-opened under new names. Some of the closures were genuine abandonments, particularly in rural areas, and several former cotton mills in the towns were put to other industrial and commercial uses, thus anticipating a common trend of the years after 1921.

The Pattern of Distribution.

The pattern of industry in Blackburn in 1913 differed in three main respects from that of 1887 (Figures 29-30). First
there was the decline in size and number of the combined mills, of which nine had become weaving sheds and two spinning mills. There were now no spinning spindles at work in the Bank Top district and appreciably fewer at Nova Scotia, both former strongholds of the combined mill. Second there was the establishment of large weaving sheds in the eastern suburbs of the town, notably to the northeast at Roe Lee, and at Greenbank and Audley further south. These sheds mainly lay on the valleys of small streams, in localities well served by road and equipped with main services such as piped water and electricity. Finally there was a modest numerical increase of spinning mills, including the conversions noted above and entirely new establishments in Daisyfield and Greenbank. In spite of these changes the basic pattern of location was similar to that of 1887, with major axes along the canal and the valleys of the Blakewater and the Darwen. The establishment of mills outside the older zones of concentration partly reflected the greater range of sites in the suburbs, particularly as the large single-storied sheds were space consuming, but this wider choice of location was itself a function of the greater freedom from ties to canal- and river-side sites produced by use of town's water, electricity, and road transport.

In Darwen a similar set of changes had taken place since 1887, for most of the new building comprised weaving sheds. The majority of the mills still occupied sites in the Darwen valley, but there had also been new growth on the lower slopes to the east where several sheds had been built across the
courses of tributary streams. The spinning section had declined through the closure of three mills, and the number of combined premises had also fallen. Of the two survivors, however, one was a modern mill opened during the 1890s, the last to be built in the Calder-Darwen Valley. Even this establishment represented a further stage in the dominance of weaving, for the mill was erected by the Darwen Spinning Company which had previously specialized in cotton spinning.

The principal change in the Accrington district after 1887 was the emergence of Great Harwood as a major centre of cotton weaving (Figures 32-3), for the number of looms in place had risen by 8,000, an increase of 125 per cent between 1887-1913. Not only had several existing sheds expanded; there had also been a spate of new building during the decade following the turn of the century, and this trend was continued between 1913-1920 when a further 3,300 looms were installed, an increase of 25 per cent. Great Harwood appears to have benefitted greatly from its late start as an industrial centre, for it did not face competition for labour from calico printing and engineering, and it gained from the greater freedom of locational choice that was open to the builders of modern mills. The absence of a major stream was no longer a disadvantage, for the mills strung out along Harwood Brook were comparable with those of suburban Blackburn and other towns in their heavy reliance on piped water. Expansion of a similar kind was experienced in Rishton after the removal of restrictive covenants imposed by the Petre estate. In both centres much of the
growth represented an overflow of Blackburn's industrial
prosperity, channelled into new localities by the artificial
shortage of land in that town (4) and the lower rate burdens
imposed by the smaller local authorities.

In the remainder of the Accrington district the progress
of the cotton trade was unspectacular. There was a little new
mill building in most of the settlements but this barely mod-
ified the existing pattern of distribution. In Oswaldtwistle
the spinning mills enjoyed considerable expansion, for reasons
which cannot be explained in the light of surviving informat­
ion, but elsewhere the trend was for spinning to contract,
largely through the closure of spinning sections in combined
mills. The relatively poor showing of cotton mills in Accring­
ton, Church and Clayton le Moors must partly have been a resp­
one to the sustained importance of textile finishing and
engineering, coupled with the shortage of land in the two
smaller settlements where restrictions on building were still
enforced by the Petre and Lomax families.

In Burnley (Figure 35) the trend towards dominance of
weaving was more sharply defined than in the localities previ­
ously examined. The number of spinning mills had fallen from
eight to four, and of combined mills from fifteen to eleven,
but more important than the contraction of spinning was the
massive expansion of the weaving section. Between 1887-1920
the number of looms installed in the town's mills had risen
from about 50,000 to over 90,000. Moreover the bulk of this
new plant was situated in the northern suburbs of the town,
where the number of looms installed had trebled after 1887. The northern group of plant comprised three elements, each of which had emerged before 1887 but had seen the greatest period of expansion after that date. The canal-side concentration of mills at Daneshouse was the first major concentration to emerge and contained the only spinning spindles of the locality. The group of large mills in Queensgate had, with three exceptions, been built since 1900, and included the first weaving shed in Britain to be powered by electricity. The third group of mills at Harle Syke lay in a rural area that was transformed into an outlying industrial suburb after about 1890. All the sheds qualified for disadvantage allowances — largely, it was claimed, to offset the costs of cartage up-gradient from Burnley — and enjoyed lower rate burdens than comparable mills in the town. The growth of Harle Syke was also conditioned by the pre-industrial pattern of land ownership, for factory building was confined to part of the Townley-Parker estate. Much of the expansion elsewhere in north Burnley was on Townley-Parker land, although the family still prohibited building near the principal residence at Royle.

In addition to the rise of manufacturing in north Burnley several new mills were built to the west at Rosegrove, and a handful was built on scattered sites close to the town centre. Generally speaking the central district was an area of decline, and but for the late sale of canal-side land on part of the Hargreaves' estate would have shown an absolute loss of equipment between 1887-1913. Table 9 illustrates the major features of the third group of mills at Harle Syke.

* Heasandford Mill, opened in 1904 at a formerly water-powered site.
Table 9: Distribution of Mills in Burnley 1887-1913.

<table>
<thead>
<tr>
<th>Locality</th>
<th>Looms in place and proportion of total.</th>
<th>Rate of increase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1887</td>
<td>1913</td>
</tr>
<tr>
<td>North Burnley</td>
<td>10,500</td>
<td>21%</td>
</tr>
<tr>
<td>Fulledge</td>
<td>9,900</td>
<td>20%</td>
</tr>
<tr>
<td>Sandygate/Whittlefield</td>
<td>13,700</td>
<td>27%</td>
</tr>
<tr>
<td>Central</td>
<td>10,300</td>
<td>20%</td>
</tr>
<tr>
<td>Rosegrove</td>
<td>5,600</td>
<td>11%</td>
</tr>
<tr>
<td><strong>BURNLEY</strong></td>
<td>50,000</td>
<td>100%</td>
</tr>
</tbody>
</table>

Data from Worrall's Directory, totals and percentages rounded off.
of growth during the period 1887-1913, and emphasizes in particular the discrepancy between the old and the new industrial districts.

Almost as impressive as the rise of north Burnley was the continued growth of Nelson as a weaving centre, for the number of looms in place had risen by 30,000 (150 per cent) between 1887 and 1913. The existing industrial concentration along Walverden Water had been augmented by the construction of large mills on the flats and benches to the east at Clover Hill (Figure 37) and a second stream-side concentration had appeared on the banks of Hendon Brook. The number of canal-side mills had not greatly increased, partly because the land fell away sharply on the north bank, but also because of restrictions on building to the west at Lomeshaye and to the east at Reedyford. Further increase was experienced at Brierfield, where canal-side sites were more freely available, and at Barrowford, where further weaving sheds were built on the banks of Pendle Water. The total increase of equipment in the Nelson group of industrial settlements equalled that of Burnley (about 40,000 looms), but in relative terms this was the highest rate of increment in the Calder-Darwen Valley. It is little wonder, therefore, that Nelson was considered to be the local example of successful nineteenth-century endeavour with a promise of yet more industrial riches to come.\(^{(8)}\)

In Colne industrial growth was less spectacular - an increase in equipment of 92 per cent between 1887-1913 - but this indicated that many of the problems faced in the middle
years of the nineteenth century had been overcome. The new weaving sheds lay along the valley of Colne Water, where they augmented existing groups of mills at Primet and Waterside, and in the North Valley, where reliance on town's water had removed the earlier disadvantages for industry of this broad tract of flat but ill-watered land. In the whole of the Nelson and Colne area spinning was of relatively little importance in 1913 — indeed in 1887 it had been feebly developed. The only spinning mills which survived were small ones at formerly water-powered sites, and there were few combined mills. The maps mislead in their suggestion that a large combined mill had been built at Colne Waterside after 1887 (Figures 36-7); this is the one known instance of an omission from Worrall's Directory. In this general locality spinning had never even enjoyed the limited importance which it had experienced in other parts of the Calder-Darwen Valley, and it is not surprising that it should make no headway after the 1880s in the face of the weaving section's massive expansion.

The pattern of distribution revealed by the maps discussed above requires amplification in at least two ways if its long-term implications are to be understood. The future prospects of the cotton industry in the locality were not entirely a reflection of the age and size of individual mills; just as important was the size and structure of firms and the range of products which they manufactured.

The size of firms within the Calder-Darwen Valley varied appreciably in 1887 and 1913. An investigation carried
out by S.J. Chapman and T.S. Ashton was the first to work out the implications of these differences in Lancastria as a whole. It noted, for example, that far more businesses in the Blackburn and Accrington district were organized as joint-stock companies than was the case in Nelson and Colne. This reflected the existence in the former of many large firms which were often concerned in the production of long runs of cheap cloth, whereas in the latter district most firms were small enterprises producing high-quality goods. In Nelson in 1913 many of the large weaving sheds were either owned by Room and Power Companies, or shared by two or three owner-occupiers. Thus Bradley Shed, with 2,600 looms in place, was occupied by seven firms, the smallest operating 22 looms, the largest 750. Shared premises of one kind or another were common in Nelson, Colne, Barrowford, Brierfield, and parts of north Burnley. They were almost unknown elsewhere in the Calder-Darwen Valley, apart from Accrington where there were very complex examples of sharing and multiple ownership, and in the Blackburn district it was far more common to find firms which owned more than one mill. Thus although the pattern of growth in, say, Great Harwood and Nelson looks similar on the map it was in essence quite different. No mills in Great Harwood were jointly occupied, and several were units under the control of a single concern, or were in the hands of firms which operated plant in other towns. In Nelson the majority of the mills were jointly occupied by a number of firms, and it was very rare for these concerns to have any ties with manufacturers in other centres.
These differences in structure were largely a product of the intense local specialization which had emerged within the weaving section, for as Figure 22 shows this had reached a peak of intensity by 1913. Relatively few firms in the Blackburn district advertised the manufacture of fancy or coloured goods and the majority produced cheaper cloths such as dhooties mulls, and cambrics. The degree of specialization in Great Harwood was even greater, for every mill in the town advertised the manufacture of dhooties. In the Accrington district plain shirtings and printing cloths were still the main staple of trade, and in the central and southwestern parts of Burnley fine shirtings, twills, and printing cloths were the major product. In the newer mills of northern Burnley, however, satteens and similar better quality goods were the principal cloths woven, although many firms also advertised the sale of fine printing cloths and shirtings. The transition from goods of medium to high quality was complete in the Nelson area, for here every mill listed a wide range of high quality cotton cloths. The same was true of Colne, and in both localities several mills producedworsted andworsted-cotton mixtures as well as a full range of cotton goods. The importance of this intra-regional specialization was clearly to be seen in the selective decline of the cotton industry after 1921, and by the 1930s the differences between the various sub-regions had become blurred as surviving firms turned to the better quality goods irrespective of their locations. The reasons for local specialization are obscure and nothing can be added to the
tentative observations already made on pages 159-61. It is, however, clear that specialization in weaving evolved at a much later stage than that in spinning and survived for a shorter period of time. The reasons for this are not immediately apparent, but may well be connected with the late mechanization of this section of the industry and the far greater scope for experiment and change in fashion in weaving as compared with spinning.

The Finishing Industry.

Employment in the various branches of finishing was slight compared with that in cotton manufacture but was still rising during the opening years of the twentieth century. This increase was largely due to the establishment of many small dye and bleach works, particularly in the Nelson and Colne area where they served the rapidly expanding fine-quality cloth trade. Calico printing, on the other hand, had ceased to expand and was now entirely concentrated in the valley of the Hyndburn and its tributaries between Accrington and Clayton le Moors. In the Accrington district textile finishing accounted for about one-fifth of the total male employment in the textile industry, compared with less than 2 per cent elsewhere in the Calder-Darwen Valley. In effect textile finishing in general, and calico printing in particular, had been outstripped by the rise of cotton manufacture, and much of the new investment in the industry had gone to localities such as Northwest Derbyshire since 1850, where problems of pollution were much less severe.
Other Manufacturing Industries.

The census category "general engineering and machine making" (1901-1911) and its equivalent in 1921 ranked second to textile manufacture as a source of industrial employment for males (Figures 42-43). Engineering was largely confined to the Accrington, Blackburn, and Burnley districts, and was feebly represented elsewhere by a number of small foundries, textile accessory works, and the small iron works at Darwen. In Accrington 4,300 men (28 per cent of the labour force) were employed by engineering works in 1911, a high proportion of them at the textile machinery plants controlled by Howard and Bullough (3,500 workers). In both Blackburn and Burnley textile machinery manufacture was the dominant branch of the trade, but in these towns engineering absorbed less than 10 per cent of the male labour force. No centre in the Calder-Darwen Valley had the scale and range of employment in engineering that was to be found in many parts of the Manchester embayment, and total employment in the locality was approximately 10 per cent of the Lancastrian total in 1911: even in textile engineering the Calder-Darwen Valley accounted for only 23 per cent of the regional total. The major long-term importance of engineering in the Calder-Darwen Valley lay in its potential for diversification once the ties with cotton manufacture had been weakened (Figure 57).

No other industry had achieved even the limited importance of engineering by 1911. Chemicals manufacture gave employment to about 1,000 men, mainly in Church, Clayton le Moors
and Hapton, but this industry was even more firmly tied to the demands of the textile trade than engineering. The paper industry had consolidated its position since the 1890s, but had broken no new ground. Darwen remained the major centre, with about 65 per cent of the locality's 2,500 workers, and the principal paper manufacturer of the town also controlled wallpaper, paint and distemper, and chemical plant in the same vicinity. The location and type of mill established by 1911 is shown in Figure 57, which demonstrates the tendency already noted (page 166) of firms to produce the grades of paper best suited to their major source of water supply. The map also indicates the high degree of concentration of paper manufacture in the Darwen area, and it is even more significant that this district contained about 20 per cent of the male labour force employed in wallpaper manufacture throughout England and Wales in 1911. As with engineering the long-term significance of this was the provision of a basis of industrial diversification once the dominance of cotton manufacture began to crumble in the 1920s.

**Extractive Industry.**

Employment in the various branches of extractive industry is shown in Figures 42-45; during the period 1901-1921 it remained fairly stable at about 8,500 workers, of whom about 80 per cent were in coal mining. It is also possible, from 1911 onwards, to map the size of individual pits, and this has been done in Figure 49. The pattern of mining depicted by the various maps shows how far the dominance of
lowland pits had progressed, for only one colliery survived in the uplands, together with five fireclay mines in the Darwen area which also produced a little coal. The lowland pits fell into two groups centred on the Burnley Basin and on Accrington respectively. No mining survived at the extremities of the syncline, for the small pits working the thin seams around Blackburn, and in the Nelson-Colne area, had been abandoned. In the productive sector of the coalfield most of the mines had been sunk during the period 1856-1880, and although several had been progressively deepened, only one new sinking — Calder Colliery, Altham — had taken place since 1900. This pit tapped reserves beneath the earlier small workings which had dotted the Calder floodplain in the middle years of the nineteenth century; it proved costly to sink and drain, thereby adding to the volume of production difficulties which beset coal owners in this field.

None of the collieries in the Calder-Darwen Valley was large by modern standards, for the biggest pits employed fewer than 700 workers, including those at coke ovens and other ancillary plant. No data are available on coal output, but there is strong evidence that the volume of imports into the Calder-Darwen Valley had risen greatly since the 1890s, and that coal was being brought in quantity from South Yorkshire as well as from West Lancashire. Further evidence of the obsolescence of mining in the area is suggested by the survival of batteries of bee-hive coke ovens as late as 1925.
In that year 235 bee-hive ovens were still in use in the Calder-Darwen Valley, out of a national total of 508, but only one small battery of by-product ovens had been built to gain full benefit from the local coking coals. The long-established subservience of coal mining to other forms of local industry, coupled with the increasing physical difficulties of mining meant that the Calder-Darwen Valley remained a relatively unimportant mining district, for in 1911 its labour force was only 7 per cent of the Lancastrian total, a little lower than it had been in 1851.

Brick, tile, and earthenware manufacture were the only other branches of extractive industry that were of consequence in the Calder-Darwen Valley. The brick industry fell into two major locational groups, of which the smallest was also the oldest. This comprised the scattered workings which lay in a discontinuous belt from the southern outskirts of Blackburn, through southern Accrington and Burnley, to Colne (Figure 12). These small brickfields had been created to meet local demand for brick, which was becoming progressively greater as stone quarrying faced higher costs of production. More important, however, was the great concentration of new brick works which had arisen since the 1890s at Whinney Hill, north of Accrington. Here the fine-grained mudstones were made into the fashionable shiny red Accrington Brick, and into various types of ornamental tiles and mouldings. The deep quarries, extensive brick kilns, and intricate networks of rail- and tram-ways in the Whinney Hill area indicated a scale of production entirely
different from that of the earlier workings in the Calder-Darwen Valley, for Accrington Brick served a wide market in Lancastria.

The earthenware and clay pipe industry was still concentrated in the uplands east of Darwen, where fireclay was worked from shallow shafts and adits. The main products were glazed bricks, conduits, and fire bricks, and this section of the industry provided employment for about 300 workers in 1911. Fireclay ware was also produced on a small scale by some of the colliery brick works in the lowlands, mainly to supply linings for the batteries of bee-hive ovens. The total employment in the brick and earthenware industries was, however, slight — roughly 1,000 workers in 1911 — and never more than locally important, for even the great concentration of plant at Whinney Hill employed fewer than 400 men. The same was also true of employment in quarrying, in which some 500 men were employed throughout the Calder-Darwen Valley. The main quarries at Catlow and Hameldon were already beginning to diminish in importance as costs of working increased, largely due to the difficulty of removing overburden once the most accessible faces had been worked. The extractive industries were, therefore, relatively unimportant as a source of employment, and, with the possible exception of the Whinney Hill brick works, provided little potential for future expansion.

Communications.

Although accorded a separate section in previous chapt-
ers transport and communications are best considered as another facet of economic development at this stage. The pattern of communications in 1913-21 scarcely differed from that of the 1890s, for no new roads had been built, and none of the railway projects had come into being. The only change of any consequence was the introduction from 1903 onwards of electric traction to the passenger tramway system. This was applied to the various horse- and steam-tram routes, and to the extension of the inter-urban system. Thus the tramways were extended westward from Nelson to Colne, Trawden, and Higherford, and from Burnley to Harle Syke. In the Blackburn-Accrington area electrification was largely employed on existing routes and new suburban services, for ambitious plans to extend the system northwards into the Ribble Valley proved to be as abortive as the earlier proposals for the railways. Similarly plans to link the Burnley and Rossendale tramway networks came to nothing, even though the gap between the two systems was only about three miles. The failure of the tramway network to grow was largely a product of the growing threat of competition from bus services, and the maintenance of strong rivalry from the railways where routes ran sub-parallel to the inter-urban lines.

Very little information has survived about the relative importance of various forms of transport to the economy of the area. Canal and railway statistics are unrevealing, and the main impression fostered by the latter is that the Calder-* Figure 65


Darwen Valley had much better long-distance train services in 1914 than it was to possess fifty years later! Figure 70 shows the final stage in the disintegration of advertised carriers' services, for their function had largely been usurped by other forms of public transport and the fleets of steam wagons maintained by the larger firms and private hauliers.

Employment of males in the transport industry in 1911 totalled about 8,000, of whom 63 per cent were in road transport, 36 per cent were in rail transport, and 1 per cent in canal transport. This may give some impression of the relative importance of three methods of transport, although the volume of local employment would give only the crudest approximation in the case of the canal, and to a lesser extent of the railway.

Structure of Employment.

The structure of male and female employment in 1911 is shown in Figure 42: as noted above (page 175) the census does not provide information about individual Rural Districts or small Urban Districts.* The most striking feature of the female occupational structure was the dominance of textile manufacture, which ranged from 74 - 87 per cent of the occupied population. No other manufacturing industry employed more than a few women, so that the balance in each locality was in various branches of tertiary industry. Unfortunately the published returns are not sufficiently precise to permit a close analysis of this employment in service trades, administration, and the professions.***

* Trawden U.D. was the only local instance of a centre with fewer than 5,000 inhabitants in 1911.
The male occupational structure of 1911 was more diverse, although imprecision in the published returns again makes it necessary to include a large "other occupations" category in each town. In spite of the greater diversity only one place — Accrington — did not rank employment in textiles as the largest occupational group. In Accrington engineering was the major male-employing industry, but as we have seen this was largely orientated towards the textile trades. Elsewhere textile manufacture and finishing formed the largest single group, ranging from two-thirds or more of male employment in Great Harwood and the Nelson area, to about one-third in Blackburn, Burnley, and the small towns around Accrington. In these centres with a relatively low proportion of textile workers coal mining, engineering, and chemicals employed a substantial minority of the male labour force. The only other industries of consequence were paper manufacture, in Darwen and Rishton, and tanning, in Colne, but these were highly localized and made a relatively slight contribution to total employment in the Calder-Darwen Valley.

The 1921 census employed a mode of classification and tabulation which differed in detail from that of 1911, but broad comparisons can be made between the two dates. The structure of employment in 1921 is shown in Figure 43: the most obvious difference is the greater volume of male employment in tertiary industries, which reflects a more accurate classification, tempered by the inclusion of some workers, notably warehousemen, who may have been employed by manufacturing.
industry. Textile workers still dominated the employment structure of most towns, with the exception of Accrington where engineering continued to lead. The pattern of employment differed very little in most respects, and the main value of the 1921 figures is the better picture which they provide of tertiary employment. Blackburn had the highest proportion of males in this group (32 per cent of the occupied population) and most other towns had between 20 - 30 per cent of their workers in tertiary employment, with the exception of Trawden Urban District, where the proportion fell to 7 per cent. The weakness of male tertiary employment was indicative of the relatively poor urban facilities which most places had developed by 1921, for even Blackburn's leading position within the locality was not impressive.

Female employment in 1921 was still heavily biased in favour of textiles. In every town over 70 per cent of the female labour force was in textile factories, and in most the proportion was over 80 per cent. Few women held occupations in other manufacturing industries, other than the feebly developed clothing and food processing trades, and their contribution to tertiary employment was surprisingly low.

The dominance of employment in textiles over much of the Calder-Darwen Valley was to be expected in view of the locality's industrial history, but the importance of textile manufacture in the largest towns of the area was, perhaps, less predictable. The weakness both of diverse sources of employment and of tertiary occupations undoubtedly contributed
greatly to the economic problems of Blackburn and Burnley after 1921, and meant that they could offer little relief to the even more specialized small towns of the district. Even where apparent diversity existed it was often strongly tied to the fortunes of textile manufacture, and although many firms were able to switch the emphasis of manufacture once the textile market had begun to contract the processes of change and readjustment lagged behind those of economic collapse in the basic industry of the locality.

Engineering, chemicals manufacture, and paper making had more in common than their origins as ancillaries to the cotton industry, for they were all dominantly employers of male labour. In engineering the ratio was one woman for every forty men employed; in chemicals manufacture 1:10, and in paper making and printing 1:6, whereas in cotton manufacture the ratio was 3:2. The census of 1921 included tabulated data illustrating the degree of dependence on cotton manufacture in the 65 towns of Lancashire which then had more than 10 per cent of male employment in the industry. Only five had more than 50 per cent of their male labour force in cotton - Nelson (55.3), Barrowford (55.1), Brierfield (54.8), Trawden (53.5), and Crompton, near Oldham (50.7): Accrington, on the other extreme, lay in sixty-first place, with only 13 per cent of its male labour in cotton mills.

The high ratio of female workers in cotton manufacture and their virtual exclusion from other industrial occupations was also noted in the census of 1921. In the 65 towns the
lowest proportion of females employed in textiles was 58 per cent, in Rawtenstall, the highest, 90.5 per cent, was in Trawden. Of sixteen places with over 80 per cent of the female labour force employed in cotton manufacture eleven were in the Calder-Darwen Valley, which is scarcely surprising as it was noted that weaving was primarily a woman's occupation, and that even in "spinning centres" such as Oldham and Bolton female weavers outnumbered female spinners. The importance of female labour in weaving sheds had also been revealed by the 1901 and 1911 censuses, both of which recorded high concentrations of married women at work in places that were dominated by cotton weaving. In 1911 the proportion of married women at work in Lancashire was 19 per cent, a proportion which fell markedly in mining areas but rose sharply in centres of cotton weaving. Seventeen towns had more than one-third of married women in employment in 1911, and eleven of these were in the Calder-Darwen Valley. The importance of female labour, whether single or married, was to be an important feature of the decline phase of cotton weaving, for it was to make many of the remedies for economic distress that were applied elsewhere in Britain largely ineffectual in those towns which were dominated by this branch of the cotton trade.

ii Population
The continuity of the maps of population change between 1801-1891 is broken by a series of boundary changes made in the period 1890-1905, and it is, therefore, difficult to follow earlier trends in some localities. The township groups
were, however, barely modified by these alterations so that Figure 90 provides a reasonably consistent basis for examining long-term trends. Short-term changes are depicted in Figures 84-86, which illustrate the period 1891-1921, and in particular reveal the almost universal losses of urban population recorded during the last intercensal decade. Although the returns for 1911-1921 are abnormal in two respects, by their inclusion of deaths on active service during the war, and by their exclusion of those on holiday in 1921, there can be little doubt that the figures indicate a genuine change in population trends. This view is supported graphically by Figure 90, for the flattening out of the logarithmic curves from 1901 onwards suggested an impending fall in population.

The principal features of population change between 1891-1911 were the reversal of fortune in several of the rural parishes which had hitherto steadily lost population, the generally strong showing of towns in the eastern quarter of the locality, and the almost uniform slackening of growth in towns elsewhere in the Calder-Darwen Valley. The revival of "rural" parishes was invariably a product of their partial urbanization, which stemmed from a variety of influences. Thus Wilpshire and Ramsgreave expanded considerably as residential suburbs of Blackburn, and more than doubled their combined population between 1901-1911. The emergence of Harle Syke as an industrial outlier of Burnley is revealed in the increase of population in Briercliffe, and similar effects of the bel-
ated growth of textile manufacture were to be seen in Worsthorne, Foulridge, and parts of the Pendle group of townships. In the Calder lowlands both Altham and Huncoat experienced rapid expansion as centres of extractive industry and as incipient suburbs of Accrington. In all of these "rural" parishes it is almost certain, but not verifiable, that rural depopulation continued, but was masked by urban growth in a small part of the locality.

The group of towns at the eastern extremity of the Calder-Darwen Valley had continued to grow at a faster rate than most of their western neighbours after 1891. Between 1891-1911 the population of Nelson rose to 39,479 inhabitants, an increase of 77 per cent, thereby further outstripping Colne where an increase of 50 per cent produced a total population of 25,689. The only other industrial settlements to enjoy growth on this scale were Brierfield (an increase of 41 per cent) and Great Harwood (an increase of 52 per cent), both centres in which the growth of the cotton trade had come relatively late, but had been sustained after 1890. Great Harwood was the only town in the western part of the Calder-Darwen Valley to grow rapidly at this stage, for the other industrial centres had much more modest rates of increment.

Between 1911 and 1921 the population of the Calder-Darwen Valley fell from its peak (494,715) to 477,146 inhabitants, a decline of 3.7 per cent. Although slight this was the first overall loss to have been recorded in the locality, and
it proved to be the beginning of a protracted period of decline, for by 1961 the population of the Calder-Darwen Valley had fallen further to 390,710 inhabitants. Between 1911-1921 every urban administrative area except Barrowford, Brierfield, and Nelson lost population (Figure 86), and although the decline was everywhere slight, never exceeding 9 per cent, reversal of urban growth on this scale had never previously occurred. In the "rural" parishes the pattern of change was less uniform. Most localities in Pendle continued to lose population, but the position was greatly confused by the creation of Sabden (25) Civil Parish and several other minor adjustments of boundary. Losses of rural population were also recorded in parts of the Pennines and Rossendale, but several "rural" parishes continued to expand through suburban growth, and this form of redistribution of population was to benefit most rural localities after 1921; indeed some parishes reached their population peaks long after the end of the nineteenth century (Figure 89).

Movements of population are less easily traced at this time than in the middle years of the nineteenth century because census data are not informative about migration. It is, however, necessary to try to discover why the population of the Calder-Darwen Valley began to fall in 1911-21 before the industrial decline of the locality had begun. A partial explanation must lie in the loss of life during the 1914-1918 War; in Burnley, for example, deaths on active service equalled 70 (26) per cent of the total loss of population between 1911-21. It is, however, also clear that these wartime losses were merely
superimposed on an existing pattern of migratory movement, for in Burnley death on active service accounted for only one-third of the balance between natural increase and total decrease. The statistics set out in Table 10 indicate the general structure of population change, showing natural increase (i.e. the excess of live births over deaths), total change, and the balance between the two, which in 1911-21 included death on active service as well as migration. Every urban locality in the Calder-Darwen Valley experienced both a natural increase and a loss on balance; it follows, therefore, that migratory loss (including death on active service) was everywhere greater than total loss of population. There can be no doubt that nett outward movement of population was the principal cause of loss, but the true volume of migration and its direction cannot be deduced from the census statistics. The reasons underlying this migratory movement are equally obscure, for it would appear that the cotton trade was still growing strongly before 1914 and, more important, was widely expected to flourish after the war.

Two possible explanations of migration from urban areas are apparent. One is that movement to "rural" suburbs accounted for losses in the towns, but the volume of suburban expansion can scarcely have accounted for more than about 10 per cent of the loss in Blackburn and Burnley, assuming that all suburban increment was a product of movement from adjacent towns. The other is that expansion in the cotton industry, as indicated by the installation of equipment and greater output, was
Table 10; **Population Change 1911-1921 in the Urban Administrative Areas of the Calder-Darwen Valley**

<table>
<thead>
<tr>
<th>Locality</th>
<th>Total Change</th>
<th>Natural Gain</th>
<th>Migratory Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Burnley</td>
<td>- 3,608</td>
<td>- 3.4</td>
<td>3.8</td>
</tr>
<tr>
<td>Barrowford</td>
<td>+ 99</td>
<td>+ 1.8</td>
<td>4.2</td>
</tr>
<tr>
<td>Brierfield</td>
<td>+ 82</td>
<td>+ 1.0</td>
<td>4.5</td>
</tr>
<tr>
<td>Colne</td>
<td>- 937</td>
<td>- 3.6</td>
<td>3.6</td>
</tr>
<tr>
<td>Nelson</td>
<td>+ 362</td>
<td>+ 0.9</td>
<td>3.6</td>
</tr>
<tr>
<td>Padiham</td>
<td>- 1,164</td>
<td>- 8.5</td>
<td>4.7</td>
</tr>
<tr>
<td>Trawden</td>
<td>- 201</td>
<td>- 6.8</td>
<td>5.5</td>
</tr>
<tr>
<td>Accrington</td>
<td>- 1,434</td>
<td>- 3.2</td>
<td>3.3</td>
</tr>
<tr>
<td>Blackburn</td>
<td>- 6,409</td>
<td>- 4.8</td>
<td>3.0</td>
</tr>
<tr>
<td>Church</td>
<td>- 142</td>
<td>- 2.1</td>
<td>4.8</td>
</tr>
<tr>
<td>Darwen</td>
<td>- 2,426</td>
<td>- 6.0</td>
<td>1.4</td>
</tr>
<tr>
<td>Clayton</td>
<td>- 289</td>
<td>- 3.3</td>
<td>6.7</td>
</tr>
<tr>
<td>Grt Harwood</td>
<td>- 210</td>
<td>- 1.5</td>
<td>5.7</td>
</tr>
<tr>
<td>Oswaldtwistle</td>
<td>- 589</td>
<td>- 3.7</td>
<td>5.6</td>
</tr>
<tr>
<td>Rishton</td>
<td>- 423</td>
<td>- 5.7</td>
<td>4.7</td>
</tr>
<tr>
<td>Total</td>
<td>- 17,289</td>
<td>- 3.7</td>
<td>3.5</td>
</tr>
</tbody>
</table>

Data from Census, England & Wales 1921, Lancashire County Report.

Migratory loss includes deaths on active service abroad; separate figures are not available for the rural parishes in the Calder-Darwen Valley.
no longer capable of providing employment for the natural increase of population, and was certainly incapable of attracting further migrants. This point is exceedingly difficult to prove, but it is possible that belated attempts to improve the efficiency of cotton manufacture were beginning to reduce its need for additional labour, and in a locality where relatively few outlets for employment existed such a trend was bound to be reflected in the population figures. It is, however, unfortunate that the 1921 returns are clouded by difficulties of interpretation, for we shall never know the true extent of outward movement during the period 1911-21, and without this knowledge it becomes increasingly difficult to deduce reasons for the decline of population in many parts of the Calder-Darwen Valley.

Although the statistics incorporated in Table 10 give an approximation of the volume of migratory movement they cannot indicate its direction. The census statistics of birthplaces provide a crude index of movement, but they are only available for a limited number of places and normally indicate the county of birth without any further elaboration. The birthplace statistics of 1911 were exceptional in that they gave much fuller details for every County Borough, and from this source it is possible to analyse population movements to and from Blackburn and Burnley. The principal returns are set out in Table 11, where a comparison is made with the sample statistics derived from the 1851 census manuscripts.
Table 11: Main Places of Origin of the Population, Blackburn & Burnley, 1911 & 1851.

<table>
<thead>
<tr>
<th>Birthplace</th>
<th>Proportion of total population Enumerated in Blackburn</th>
<th>Enumerated in Burnley</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackburn</td>
<td>67.5% 62.0%</td>
<td>59.5% 45.0%</td>
</tr>
<tr>
<td>Burnley</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lancashire A.C.</td>
<td>13.0 29.0</td>
<td>14.0 40.5</td>
</tr>
<tr>
<td>Lancashire C.Bs.</td>
<td>7.4 20.4</td>
<td>7.5 40.5</td>
</tr>
<tr>
<td>Yorkshire</td>
<td>2.4 1.9</td>
<td>7.5 9.8</td>
</tr>
<tr>
<td>Other England &amp; Wales</td>
<td>6.0 3.6</td>
<td>8.3 2.5</td>
</tr>
<tr>
<td>Ireland</td>
<td>1.4 2.8</td>
<td>1.4 2.0</td>
</tr>
<tr>
<td>Scotland</td>
<td>0.6 0.5</td>
<td>0.6 0.2</td>
</tr>
<tr>
<td>Overseas</td>
<td>0.5 0.2</td>
<td>0.5 -</td>
</tr>
<tr>
<td>Unspecified</td>
<td>1.2 -</td>
<td>0.7 -</td>
</tr>
</tbody>
</table>

Main Places of Enumeration of Natives of Blackburn & Burnley 1911.

<table>
<thead>
<tr>
<th>Enumerated in</th>
<th>Proportion of Native Born from Blackburn</th>
<th>Burnley</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackburn</td>
<td>73.5%</td>
<td>74.0%</td>
</tr>
<tr>
<td>Burnley</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lancashire A.C.</td>
<td>13.4</td>
<td>12.5</td>
</tr>
<tr>
<td>Lancashire C.Bs.</td>
<td>7.4</td>
<td>5.1</td>
</tr>
<tr>
<td>Yorkshire</td>
<td>2.0</td>
<td>3.9</td>
</tr>
<tr>
<td>Other England &amp; Wales</td>
<td>3.7</td>
<td>4.5</td>
</tr>
</tbody>
</table>

No details are available of the volume of movement outside England & Wales.

Data for 1911 from Census Report, Birthplaces. For 1851 from Census MS sample; the areas of Blackburn and Burnley-Habergham Eaves are not exactly coterminous with the County Boroughs of 1911.
One point is immediately obvious: locally born inhabitants constituted the greatest group in the populations of both towns and were proportionately stronger than they had been in 1851. Equally clear is the importance of short- and middle-distance movement, for 20.4 per cent of Blackburn's inhabitants, and 21.5 per cent of Burnley's had come from other parts of Lancashire. The balance of the population — 12.1 per cent of those enumerated in Blackburn, 19 per cent of those in Burnley — mainly came from other English counties, and again short- and middle-distance movement was important. In Blackburn the proportion of migrants from other English counties was dominated by the contributions of Yorkshire (30 per cent), Cheshire (12 per cent) and Cumberland-Westmorland (10 per cent). In Burnley migrants from Yorkshire were even more numerous in relation to those from other parts of England (48.5 per cent), with Cheshire and Cumberland-Westmorland each providing about 7 per cent. No other county approached these levels, although there were modest movements from Cornwall and County Durham to Burnley, and from the West Midlands to Blackburn. The former may have been a product of the expansion of coal mining, but the latter is less easily explained for most of the migrants came from the industrial towns of south Staffordshire; the one possibility which comes to mind is that they were recruited by engineering firms when the Black Country was undergoing its late-nineteenth-century phase of contraction. The census returns do not, however, permit more than speculation of this kind. What they do quite clearly reveal is the continued imp-
ortance of local increment combined with short- and middle-
distance migration as a major source of population growth.

The 1911 statistics also permit an analysis of movement
from Blackburn and Burnley, and of inter-town migration at
County Borough level. As Table 11 shows about one-third of
the migrants from other parts of Lancashire had come from
County Boroughs. Preston was a major source of migrants for
both towns, and Burnley had also derived many of its short-
distance migrants from Blackburn. Nett gains must always be
the product of both inward and outward movement, and this is
well illustrated in Table 12, which shows the total volume
of movement between Blackburn and Burnley respectively and all
the County Boroughs of Lancashire, Yorkshire, and Cheshire.
Of the total inward and outward movement Blackburn enjoyed a
relatively narrow majority of in-migrants — 52.5 per cent of
all movement. This was partly a result of heavy losses to
Burnley (1,830) and Blackpool (1,446) which were not offset by
a flow of migrants in the opposite direction. In Burnley in-
migrants formed 66 per cent of total movement, but here too
there had been a substantial migration to Blackpool (850)
without any compensatory return movement. Earlier statistics
of migration suggest that Blackburn's powers to attract
(27) migrants had begun to wane in the 1870s, and it appears that
Burnley was able to gain heavily from the sustained growth of
mining and cotton manufacture after 1880 at a time when Black-
burn's rate of migratory increase was slackening.
Table 12: Short- & Middle-distance Migration 1911.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lancashire</td>
<td>9,064 9,725</td>
<td>661</td>
<td>4,331 7,914</td>
<td>3,583</td>
</tr>
<tr>
<td>Yorkshire</td>
<td>825 1,150</td>
<td>325</td>
<td>706 1,999</td>
<td>1,293</td>
</tr>
<tr>
<td>Cheshire</td>
<td>299 422</td>
<td>123</td>
<td>182 340</td>
<td>158</td>
</tr>
<tr>
<td>Total</td>
<td>10,188 11,297</td>
<td>1,109</td>
<td>5,219 10,253</td>
<td>5,034</td>
</tr>
</tbody>
</table>

Data from Census 1911, Birthplaces Report.
Although outward migration had occurred from both towns its impact had been slight. In 1911 122,014 natives of Blackburn and 84,761 of Burnley were enumerated in England and Wales, and in both instances about three-quarters still lived in the town of their birth. A further 21 per cent of those born in Blackburn, and 17.6 per cent of those born in Burnley lived in other parts of Lancashire; the numerically small balance was scattered throughout England and Wales, with the largest concentrations in Yorkshire and Cheshire. Both towns, however, had on balance gained by migration: Blackburn showed a nett increase of inward over outward movement of 5,400 people (about 4 per cent of the resident population in 1911), and Burnley an increase of about 18,000 (17 per cent), again suggesting that the latter town had been able to attract and hold migrants more strongly in the closing years of the nineteenth century.

The lure of the coastal resorts for migrants from the Calder-Darwen Valley, revealed in the 1911 census, was also shown in a different way by the report on workplace and usual residence in 1921. In 1921 1,116 inhabitants of the Fylde coast and Southport worked in the Calder-Darwen Valley. Although a very low proportion of the locality's labour force, about 0.4 per cent, there can be little doubt that the evolution of the coastal towns as distant residential areas for the industrial towns further east robbed the latter of an important sector of the population, and also stultified their social
development. Apart from this long-distance daily journey to work from the coast there was very little movement of population within the Calder-Darwen Valley, and hardly any from the locality to places outside. This was to be expected for the cotton industry had grown on the basis of a close relationship between place of work and of residence, and there was no reason why the pattern should have changed in 1921. However, this almost inflexible relationship between place of residence and place of work was to prove yet another source of difficulty after 1921 when the pace of industrial change within the Calder-Darwen Valley displayed great internal variation and the need to travel over longer distances each day became established, but was reluctantly accepted.

iii. Settlement.

The settlement pattern of the Calder-Darwen Valley in 1912-1920 had changed only in detail since the 1890s (Figures 106) as had the morphology of the principal towns. The municipal housing schemes, largely fostered by post-war legislation had yet to take shape, and the parallel programmes of slum clearance had scarcely begun to take effect. In Burnley, for example, early town planning legislation had stimulated discussion as to the best methods of clearance and re-housing in 1904, but it was not until 1919 that land on the outskirts of the town was acquired for the purpose. Thus the first major change in the layout of settlement since the introduction of the rigid grid-iron in the latter half of the
nineteenth century lies beyond the scope of this account, and the avenues and crescents — never streets — that were being pegged out on the upland margins of the town in 1920 belong to another era in its development.

The pattern of settlement is shown in Figure 106 and Figure 110 attempts a classification of settlement in 1912 using the method previously adopted for 1851. As is to be expected the two maps differ appreciably, both through the absorption of old settlements by the expansion of industrial towns, and by the creation of entirely new ones. The rise of the industrial towns had, in many instances, overwhelmed the previously separate industrial suburbs and mill hamlets, particularly in Blackburn and Burnley. Although it could be argued that suburbs such as Nova Scotia and Greenbank still existed in 1912 their physical independence and cohesion had been destroyed by the expansion of Blackburn. A major new development in Blackburn, Burnley, and Colne was the emergence of the separate residential suburb, in localities such as Wilpshire, Reedley Hallows, and Colne Edge. However, for reasons noted above (pages 249-50) much of the locality's residential growth was effectively located on the Fylde coast and this prevented the full development of residential suburbs within the Calder-Darwen Valley.

Many of the mill hamlets and villages which had not been swallowed up by the large towns had themselves become the nuclei of smaller industrial centres. Places such as Church, Clayton le Moors, and Brierfield represented the expansion and
fusion of such settlements; similarly small industrial towns such as Great Harwood and Barrowford were largely the product of expansion centred on rural hamlets and villages. The major change at village level had been the emergence of "industrial villages", which had a diversity of industry. Some of these were entirely new, for example Hapton with its coal pits, cotton mills, and chemical works, whereas others, notably Hoddlesden and Lower Darwen, were based on earlier mill and rural settlements. Mill villages had arisen largely in former rural settlements - Worsthorne, Foulridge, Trawden - or through the expansion of earlier hamlets, notably Sabden.

In the lowest category, which comprised the various types of hamlet, there had also been appreciable changes since 1851. Several hamlets had been absorbed by town expansion, in some instances having spent a brief transitional period as an industrial suburb, as for example at Mill Hill (Blackburn). Many others had become mill- or industrial-villages by 1912, the original nucleus of settlement having been augmented by subsequent building. Not all the changes were associated with growth and its attendant transformation of status. Most of the upland colliery hamlets had ceased to function by 1912, and in many instances isolated rows of cottages standing desolately in the fields were all that survived. Quarry hamlets shared this ephemeral characteristic, but some new ones had been created to serve brick works. Although many of the rural hamlets had been engulfed by urban expansion, or had become
small centres of industry, about half of those recorded in 1851 survived in 1912. The majority lay in upland Rossendale and Pendle, remote from the influences of suburbanization and the belated establishment of steam-driven rural cotton mills. A few also lay in the Calder lowlands west of Padiham, for in spite of the growth of mining much of this district still retained its rural character.

The impact of change since the 1850s is shown in detail by a comparison of the sample landscapes discussed above (pages 121-130). The analysis which follows emphasizes in detail several of the general points made about industrial expansion, town growth, and landscape evolution that have already been made, placing them in a small-scale regional context.

Two principal changes had overtaken Hoddlesden between 1850 and 1920 (Figure 119). First extractive industry had changed both in location and in character. With the exception of one small pit all the collieries on the Darwen-Waterside interfluve had been abandoned, leaving little trace of their existence save the grassy hummocks which marked the sites of spoil tips. Mining had shifted to the valleys of Waterside and Tinklers Brooks, where it was connected with clay working for the manufacture of glazed bricks and pipes. Brick making had largely grown after the opening of the branch railway in 1876, but this line had done little else to stimulate the area's development. The second major change was, in fact, a
contraction of industry, for textile manufacture was concentrated at two sites: one abandoned mill had been occupied by a paper manufacturer, but three sites supported no industry. The concentration in large mills appears to have dated from the 1860s and formed part of a general tendency to abandon upland factories during the aftermath of the Cotton Famine. The cotton mill in the southwest part of the locality represented the suburban expansion of industry from Darwen at the turn of the century, when dependence on stream-side sites had been reduced by the use of town's water.

Industrial change had brought with it relatively little expansion of settlement, save the erection of odd terraced rows at Waterside and around the hamlet of Hoddlesden. It seems probable that the existing "folds" were able to provide a substantial working population, and the existence of an electric tramway from Darwen is likely to have reduced the need for further expansion of settlement in Hoddlesden itself.

The Altham-Huncoat district displayed a different aspect of change in localities dependent on extractive industry. Here too the earliest area of coal working had been abandoned, but mining continued at greater depth from the large pits of the locality (Figure 121). The collieries at Huncoat, Whinney Hill, and Moorfields dated from the 1860s; that at Altham (Calder Colliery) from 1911. All were examples of the large-scale expansion of lowland mining which characterized the period after 1850, and all had ancillary interests in brick and tile making, chemicals manufacture, and coking.
The major growth of settlement occurred at Huncoat, where an entirely new colliery village arose set apart from the old hill-top hamlet. No settlement grew at Whinney Hill, for the need to keep the outcrop of fine-grained Accrington Mudstone free from building was essential. The major growth of settlement inspired by the brick works lay to the west, along the Accrington - Whalley turnpike, and was distinctive due to the widespread use of shiny red brick, which was even employed as a paving material. To the north of Whinney Hill the parkland surrounding Clayton Hall was still not free for building, and much of Altham remained unchanged since the 1850s. This may in part have reflected the unsuitability of the Calder lowlands for industry and settlement, for there was a risk of flooding, but this can hardly have explained the almost complete absence of new building. Although the evidence is very slender it appears that the established pattern of not allowing industrial premises on the Lomax and Walton estates in the township was largely responsible. Whatever the reason much of the locality remained dominantly rural, although it was fringed to the south by an area of intensive extractive industry, underlain by coal workings, and crossed by several major lines of communication.

The two sample localities drawn from the Pendle axis had experienced radically different patterns of change after the 1850s (Figures 122-25). In the Newchurch area the principal change was in the distribution of industry. The old water-powered mill at Thorneyholme had been abandoned, but new weaving sheds had been built at Spenbrooke and Wheatley Lane.
Both had been built during the post-1865 boom in trade and enjoyed the benefits of disadvantage allowances to compensate for distance from the railway and canal. Although they made a meagre contribution to the volume of growth in cotton manufacture — together the sheds only contained one thousand looms — the development of this type of rural mill after 1865 undoubtedly gave an element of greater stability to districts which had steadily lost population since the 1820s.

The Wilpshire area had undergone a much greater transformation since 1850 (Figure 123). Two influences had been at work here, both reflecting different facets of Blackburn's expansion. In the south at Roe Lee a group of cotton mills had been built on the banks of small streams flowing southwards to the Blakewater. These formed part of an attenuated belt of mills running northwards from Blackburn along the line of Whalley New Road, which had been created after 1865 once dependence on stream- or canal-side sites had been reduced by the availability of cheap piped water. Industrial expansion had been accompanied by ribbon-like growth of settlement, and this had been facilitated by the construction of a tramway along Whalley New Road.

The second of Blackburn's influences was seen in the north at Wilpshire. Here the railway, and more recently the electric tramway, had produced a major residential suburb, comprising substantial blocks of large terraced houses, and, more important, many ornate Victorian mansions set in their own grounds. Wilpshire was the only residential suburb in the
Calder-Darwen Valley to have grown round a railway station, but its development was very feeble in comparison with suburbs created elsewhere in Lancastria by railway influence, for the Fylde coast had attracted many of those who might otherwise have chosen to live on the Wilpshire Ridge.

The two remaining localities (Figures 127, 129) provide examples of the major transformation wrought by industrial and urban growth after 1851. At Towneley the eastward expansion of Burnley had brought mills and terraced rows to the gates of the Deer Park, and the hall together with its grounds had passed into municipal ownership. The group of large cotton mills on the banks of the Calder at Fulledge dated from the late 1850s, and the spread of settlement in the locality was largely a product of the piecemeal leasing of the Curacy Estate, north of the Calder, and the Hollingreave Estate to the south. In both areas land was leased to speculative builders who created their individual blocks of grid-iron property, and frequently named the streets after themselves and their families. Although the resultant pattern of building appears to be regular most of the changes in alignment and orientation of the grid-iron can be related to the various leases of land that were made during the nineteenth century.

The whole of the area that was built over was not devoted to factories and artisan housing, for landowners were often sensitive to the type of building permitted on the margins of their estates. Thus along much of Todmorden Road, and on the
southern part of the Hollingreave Estate substantial town houses were built on the fringes of Towneley Park. To the north Ormerod Road, with its large terraced houses, was laid out alongside Bank Hall, and a large part of the surrounding parkland was preserved as a public open space.

Both the Towneleys and the Hargreaves of Bank Hall were willing to permit one form of industrialization on their land — coal mining. The Hargreaves family had been important coal owners since the late eighteenth century, and owned a large wedge of territory to the north of Burnley. Their major pits had been sunk after 1860 at Bank Hall itself (1867), Rowley (1861) and Bee Hole (1873). The last two named lay to the east on Burnley Ridge, and were linked with Bank Hall pit and the canal by tramroad. At Bank Hall there were also batteries of coke ovens and brick kilns, so that a substantial concentration of extractive industry lay on the northern margins of the well-wooded park. There were also collieries, coke ovens, and brick works on the margins of the Towneley lands, and it seems likely that their presence inhibited further suburban growth in what would otherwise have been an attractive locality. Consequently in spite of their general attempts to preserve the amenities of parkland, and their prohibition of factory building close to their residences, both the Hargreaves and Towneley families did much to encourage the expansion of mining in the second half of the nineteenth century, thus diminishing the success of their policies of restraint.
The growth of Nelson provided the most remarkable example of landscape change in the Calder-Darwen Valley after 1850, for here a town grew in a rural locality which seemed to differ little from many other lowland tracts in the 1840s. The sporadic growth of rural cotton mills which had occurred before 1850 was replaced by a spate of building after 1865 when the post Cotton Famine boom erupted. Nelson was particularly fortunate in that permission had been secured in 1865 to regulate the flow of Waiverden Water, for this stream supported the major initial growth of the cotton industry in the town. It provided water supply and freedom from flood risk, a series of level benches and low terraces for factory building, and was crossed by the turnpike roads and the railway. Canalside sites were also used where land ownership and topography permitted, but the major valley of Pendle Water was largely avoided by cotton mills. This was partly because it was uncontrolled before the turn of the century, and therefore a greater flood hazard, but the absence of factory buildings from the floodplain and low terraces was also explained by the prohibitions enforced by certain landowners, notably E.E. Clayton of Carr Hall, and W. Ecroyd, the industrialist, of Lomeshaye.

Nelson for all its newness reflected many influences of its rural past. Much of the town was built on land controlled by small farmers rather than major landed estates. The haphazard layout of the town centre, where the typical grid-iron plan is barely evident, was one result of this. Nelson
was almost entirely erected by speculative builders who sold most of their property to owner-occupiers. Few industrial concerns had built or still owned houses — the exceptions were mainly old-established firms such as Ecroyd's — and many of the cotton mills had been speculatively built by Room and Power Companies in order to encourage industrial expansion. Nelson was, therefore, a piecemeal product of speculative building and small-scale industrial development, and in spite of its relative newness differed little in principle from any other town in the Calder-Darwen Valley in 1920.

To the north, along the valley of Pendle Water, the small industrial settlement of Barrowford contrasted sharply with Nelson. The mills strung out along the river bank had mainly originated as water-powered factories, but several had been able to make the changeover to steam through their nearness to the canal and the coalfield. Barrowford remained little more than a village in 1920; its northern and central parts were still largely composed of small, irregularly laid-out cottages in 1920, and these dated from the pre-industrial phase, when Barrowford was the largest of the Pendle settlements. The southern parts of Barrowford were almost entirely products of late-nineteenth-century industrialization; here the rows of terraced houses, built piecemeal on odd plots of land, resembled those of any other industrial settlement of the period. The result was to make Barrowford an extremely elongated industrial settlement, and this attenuated form was
encouraged by the construction of an electric tramway.

This series of sample localities provides examples of the detailed influences that were shaping the landscapes of the Calder-Darwen Valley during the second half of the nineteenth century, and between them they cover every important facet of landscape evolution. The samples also illustrate how the various aspects of physique, economic development, and personal initiative were jointly responsible for producing a distinctive industrial region of Lancastria which had, by 1920, reached the peak of its expansionist phase. Although the method of taking a handful of localities to illustrate the whole must leave many gaps in the factual coverage of the Calder-Darwen Valley, the range of places sampled conveys the essential features without undue repetition. Further illustration appears in the series of plates referred to in the following chapter. All of them show the kind of landscape that evolved in the Calder-Darwen Valley during the nineteenth century, but Plates 1 - 5 inclusive are of particular relevance to this section.


In 1920 the industrial development of the Calder-Darwen Valley had reached its peak, for within less than a decade the bases of economic expansion were to lie in ruins. Even had prosperity continued many problems of nineteenth-century origin would have become apparent, notably those connected with the poor quality of the urban environment produced in the Victorian "golden age". The landscape which had evolved by
1920 displayed, as any landscape must, many features that were a product of past geographies. In rural areas this was most strikingly evident in the solidly built stone farmsteads which dated from the great sixteenth-century phase of prosperity, the emperked houses of the gentry, and the massive fields of the upland enclosures. In the towns the evidence was less direct, for nowhere in the Calder-Darwen Valley possessed striking urban features that represented links with the past. Most of the churches had been heavily restored, and these were not places in which mediaeval fortifications, albeit penetrated by the railway, or select Georgian terraces, now converted into tenements, reminded one that there had been a past worth remembering before the onrush of industrialization. Nevertheless the towns did bear witness to earlier influences, notably in the street patterns of their central areas, which still followed irregular mediaeval courses, in the survival of old villages and hamlets, now firmly embedded in urban sprawl, and most important of all, in the influence of earlier patterns of land ownership on all forms of modern town growth.

The towns of the Calder-Darwen Valley in 1920 were largely laid out on a grid-iron plan which had been shaped by the combined influences of sanitary legislation, land ownership and tenure, and less commonly terrain. The grid iron was very rarely uniform over large areas, a circumstance which almost always reflected variations of land-ownership and tenure. The quality of housing also differed appreciably, both
over a period of time and within a single locality, for the mode of land disposal in small blocks favoured piecemeal development rather than large-scale uniformity. The apparent monotony of the view was frequently broken by the imposing facades of churches, chapels and other public buildings, and the generally less impressive bulk of the factories. Unfortunately the late industrialization of the Calder-Darwen Valley seems to have precluded the erection of architecturally elegant mills such as those built, for example, in the Derbyshire dales. Most mills were solid unenterprising structures, and the weaving sheds in particular were singularly unobtrusive. The dominance of weaving produced an industrial landscape that was radically different from that of southeastern Lancastria, for the single-storied sheds did not offer the scope for architectural exuberance that was provided by multi-storied spinning mills. Consequently the brash extravagances which enlivened the landscapes of places like Leigh and Chadderton at the turn of the century were not repeated in the Calder-Darwen Valley, except in one or two isolated instances where the results seem to be decidedly bizarre.

The rural landscape of the 1920s differed little from that of the late nineteenth century, except that its territorial extent had decreased as towns and their ancillary functions grew. One feature which had changed for the better was the fact that the demise of landed estates was no longer a prelude to apportionment by speculative builders. Enlightened bequests, and equally enlightened local authorities saw to it
that land was preserved for its amenity value, a point of great significance in towns which had been notorious for their failure to preserve open spaces.

That the Calder-Darwen Valley towns of 1920 should appear to be an amorphous mass of ill-regulated building is scarcely surprising, for they were all a product of laissez-faire growth. The cotton industry which had brought them into being had progressed by a series of booms and slumps, and these oscillations were frequently reflected in the fabric of the town; the unfinished row of terraced houses or the incomplete grid-iron block, the incomplete mill extension finished in a different architectural style at a later date, the public park laid out by the unemployed are all evidences of the fluctuating fortunes of basic industry. The dominance of cotton weaving also affected the form of the urban landscape, for the low-built weaving shed never dominated the skyline in the way that a spinning mill did. Furthermore the growth of weaving was largely a matter of small-scale investment of capital with a rapid turnover in ownership, and this lack of size and stability probably explains the absence of comprehensively planned mill settlements such as Saltaire or some of the smaller industrial communities. Consequently town building was largely in the hands of speculators who, although they came progressively under municipal control in order to maintain minimum standards of building, never attempted to introduce any of the ideas which passed for comprehensive planning in Victorian Britain.

A comparison of the towns of the Calder-Darwen Valley
with their contemporaries in other parts of Lancastria is made in the final chapter. The principal observation to be made here is that although the towns of the locality were far from being monotonous copies of one another and of everywhere else in the county the haphazardness of their growth continued long after rudimentary ideas of town planning had evolved. Even had they been soundly built the industrial settlements of the Calder-Darwen Valley would still have posed many problems for future generations to solve, and these difficulties would have become apparent whether or not basic industry had declined. The great misfortune is that the collapse of the cotton industry after 1921 and the subsequent need to rebuild the economy of the locality absorbed energies that might otherwise have been used to improve the urban environment. The shadow of the nineteenth century, with its chaotic growth of settlement and industry, still lies across the landscape, for as we shall see the meretricious veneer of recent improvements often serves to emphasize the immensity of the legacy which survives.
REFERENCES

1. For example very few localities in the Manchester embayment showed a reduction in the number of looms installed between 1887-1920, and in southeast Lancashire as a whole there was an increase of looms installed of 14 per cent between these dates.

2. It is difficult to determine from the directory entries whether all new mill names referred to entirely new premises; on the other hand it is unlikely that more than about six "new mills" at this time were merely renamed premises.

3. Worrall’s Directory, 1887 and 1892.

4. Artificial in the sense that otherwise suitable sites at Witton formed part of estates that were not available for factory building. It appears that the Petre family were also responsible for blocking Blackburn's eastward expansion at Whitebirk, thereby creating a "green belt" between the town and the Accrington group of industrial centres.

5. The directory returns for Accrington are greatly complicated by many firms having multiple holdings of mills; it is therefore difficult to be precise about industrial location in the town.

6. This was the argument put forward by mill owners to the Industrial Court in 1921 when attempts were being made to modify the system of allowances.

7. For example a 500 loom shed in Harle Syke was rated at £333; a similar mill in Burnley was rated at £464 (LRO - PUZ 4-40, 4-4 of 1896). It was usual for country mill prospectuses to mention the advantages of rural rating, although there is no direct evidence that lower rates were important as a cost of production.

8. Thus a special supplement of the Colne and Nelson Times of 1911 noted that the town's "natural condition and geographical situation ... (were) eminently suitable for the establishment of works".

9. Spring Garden Mill is absent from the 1887 directory but was recorded in the 1885 Rate Valuation Book. This appears to be the only major error in Worrall’s Directory for cross-checking against other lists has revealed no other.

11. The census classification of occupations was greatly modified in 1921, and the changes were particularly numerous in the engineering group. See Census 1921, "Report on classification of industries" and "Report on classification of occupations", 1924.

12. For an account of the growth of this firm see A.V. Sugden and E.A.W. Entwistle, Potter's of Darwen, 1939.

13. According to the census tables no other place in England and Wales had as large a concentration of workers in wallpaper manufacture.

14. The data in the Annual List of Mines included workers at coke ovens, chemical plant, and railway yards in the returns of some pits.

15. Appendix 48 of the report to the Coal Industry Commission of 1919 gives details of this traffic for a sample of consumers.

16. Appendix 14 of the report to the Coal Industry Commission of 1925 gave details: the majority of the other bee hive ovens were to be found in West Durham.

17. Details on the fireclay industry are from Mem Geol Surv U.K. "Special reports on the mineral resources of Great Britain, Fireclays", 1920.


19. For example the Lancashire & Yorkshire Company ran an intensive service of "rail motors" between Burnley and Colne, calling at the main line stations and three additional wayside halts.

20. In 1914, for example, there were through trains between the Calder-Darwen Valley and Euston, St Pancras, and King's Cross; by 1964 none of these through facilities survived.

21. Census 1921, "County Report - Lancashire"; the tabulated information was also used in the report to investigate the existence of "spinning areas" and "weaving areas", producing the conclusion that the pattern was much more heavily fragmented than many writers had supposed.

22. Deaths on active service were, in effect, treated as a form of migration because no returns were available that would have made their inclusion in the natural changes column possible.
23. The census is normally taken in April outside the main holiday period, but in 1921 it was deferred until June 19th; this was, however before the main period of industrial holidays in the Calder-Darwen Valley.

24. The only evidence that this was so comes from a continued slight decline in the detached and entirely rural part of Foulridge compared with an increase in the remainder of the parish, but the numbers involved were very small indeed.

25. Sabden Civil Parish was carved out of parts of seven existing parishes, including the southern half of Pendleton, which lay outside the Calder-Darwen Valley. The figures for Sabden are excluded from the calculations of growth and decline after 1911 in order to maintain approximate comparability with earlier returns.

26. Bennett, *op. cit.*, page 233, states that there were 2,500 deaths on active service.

27. Thus in 1870-1880 the increase of population by migration in Blackburn Registration District (6.7 per cent) was much lower than that in Burnley (17.5 per cent).

28. Notably by the findings of the Tudor Walters Committee set up by the Local Government Board to enquire into means of building artisan housing. The report (HC 7, 1918) greatly influenced post-war standards of layout and construction.


30. The Lomax influence extended into the parish from Clayton Park on the west. The control exercised by the Walton family of Maraden Hall is more difficult to disentangle as it appears to have been maintained through marriages rather than by direct interference. The Walton family also greatly restricted the eastward expansion of Nelson before about 1900, when the estate was split up.

31. The process of purchase from farmers, building by speculators, and eventual sale to owner-occupiers can be traced in successive revisions of the rate valuation books.

32. The outstanding example of ornate industrial architecture is India Mill, Darwen, built in about 1865 with a campanile chimney that was lavishly praised by contemporary observers when it was new. Very few mills went beyond the use of discreet terra-cotta and tile ornamentation, and only one plant, Imperial Ring Spinning Mill, Blackburn, (c 1907) compares with the lavishly adorned vulgarity of many of the mills built south of Rossendale at this time.

The principal aim of this account has been to show how the Calder-Darwen Valley was transformed from a dominantly rural locality in the closing years of the eighteenth century into a largely urban and industrial region at the outbreak of the 1914-1918 War. The preceding chapters have attempted to depict the evolution of the landscape during this period, and to analyse the various influences underlying the succession of changes. However satisfying such a study may be as an exercise in historical geography it appears to the writer to lack two essential ingredients at this juncture: one is an assessment, however brief, of the long-term effects of this period; the other is a comparison of landscape evolution in the Calder-Darwen Valley with that in other parts of Lancastria during the nineteenth century.

The two final chapters briefly examine these topics. Chapter 6 shows how the nineteenth-century origins of the Calder-Darwen Valley as an urban and industrial region are still reflected in its physical character and its economic problems, for one of the virtues of historical geography of this kind is its usefulness in elucidating contemporary features of landscape, and of economic and social activity. Chapter 7 attempts to compare the nineteenth-century evolution of the Calder-Darwen Valley with that of other localities in Lancastria. In particular it contains an essay which seeks to compare the growth of towns during this period, and to demonstrate the differences which often resulted from apparently similar causes.
Chapter 6

The Consequences of Nineteenth-century Industrialization

The boundless hope of the post-1918 boom in cotton manufacture, with its heavy over-capitalization and financial speculation was short lived, for by 1924 United Kingdom output of yarn was 30 per cent, and of cloth 33 per cent below the high levels of 1913. It is not intended to examine the subsequent collapse of the cotton industry in this study, for the ground has already been covered thoroughly both by contemporary writers and more recent analysts. The principal points to be made at this juncture are those which demonstrate the long-term consequences of the pattern of industrialization and related urban growth which had evolved before 1914.

The dependence of the Calder-Darwen Valley not only on cotton manufacture but also upon a single branch of the industry was an obvious weakness once the cotton trade began to decline, for the locality could not immediately replace the former economic advantages of specialization with the social benefits of industrial diversification. The decay of cotton manufacture was unequal in its incidence, and at no time could it be considered rational — even the various state-aided schemes of contraction fell far short of rationalization. This was particularly true of weaving, where the existence of numerous small firms militated against reorganization until the late 1950s: even now, when mergers and amalgamations
among weaving concerns are commonplace many small independent firms survive. Thus the industrial structure which evolved during the latter part of the nineteenth century still influences the character of the cotton trade, and, more important, did so with deadly effect between 1945-1951 when the industry had an opportunity to reorganize itself on competitive lines.

The unequal impact of the contraction of cotton manufacture in the Calder-Darwen Valley has been examined in detail elsewhere by the writer. Two main points are to be reiterated here. First is that the emergence of local specialization in cloth production during the closing years of the nineteenth century was a prime cause of selective decline. Blackburn, Darwen, and Great Harwood, the centres of bulk low-cost cloth manufacture suffered most — indeed the last named town had the unenviable record of highest unemployment rate in Britain during the summer of 1928. During the inter-war years these three localities, together with Accrington where the finishing trade was also badly affected, suffered persistently high rates of recorded unemployment in comparison with both the average for Lancashire and the rates for the remainder of the Calder-Darwen Valley. Second is that the relatively prosperous state of the "fine weaving area" was partly a product of its adaptability in turning to new materials, notably rayon, which was said to require weaving skills similar to those needed in the production of fine cottons. This was, however, a short-term benefit, for during the period after 1945 the mark-
et for high-quality goods was seriously eroded, and the initial advantage of adaptability had been lost as the distinction between local specialisms faded away to vanishing point. Thus by the 1950s the prosperous localities of twenty years before were in a more parlous state than the neighbouring districts which had more successfully attracted new employment.

The attraction of new industry was itself beset by problems which largely stemmed from features that had originated during the nineteenth century. Again it is only necessary to review the major consequences as the details have been analysed elsewhere. In many areas faced with the problem of economic readjustment after the collapse of basic industries much of the initial success of diversification was achieved by tapping a seemingly unlimited pool of female labour. In the Calder-Darwen Valley where a large number of women was employed, and at relatively high wage levels, no rapid growth of this kind could be expected. The cotton weaving industry also practised methods of labour hoarding which disguised the true extent of unemployment and therefore nullified many of the attempts to introduce new employment. Various forms of concealed unemployment existed, most of them designed to keep a trained labour force together in the hope that trade would improve as it always had after a slump. In addition many women workers lay outside the scope of state insurance schemes, thereby invalidating the returns of insured employment as a measure of the total labour force available.
To these problems were added those of cyclical fluctuations of demand for labour by the cotton industry in which shortages of skilled labour alternated with underemployment. This had been a common feature of the industry's nineteenth-century growth, but the social distress which had then been considered an unfortunate side-effect of industrial advance was not so easily dismissed as the twentieth century progressed. A major problem posed by these cyclical fluctuations was that of producing long-term forecasts of labour need in the textile industry, and of adjusting the rate of industrial diversification accordingly. Another legacy of the past, the high proportion of married women at work, was to prove a source of difficulty when the cotton industry wished to introduce shift working as part of its modernization plans, for there were both legal and social obstacles to be overcome if married women were to be employed on night work. The importance of a married woman's contribution to family income had also diminished as more opportunities for male employment were created outside the cotton trade, so that difficulties were encountered in assessing the future volume of married women seeking full- and part-time employment.

As in many other localities the decline of basic industry has resulted in strenuous attempts to attract new forms of employment. Again nineteenth-century influences have helped to shape the pattern of industrial diversification, mainly through the intra-regional variations of employment structure that had emerged by 1921. Two principal points should be noted:
first that the most successful diversification has taken place in those localities which already had a moderately broad employment structure in 1921. This has been particularly true of Blackburn and Burnley, but smaller centres such as Darwen and Accrington, with their existing outlets in wallpaper production and engineering respectively, have also secured a substantial volume of new jobs. Second is the fact that the pace of diversification was not simply a function of the breadth of employment in 1921. In general those centres which suffered the highest unemployment rates in the inter-war years attracted the greatest volume of new employment, even after 1945. Thus Great Harwood had attained a much wider range of new industry by the 1950s than Nelson and Colne, although all three had possessed similar employment structures in 1921.

It might be thought that an obvious reason for the success of those localities with high employment losses in cotton before 1939 stemmed from the operation of state-assisted programmes of diversification. This is not so, for nowhere in Lancastria secured state aid for industrial development (other than the construction of Royal Ordnance Factories) before 1945, and the Northeast Lancashire Development Area of 1953 covered the formerly prosperous eastern half of the Calder-Darwen Valley. Even here state intervention was far less fruitful than municipal enterprise, and it must be noted that the pace of industrial growth in the locality since 1945 has been poor, even by the standards of Lancastria, and there seems to be little prospect of a dramatic improvement.
The reasons for this poor showing appear to stem from a complex set of influences, many of which can be traced back to the nineteenth century. First there are the various problems of employment structure and labour forecasting which have been reviewed in outline above. Second is the persistent problem of the relative remoteness of the Calder-Darwen Valley which has been emphasized rather than reduced by recent improvements to communications in Lancastria. Third is the short-term nature of some of the attractions offered to new industry, notably the provision of empty cotton mills and the granting of financial inducements. Finally the infra-structure of the locality has been held to deter major investment in new industry, and there can be little doubt that the physically and socially poor amenities provided by most of the towns have helped to perpetuate their decline.

The diminution of population which was first recorded in 1911-1921 has continued unchecked ever since (Figure 87). Heavy migration and a falling birthrate, coupled with slight movements to "rural" suburbs, has reduced the size of the manufacturing towns and produced imbalance in their age structure. It has been argued that losses of population by migration, and the long-term effects of this on the rate of natural increase, may make the Calder-Darwen Valley an area of acute labour shortage by the 1970s, and that the reaction to industrial decline has been far too severe. Thus in many different ways the cotton industry and the peculiar characteristics which evolved during the nineteenth century continue to exert their
influence in the Calder-Darwen Valley, even though the textile trade no longer dominates the economic structure of the area.

With the contraction of the cotton industry the most tangible legacy of the nineteenth century in the Calder-Darwen Valley is the pattern and quality of urban settlement. The towns of the locality are still dominantly of the nineteenth century in layout and in profile, although this should not be taken to mean that they are fossilized remnants of an earlier phase of prosperity. The outskirts of the towns are characterized by the sprawl of housing estates built since 1920, and most of them have been partly refurbished at the centre since 1955, but in between these extremes large tracts of nineteenth-century building survive.

The contribution of the nineteenth century to the landscape of the Calder-Darwen Valley in 1965 is shown in outline in Figure 117, which depicts those elements of the urban scene that had originated before 1920. In most towns piecemeal central rebuilding took place between 1920 and 1955, notably when chain stores and cinemas were built, but most of the changes made merely involved the addition of new facades to existing buildings. The illustrations (Plates 1 - 15) show many facets of the survival of nineteenth-century features in the urban landscapes of the mid twentieth century. In many instances early schemes of slum clearance left unfilled gaps in the urban fabric for there was not sufficient pressure of demand to make even central sites valuable. This is well displayed in Burnley, where the sites of cottage property demolished in the
1920s remained devoid of new building in the 1950s (Plate 1). Even where rebuilding took place almost immediately, as for example in the construction of the Odeon cinema, the opulence of the new was offset by the surrounding cinder-strewn wastelands.

Major schemes of central redevelopment began to be initiated from about 1955 onwards, when it was realised that the improvement of urban amenities was an important element of any attempts to attract diverse industry and to hold population. All the boroughs of the Calder-Darwen Valley had, by 1965, embarked on schemes of rebuilding, but even these apparent breaks with the past do not escape the influences of an earlier age of industrial transformation. Thus in central Burnley the redevelopment of areas originally leased in small blocks from the Curacy Estate means that the bright new shopping parades are often punctuated by surviving terraced houses, which will be replaced as their leases expire. The impressive scheme of rebuilding at Blackburn (Plate 15) has, as yet, largely been confined to those parts of the Glebe which were covered by a chaotic mixture of building from about 1796 onwards. The multi-storied flats which now dominate the town from Larkhill occupy an area that was the site of the poorest cottage property in 1885, and a similar locality at Bank Top has also been extensively rebuilt during the past decade. In this district the new buildings are largely aligned on the grid-iron that was laid out in about 1840 (Plate 12). One
feature which the photographs of the central redevelopment schemes reveal is the contrast between their limited extent and the great tracts of almost unaltered Victorian buildings which lie on all sides. By their very recency and relative rarity the rebuilt areas impress upon the observer the immense nineteenth-century legacy which still survives.

The large municipal housing estates and the less extensive speculative developments which now fringe most of the towns also have links with nineteenth-century influences, although these are less sharply defined than in the central districts. The physical expansion of settlement after 1920 was largely a product of two forces which operated in spite of the general decline of population. One was the need to rehouse families displaced by the early schemes of slum clearance, the other to provide for the growing number of households that were created as the members of large Victorian families reached marriageable age. The establishment of municipal housing estates was strongly influenced by the necessity to purchase sizeable blocks of land for their construction wherever this was possible. Thus in Burnley the earliest estates were built on the upland margins of the town on an exposed site (750-775 feet above O.D.) because land at lower elevation was not then available in sufficient quantity. Later estates were built on land formerly controlled by the Dugdale family at Lowerhouse, and on Towneley and Hargreaves land to the east of the town, in each instance at lower elevations than the original sites developed between 1920-1930.
The existence of the landed estate has influenced other facets of urban development in addition to the location of municipal housing schemes. Many private parks now survive under municipal ownership, thus continuing the trend started by the sale of Towneley Park in 1896. In most instances municipal control has strengthened the prohibition of building enforced by private owners, except that schools and hospitals have been erected on parts of several estates since 1945. No landed estate has been disposed of for speculative building, but since 1960 small portions of the Gawthorpe and Huntroyde parks have been developed in this way. Industrial location has rarely been influenced by the preservation of estate lands during the nineteenth century, but there are two significant exceptions to this observation. One is the war-time plant of the Bristol Aircraft Company, erected on part of Dunkenhalgh Park and still a major source of employment in the locality. The other is even more important, for the preservation of parkland close to the centre of Burnley by the Hargreaves family provided the site of an early and highly successful plant built to diversify employment. This is the Prestige factory (Plate 4), erected in 1938 on land bounded by the railway, the canal, and the main road, but never before used by industry because of the prohibition enforced by the former private owners. The effect of the pattern of land ownership in the nineteenth century has been significant, therefore, not only in influencing the character of early town growth, but also in conditioning many of the most recent changes in the urban landscape.
In the zone which lies beyond the limited area touched by central redevelopment nineteenth-century urban landscapes are more strikingly evident because they are largely intact rather than survivals which exert subtle influences on the disposition of modern buildings. Several of the illustrations demonstrate this point with admirable clarity, but Plate 3 is a particularly good example, showing as it does one of the localities depicted in Figure 129. In most of the districts which evolved after 1850 few major changes have occurred. The adaptability of cotton mills to other uses means that relatively few have been demolished, and equally that diversification has produced little new factory building. As with the new blocks of shops and offices those which are new stand out because they are novel, for much new employment has been provided without more than a change of nameplate at the mill gates. The similarity with central redevelopment can be taken one stage further in that a high proportion of the newly built factories, such as Mullard’s plant at Simonstone and the Hesandford Industrial Estate at Burnley, are the product of the last decade or so. Until 1955 the industrial landscape of the Calder-Darwen Valley had changed at very few points, and even now many of the factory zones are Victorian in character although their functions have changed.

The ranks of solidly built terraced houses erected during the various building booms after 1850 also stand almost untouched, for the clearance schemes have been directed at earlier
artisan housing and pockets of rural cottage property embedded in later urban sprawl. This is not to suggest that the terraced rows which survive are in every respect sub-standard and obsolete, for the long-established tradition of owner-occupiership has ensured partial modernization of property. But the time approaches when many of the industrial suburbs which expanded rapidly during the latter part of the nineteenth century will require a more thorough refurbishment, and it is a matter of doubt whether local authorities with declining populations and low rate funds will be capable of meeting the problem. Thus although many, but by no means all of the economic difficulties posed by the nineteenth century have been met, the volume of physical change required to improve the urban environment is still daunting in its vastness.

The rural landscapes of the Calder-Darwen Valley fall into two categories in terms of post-1914 change. The largest group comprises those localities in which the rural scene has scarcely changed since that date — much of the Pendle axis, the Pennine foothills and moors, upland Rossendale. It is, for example still possible to look northwards from the gritstone ridge above the Padiham-Barrowford road and see a landscape which has scarcely been altered during the past hundred years. The second type of rural landscape is that in which urban influences have become more apparent since the 1914-1918 War, mainly, but not exclusively, in the lowlands. Continued growth of settlement has steadily eroded farmland on the margins of
the towns, for it has been rare to use the largely derelict belts of allotment gardens as building plots. Residential building has also taken place in some of the remoter settlements, notably along the Barrowford - Padiham road, and as small-scale "infilling" in the villages. Relatively little industrial growth has occurred in the countryside except on the margins of the towns, the major exception being Mullard's factory at Simonstone. The principal disruptive change produced by industry in rural areas has come from various forms of mineral working, although even extractive industry has had a slighter impact than in other parts of Lancastria. Opencast coal mining has been active in several localities, notably in the Calder Valley between Burnley and Padiham, but here as elsewhere in the locality the main long-term change has been the substitution of wooden fences for the earlier hedgerows and stone walls. Deep mining of coal has never produced the extensive dereliction found in south Lancashire, even on the alluvial flats of the Calder where the formation of flashes might have been expected. The thin heavily faulted seams do not provide the optimum conditions for subsidence, and the relatively low output levels coupled with long practised back-stowing of waste have minimised both collapse and surface disposal of material. Most quarries have long since been abandoned and rarely disfigure the rural scene. Even the large workings at Whinney Hill were unobtrusive until the early 1960s, when the ramparts which had obscured them from view were themselves quarried.
The impact of change in rural localities has, therefore, largely been confined to the vicinity of the towns, and to a few other sites mainly scattered about the lowlands. Large tracts of country survive which have changed only in detail since 1914, and it is still possible to travel through nineteenth-century industrial suburbs into the countryside without seeing any striking instances of twentieth-century change. No landscape can ever stand completely unchanged for a lengthy period of time, but those of the Calder-Darwen Valley are still very strongly reminiscent of the area's nineteenth-century heyday. Paradoxically the changes of the past decade, by their very rapidity and contrast with their surroundings, do much to emphasize this characteristic, and underline the great legacy of problems to which the locality is heir.
REFERENCES

1. The Modern Economic Geography of the Calder-Darwen Valley, M.A., University of Manchester, 1955. This contains a full bibliography of sources relating to the decline of the cotton trade, detailed maps of the industry's contraction between 1921-1954, and an analysis of industrial diversification.

2. 69.5 per cent of the insured population; Pontycymmer, South Wales, was its nearest rival with 68.8 per cent. The volume of unemployment in Blackburn was greater than anywhere else in the Calder-Darwen Valley throughout the inter-war years, but never reached such high relative values as this.


4. This was notably so in West Durham, West Cumberland, and several localities in South Wales.


7. Dugdale's mill was demolished in 1930 and the estate was broken up during the following decade; the printworks, which had been sold to a separate company at a much earlier date survived until the recent cotton trade reorganization.

8. The premises are occupied by the Accrington Works of the English Electric Company.

9. Pendle ad the foothill zone in this locality now forms part of the Forest of Bowland Area of Outstanding Natural Beauty.

10. The Philips factory at Blackburn, built in 1938, partly occupies the sites of allotments, but their fragmented ownership and tenancy has made it difficult to use land of this kind for urban expansion on a larger scale.

11. Erected in 1955-56 within the then N.E. Lancashire Development Area, but at its western extremity in order to be as near as possible to the parent factory in Blackburn.
Chapter 7
The Calder-Darwen Valley and
Nineteenth-century Lancastria

One problem which must always emerge from an analysis of a locality forming part of a much larger regional complex is how to assess and compare events in the area studied with similar features in the region as a whole. In this final chapter it is intended to compare certain aspects of the Calder-Darwen Valley's nineteenth-century development with events elsewhere in Lancastria, in order to place the major part of the study in perspective. The essay which follows is in many respects exceedingly tentative and relies very heavily upon published sources of information. None of these deals with the emergence of industrial towns and the evolution of the landscape in the manner adopted for the main part of this work, and there are great gaps in the territorial coverage which is available. Consequently there is much that would merit a more intensive study, using the methods and sources adopted in the previous chapters, and this serves to remind us how slender is the fund of geographical knowledge about the period under review. Many of the published sources do not ask the questions or provide the answers that a geographical approach requires, and this is as true of recently written "municipal histories" as it is of the Victorian topographical effusions. All serve as valuable quarries of information, but none presents a coherent analysis of town development and landscape evolution.
"The term 'Lancashire town' conjures up the picture of a cotton manufacturing town that shares with its neighbours a common history of economic development, and consists therefore of much the same ingredients — ranks of terraced dwellings, including some of the back-to-back type, punctuated by the massive form of red brick mills with their prominent clock towers and tall slender chimneys" (2)

A.E. Smailes

This observation, like many generalizations made about the towns of Lancastria, misses one point of singular importance, in addition to being factually inaccurate. The region is not one of monotonously repetitive urban landscapes however drab some of the elements may be, and writers such as Smailes and (3) Mumford completely miss the point when they assert that this is so. Lancashire is a county of great intra-regional contrasts, and nowhere is this more evident than in the towns, even though many modern schemes of improvement are unconsciously achieving a degree of facelessness that was never attained by the Victorians. Thus although many, but not all, towns in Lancashire share "a common history of economic development" they do not necessarily share the same ingredients, and even if superficial similarities exist the disposition of the elements may vary markedly. Even if we confine our attention to industrial towns this becomes apparent, for although the urban landscape evoked above may approximate to that of a Bolton or a Leigh it is nonsense to apply it to a Burnley or a Bacup, and even worse to imply that it fits a St Helens, a Wigan, or a Barrow in Furness. Variety of landscape in towns extends beyond the industrial centres which Smailes envisaged, for
there are few points of similarity between Southport and Blackpool, or Morecambe and Grange-over-Sands. That the variety exists is undeniable; the reasons for it are not always obvious, as will shortly be seen.

Differences of landscape are also evident outside the towns, for the processes of change which spurred on agricultural experiment and hastened the search for minerals produced a great variety of responses. The reclamation of the coastal marshes, the draining of the mosses, and the upward advance of farming on the moors were often contemporaneous events and reflected similar pressures of increasing demand for food fostered by a growing industrial population. The pattern of enclosure and settlement in these dissimilar environments bore resemblances in the large rectilinear fields and dispersed farmsteads — but there the similarities ended. The crops grown, the stock kept, the farm economies practised varied greatly, as did the level of prosperity attained. The landscapes also differed greatly, although they might look the same in plan. Variations of topography alone would have produced these differences, but one should also add the use of varied materials for field boundaries, differences in style and mode of building, and variety in the texture of land use.

Mining areas also differed appreciably as they evolved during the nineteenth century. The haematite iron ore workings of Furness, concentrated at a limited number of sites where the mineral occurred in thick accumulations, lay in a dominantly rural setting. The feverish mining activity of the
nineteenth century has left its scars on the modern landscape, but their impact is slight and many of the derelict sites blend imperceptibly with the surrounding countryside. Many of the collieries of south Lancashire also grew in rural localities, but the resultant landscape was very different from that of Furness. The scale of working, the depth and mode of mining, the topography of the colliery districts combined to produce extensive dereliction, with large subsidence lakes (flashes) fringed by mountainous tips of spoil.

ii. The Nineteenth-century Town in Lancastria.

Asa Briggs has pointed out that Victorian cities were in no sense uniform creations. Although he was thinking mainly in terms of cities such as Manchester the truth of the observation can be seen at all levels of urban development. Even if we attempt to reconstruct a hierarchy of nineteenth-century towns, as has been done for Lancashire (Appendix A), a great range of variation can be seen in the character of places which fall into the same grade of settlement. In 1913 fifteen places in Lancashire, outside the quasi-metropolitan centres of Liverpool and Manchester, ranked as cities*, but similarities of rank masked a great variety of urban characteristics and differences of origin.

The economic structures of the fifteen cities varied appreciably, for they were not places with "a common history of economic development". In 1911 the proportion of male employment in cotton manufacture ranged from less than 1 per

* Grades 1b 2a 2b on Figures 134-35.
cent in Warrington and 3 per cent in Wigan to 40 per cent in Burnley — the lowest proportions of all were in the three coastal cities, Barrow in Furness, Blackpool, and Southport. Similarly the proportion of married women at work ranged from 4 per cent in Barrow in Furness to 44 per cent in Blackburn. Even where cities had broadly comparable industrial structures differences among them were often of more consequence than superficial similarities. The emergence of intra-regional specialization in the cotton industry did not only produce important variations in the detailed structure of employment, it also affected the relative prosperity of centres and their rates of expansion.

The landscapes of the fifteen cities also differed greatly. It could scarcely be otherwise given their varied topographical settings, their different origins, and the variety of functions which they performed. The illustrations (Plates 16-21, and those of Blackburn and Burnley) show the range encompassed by only a small selection from the fifteen localities, but they adequately demonstrate the point. Clearly we would not expect the seaside resorts to resemble the industrial towns of the interior, nor would it be reasonable to suppose that a recently created centre of extractive industry and engineering such as Barrow in Furness would resemble an ancient market town on to which the same activities had been grafted, such as Wigan. But it would be wrong to think that the differences all stemmed from contrasts in position,
length of existence, and nineteenth-century functions, important though these elements were. The variety of urban landscape and layout was also a product of other influences, notably those of ownership of land and restrictive leases and covenants. This aspect of urban historical geography has often been over-looked or under-emphasized, yet as the range of examples cited below suggests it is of critical significance to an understanding of the nineteenth-century urban landscape.

The fifteen cities can, for the purposes of this account, be divided into two groups, one comprising those centres which had previously existed as market towns, the other containing the new creations of the nineteenth century. This categorization does not imply any homogeneity within the two groups, nor would it be correct to think that the new towns developed in a strikingly different way from their elders, for the way in which cities grew was not a function of relative age alone.

The industrialization of existing market towns produced radically different urban landscapes even where the forces of change were broadly similar. Preston was one of the few towns to develop as a major industrial city and still retain many vestiges of urban elegance. Although contemporary observers found the rapid growth of "New Preston" on the recently enclosed fields to the east distasteful there was also much to praise. Residential development between the old town and the Ribble was of high quality, and included tree-lined squares and crescents. Much of the land along the river bank came into public ownership at an early date, and Preston was the only
city to use its river as an amenity rather than a much abused open sewer. The corporation also secured the common land on Preston Moor in 1834, turning much of it into a public park in succeeding years and indirectly encouraging the growth of Fulwood as a Victorian residential suburb.

Bolton failed to preserve any of the town moor as an open space, for it was progressively obliterated after the Act of Enclosure in 1792 which "appropriated (the moor) to useful purposes, and (covered) a large portion of it with houses." The church was also an important landowner, and Baines' map of 1824 shows part of its estate planned as an attractive residential suburb. However, the squares and crescents overlooking the well-wooded Croal valley did not materialize, for the church suffered a change of financial fortune and sold its land to the railway company and private speculators after 1839. Thus although the principal streets of the original layout survived the church estate was covered by railway installations, cotton mills, and cramped terraced houses (Plate 17). A similar fate overtook the block of land known as Lecturers' Closes which had been bypassed when settlement began to spread on to the moor in the 1790s. This land was sold to the Bolton and Leigh Railway in 1828 as the site for its warehouses and terminal station. The sale of church lands and the enclosure of the moor transformed central Bolton (Plate 18), for no open spaces were preserved, probably because no corporate authority existed until 1842, by which time the damage had been done.
The development of Wigan as an industrial centre was largely fostered by the growth of mining and metallurgy, for textiles ranked a poor third and were never as important a source of employment as in Preston and Bolton. Although some of the earliest workings lay close to the town centre, notably on School Common and the Mesnes, most of the large collieries were located beyond the limits of early-nineteenth-century settlement in neighbouring townships. The centrifugal expansion of mining and the concentration of iron smelting in the southern and eastern suburbs, together with the late development of textile manufacture situated mainly in Poolstock to the southwest, meant that industry barely impinged upon the old centre, and Wigan retained the atmosphere of a country market town much more successfully than Bolton or Blackburn.

The broad separation of mining and industry from the old town and its major residential areas was greatly aided by the mode of disposal of church lands, which differed from the practice adopted in Bolton, Blackburn, and Burnley. Initially the Rectory Glebe was leased to the Blundell family of Orrell who worked coal from Mesnes Colliery between 1839-1869. When the lease expired much of the land passed into municipal ownership, for the creation of a new market house and square (1877), and the construction of Mesnes Park (1878). Part of the Glebe was maintained by the church, and the remainder, to the east of Mesnes Park, was leased for the construction of residential property in the Swinley district. Very little industrial building took place in the northern parts of the
town, and coal mining had largely faded out by the closing years of the nineteenth century. The residential quality of the north was further enhanced by the existence of Haigh Hall and its extensive parkland which commanded a wide prospect, including that across the town to its southern outskirts.

The landscape to the south of Wigan was dominated by extractive industry and metallurgy. The changes wrought by mining were great by any standard, but contrasted particularly strongly with the slight disruption experienced around the pits of the northern suburbs. The deep mines sunk to the south from about 1850 onwards, the cokeries and blast furnace plant, the networks of tramways and mineral lines, the rows of colliers' cottages were only part of the transformation which occurred in these once rural areas between about 1840 and 1920. In addition there were the twin elements of dereliction — mining subsidence and waste disposal — which gained momentum towards the end of the century. Wigan emerged as a sharply divided town during the nineteenth century, but although much of the dereliction to the south is largely explained in terms of topography and mining geology it must be remembered that controls over mining and industrial development in the northern parts of the town were artificially imposed. Even in the south the presence of large estates helped to preserve elements of the pre-industrial landscape, notably at Winstanley and at Westwood Park.

The three examples cited above, taken together with Blackburn and Burnley, show how important the influence of major landowners was when market towns began to evolve as
industrial cities during the nineteenth century. There is also a suggestion that corporate towns fared better than those places which acquired borough status after the initial period of expansion, as far as preservation of amenity, and segregation of industry from the existing centre was concerned. This is not to suggest that the older boroughs were in any sense planned or deliberately zoned, for this did not happen, but it does appear that the existence of corporate authority was partly responsible, for example, for restraining development on common land which had recently been enclosed. The newly created cities of the period were probably even more sensitive to the influence of landowners and the absence of corporate control.

Oldham and Ashton under Lyne provide contrasting examples which illustrate this last point. Ashton was a lapsed market town and borough which largely lay in the ownership of the Earls of Stamford. The family was responsible for the creation of a new town constructed on a grid-iron plan from 1793 onwards, and central Ashton exhibits an orderly pattern which is almost unequalled in the industrial towns of eastern Lancastria. Oldham, on the other hand, grew piecemeal and illustrates the worst features of laissez faire development superimposed on an earlier pattern of land holding. The hamlets strung out along Oldham Edge were surrounded by extensive tracts of common moorland. These were enclosed from 1796 onwards and parcelled out among the owners of adjoining
land, who were then able to permit speculative building of cotton mills and artisan housing. Contemporary accounts reveal the speed at which the commons were built over, for the absence of municipal control until borough status was granted in 1849 meant that no attempt was made to preserve open land and little was done to regulate building.

Three other cities were created from scratch during the nineteenth century, all of them coastal but sharing few points of resemblance beyond that. Barrow in Furness, Blackpool, and Southport again demonstrate the varied influences of pre-urban patterns of land-ownership on town development.

Barrow in Furness was largely the creation of the Furness Railway Company and its many commercial ramifications. As often happened when industrial development occurred in areas devoid of existing towns it was necessary for the company to provide housing, and this it had done from 1846 onwards. The major influence on town growth dated, however, from 1854 when the Hindpool Estate came on to the market. The vendors planned to create a residential town on the land, but the then general manager of the railway, James Ramsden, had more prosaic ideas. His plan laid the basis of modern Barrow, and Ramsden's original settlement, with its mixture of industry, cramped cottage property, and limited social amenities, can still be discerned in the urban landscape (Plates 19, 20). In common with most other company-owned settlements the progress to townhood was largely left to speculators, for once the
initial housing shortage had been overcome industrial concerns were able to concentrate on commercial rather than social developments. Thus although the railway and its associated industrial ventures owned a substantial amount of cottage property — probably equal to about one-third of the total housing in the 1870s — much of the town's expansion was in the hands of speculators, many of whom acquired land from the Duke of Devonshire who was also a leading supporter of the industrial syndicate which guided Barrow's destinies. The practice of direct company intervention in the provision of housing reasserted itself in the 1890s, when Vickers Sons and Company began to build their "marine garden city" at Vickerstown on Walney Island (Plate 20). Barrow in Furness provides ample evidence of the influence of land ownership on urban growth, whether through the agency of the Duke of Devonshire's Estate or the activities of various industrial concerns.

Southport was a nineteenth-century creation which more fittingly earned the title of marine garden city, for a fortuitous combination of physical and personal influences produced a distinctive seaside resort where no major settlement had stood before. The growth of Southport before 1846 was largely controlled by the manorial lords who had, as early as 1790, placed restrictive covenants upon the use of land, in particular forbidding the establishment of cotton manufacture. The grid-iron plan of the settlement was dictated by their leasing rectangular plots of land, the boundaries of which formed the principal side streets; these intersected
the principal thoroughfare — Lords' Street (sic) — at right angles, the alignment of Lords' Street itself having been determined by the long axis of a dune slack. The initial controls on building were maintained and strengthened by the town's Improvement Commissioners (1846-1867) and thereafter by the municipal authority. Although Southport was speculatively built the extension of municipal authority to the general oversight of urban expansion maintained the high standards of early growth. It is ironic that the town which came closest to attaining planned growth during the nineteenth century should have owed so much to a chance combination of physique and land ownership, whereas Barrow, which presented much better opportunities for planned development, should have become as ill-regulated as any other industrial town in the county.

Blackpool, the third coastal city to emerge during the nineteenth century, gained a relatively late ascendancy over Southport, and it is difficult to envisage a more strikingly different pair of seaside cities than these two. Although the contrast partly stems from their physical settings the pattern of urban growth in Blackpool reflects a very different form of land holding from that found in Southport. According to W.J. Smith the Blackpool freeholds "encouraged speculation and enterprise and at the same time allowed each owner to build and develop his property as he thought fit, independent of any other authority". (23) Ironically part of the land so developed
had belonged to the Hesketh-Fleetwood family, who were joint manorial lords of Southport and creators of the planned port of Fleetwood. The financial ruin brought about by this last venture caused the lands at Blackpool to be sold to the Clifton family of Lytham, who parcelled it out to speculative builders. The absence of a single strong landowner meant that the town grew haphazardly and in many respects came to resemble the industrial towns further east in its layout and style of building.

The examples cited above strongly support the conclusion derived from a study of the evidence relating to the Calder-Darwen Valley that the influence of land ownership was of paramount importance in conditioning the character of urban development. A second point which also appears to have been of universal application is seen in the common practice of industrial investment in housing during the initial stages of growth, followed by abdication in favour of speculative builders. Barrow in Furness provides the outstanding example of this, but several other centres in Lancastria developed in the same way, notably Crewe, Morecambe, and St Helens, the latter town produced by the expansion and coalescence of a series of company inspired villages.

This outline survey suggests that the towns of the Calder-Darwen Valley differed little in their mode of growth from other centres in Lancastria during the nineteenth century. The major absentee was a company initiated settlement of town status, for as we have seen the cotton industry largely
stimulated growth by indirect influence rather than by attempting to build a Barrow in Furness or a Crewe. The scale of operation and capital investment in the cotton trade was far more conducive to piecemeal speculative development, so that a late example of town growth, such as Nelson, owed little to the direct building activities of textile firms. There were, however, numerous instances of early investment in housing by cotton firms in the Calder-Darwen Valley, and, on a small scale of similar building by other concerns. Dugdale's village at Lowerhouse, Hopwood's cottages at Nova Scotia, and Hargreaves' miners' rows at Gannow and Barclay Hall had their equivalents throughout Lancastria.

The importance of the attitudes of landowners to various forms of urban and industrial development has been stressed both in the outline treatment of Lancastrian towns in general and in the more detailed examination of the Calder-Darwen Valley. The influence of landowners varied greatly, for some were merely passive agents of change while others imposed their conditions on the form of development. The landowners in the Calder-Darwen Valley were, like most in Lancastria, passive, in that they either permitted or opposed building but rarely set standards that might be copied by others. The nearest approach to this was the general insistence on high-quality housing near their principal residences, but this can hardly be equated with the kind of leadership displayed in Southport.
The fate of common land and of church estates was also of critical importance in helping to shape the nineteenth-century town in Lancastria. Very little common land survived in the Calder-Darwen Valley at the end of the eighteenth century, but the largest lowland tract, Enfield Common, was largely built over as part of Clayton le Moors after its enclosure in 1797. The Town Moor in Blackburn was sold to the railway company in 1857, in order to raise money to purchase the site of Corporation Park, and parts of Blakey Moor in the same town, were acquired for public buildings during the second half of the nineteenth century. The disposal of church land was far more significant, and the experience of Blackburn and Burnley was paralleled by that of Bolton, for in all three the piecemeal leasing of the various ecclesiastical estates produced long-term problems of town development.

The absence of corporate authority in the towns of the Calder-Darwen Valley may also have worked to their disadvantage before the 1850s, for it appears that places with borough status before the onset of industrialization fared better at preserving amenity than those which did not. This argument cannot be taken too far, however, for it would be idle to pretend that corporate towns enjoyed a universally higher standard of building. Districts such as New Preston and Poolstock were no better than their contemporaries in Bolton, Oldham, and Blackburn.

It appears, therefore, that several common threads ran through the fabric of nineteenth-century town development in
Lancastria, but that the final pattern which emerged differed appreciably according to the influences of physique, economic structure, and the many facets of human intervention. There is no reason why, to return to Smailes' observation which heads this section, common histories should have produced the same ingredients in the urban landscape, nor is there reason to suppose that the crucial importance of land ownership as a feature of town growth would always produce exactly the same response in every town. A much more prescient generalization is that put forward by R. Millward:

"The majority of Lancashire towns are a by-product of the Industrial Revolution, and at first sight they look monotonously alike with their drab streets, towering mills, and soot-stained chapels. Yet a search through the scores of local histories written in the last century will show that each town has its rich and interesting story, one which differs fundamentally from the history of its closest neighbour".

iii Population Growth in Lancastria.

The differences of urban landscape and economic structure in the nineteenth-century Lancastrian towns prompt the question as to whether there were also substantial variations in population history. As in the preceding section the answer must be extremely tentative for this problem cannot be analysed as deeply for the whole region as it was for the Calder-Darwen Valley. Fortunately a useful account of the major trends has recently appeared, and it is only necessary to relate its findings to the principal theme of this chapter, the existence of intra-regional differences in nineteenth-
century Lancastria. Lawton shows that between 1801-1851 "half a century of unprecedented growth" had produced heavy concentrations of population in eastern Lancastria, more particularly in the Manchester embayment. There were also noteworthy increases with a patchier distribution in the Wigan-St Helens coalfield, along the middle Weaver valley, in the east Cheshire textile district, and in Liverpool-Birkenhead. In rural areas the heaviest increases were experienced in the Cheshire grass-dairying region and on the recently reclaimed marshes and moss-land areas of West Lancashire; but as a contemporary analysis pointed out, rural areas were growing at a much slower rate than urban and newly industrialized localities.

After 1851 differences in the rate of population growth within Lancastria were intensified. The spectacular rise of places such as Barrow in Furness, Southport, and Crewe contrasted with the stagnation experienced in many of the older industrial centres and the absolute decline of rural population. The growth of residential suburbs, notably around Manchester and Liverpool, was another feature of population change which became more clearly defined with the development of rail transport after the 1840s. From 1851 onwards it is also possible to measure the contribution of natural increase and migration to total changes of population. Lawton's analysis reveals the existence of important demographic differences within Lancastria which are hidden if total change alone is examined. Unfortunately the census returns which provide the data relate to Registration Districts until 1911, thereby providing
a coarser screen than the population statistics for individual townships.

The returns show that the growth of the Merseyside and Manchester conurbations was a product of high natural increase and inward migration until the 1870s, followed by outward migration and eventual loss of population in the central areas as the suburbs began to swell. In the textile centres of the Manchester embayment rates of natural increase were modest, and loss by migration occurred in several localities after 1900. The Calder-Darwen Valley sustained its rate of natural increase and parts of the area (Burnley Registration District) were still attracting migrants in the decade 1901-1911 when most other industrial areas were recording losses. Finally the rural parts of Lancastria were almost all recording losses by migration from 1851 onwards, and in several instances this produced total losses of population after 1901. Lawton's analysis of migration cannot, in the nature of the statistics, reveal anything of the direction of movement or measure the inflow and outflow of migrants which produced the nett gains and losses of population. Information on the patterns of migratory movement is very difficult to come by, for the published birthplace returns of the census lack precise detail. The unpublished returns of the 1851 census have been analysed by Lawton in a study of Liverpool, but unfortunately no wider study exists to provide a basis of comparison between the
Calder-Darwen Valley and other industrial areas in Lancastria.

In an attempt to provide such a comparison a small sample survey of the returns for 1851 has been carried out, covering parts of Wigan and Bolton. The Wigan sample, drawn from the returns for five enumerators' districts taken at random, covers 2.5 per cent of the town's population. The results are shown in Tables 13/14, and a comparison with the evidence from Blackburn and Burnley appears in Table 16. The importance of locally born inhabitants is clearly displayed, with 62 per cent of the sample having been born in Wigan itself. Migrants from other townships in the Wigan area were also numerous, as were those from other parts of Lancashire. Only 11 per cent of the sampled population came from outside Lancashire, and this group largely comprised Irish labourers, in the Scholes district, and workers in craft trades and commerce, enumerated in Standishgate. Both coal mining and cotton manufacture were largely staffed by workers born in Wigan and its adjacent townships (70 per cent and 75 per cent respectively), but the craft trades and commerce had drawn only half their labour from the immediate vicinity, and over one-third of their workers were non-Lancastrian.

The Bolton sample covers 1.5 per cent of the town's population in 1851, drawn from a single zone largely comprising factories and artisan housing. The results are given in Table 15, and it is again clear that locally born inhabitants were the majority together with a substantial minority of short- or middle-distance migrants. The majority of the
Table 13: **Origins of Population Sample, Wigan 1851.**

<table>
<thead>
<tr>
<th>Birthplace</th>
<th>Number</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wigan</td>
<td>509</td>
<td>62%</td>
</tr>
<tr>
<td>Wigan District</td>
<td>120</td>
<td>15%</td>
</tr>
<tr>
<td>Other Lancashire</td>
<td>100</td>
<td>12%</td>
</tr>
<tr>
<td>All Other Areas</td>
<td>93</td>
<td>11%</td>
</tr>
</tbody>
</table>

Table 14: **Origins of Selected Occupations, Wigan 1851.**

<table>
<thead>
<tr>
<th>Birthplace</th>
<th>Coal Miners</th>
<th>Cotton Workers</th>
<th>Craft Trades &amp; Commerce</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wigan Sample</td>
<td>43</td>
<td>120</td>
<td>128</td>
</tr>
<tr>
<td>Wigan District</td>
<td>12</td>
<td>13</td>
<td>18</td>
</tr>
<tr>
<td>Wigan</td>
<td>18</td>
<td>77</td>
<td>43</td>
</tr>
<tr>
<td>Other Lancashire</td>
<td>5</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>All Other Areas</td>
<td>8</td>
<td>19</td>
<td>45</td>
</tr>
</tbody>
</table>

Table 15: **Origins of Population Sample, Bolton 1851.**

<table>
<thead>
<tr>
<th>Birthplace</th>
<th>Number</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolton</td>
<td>600</td>
<td>64%</td>
</tr>
<tr>
<td>Bolton District</td>
<td>113</td>
<td>12%</td>
</tr>
<tr>
<td>Other Lancashire</td>
<td>130</td>
<td>14%</td>
</tr>
<tr>
<td>All Other Areas</td>
<td>91</td>
<td>10%</td>
</tr>
</tbody>
</table>

Table 16: **Comparison of Birthplace Samples, 1851.**

<table>
<thead>
<tr>
<th>Place of Enumeration</th>
<th>Wigan</th>
<th>Bolton</th>
<th>Blackburn</th>
<th>Burnley</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>62%</td>
<td>64%</td>
<td>62%</td>
<td>54%</td>
</tr>
<tr>
<td>Adjacent Areas*</td>
<td>15%</td>
<td>12%</td>
<td>7%</td>
<td>8%</td>
</tr>
<tr>
<td>Other Lancashire</td>
<td>12%</td>
<td>14%</td>
<td>22%</td>
<td>24%</td>
</tr>
<tr>
<td>All Other Areas</td>
<td>11%</td>
<td>10%</td>
<td>9%</td>
<td>14%</td>
</tr>
</tbody>
</table>

* In Blackburn and Burnley confined to adjacent parts of the Calder-Darwen Valley only.
Table 17; Origins of Population, Selected Towns, 1851.

<table>
<thead>
<tr>
<th>Locality</th>
<th>Proportion Born In Locality of Enumeration</th>
<th>Adjacent Counties</th>
<th>All Other Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolton</td>
<td>59</td>
<td>29</td>
<td>12</td>
</tr>
<tr>
<td>Liverpool</td>
<td>43</td>
<td>11</td>
<td>46</td>
</tr>
<tr>
<td>Manchester</td>
<td>41</td>
<td>24</td>
<td>35</td>
</tr>
<tr>
<td>Preston</td>
<td>49</td>
<td>37</td>
<td>14</td>
</tr>
<tr>
<td>Stockport</td>
<td>54</td>
<td>24</td>
<td>22</td>
</tr>
<tr>
<td>Leicester</td>
<td>55</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>Nottingham</td>
<td>55</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>Bradford</td>
<td>42</td>
<td>37</td>
<td>21</td>
</tr>
<tr>
<td>Hull</td>
<td>54</td>
<td>21</td>
<td>25</td>
</tr>
<tr>
<td>Leeds</td>
<td>68</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>Sheffield</td>
<td>64</td>
<td>22</td>
<td>14</td>
</tr>
<tr>
<td>Merthyr Tydfil</td>
<td>43</td>
<td>17</td>
<td>40</td>
</tr>
<tr>
<td>Newport (Mon.)</td>
<td>38</td>
<td>13</td>
<td>49</td>
</tr>
</tbody>
</table>

Data from Census 1851.
cotton operatives in the sample were locally born, but the craft trades and commerce had again drawn their labour from a very much wider area. The comparison of the Bolton and Wigan samples with the larger ones taken in Blackburn and Burnley shows a broad similarity in the results for the first three centres, allowing for the different basis of classifying "neighbouring townships" in the Calder-Darwen Valley. The Burnley sample, with its 54 per cent locally born inhabitants compared with over 60 per cent in the other areas, differs largely in that respect, and this appears to be a reflection of the town's later emergence as an industrial centre and its greater attraction for migrants during this belated phase of expansion.

The samples taken from the manuscript returns amplify the conclusions which can be drawn from the published birthplace statistics (Table 17). For a handful of large towns it is possible to measure the importance of locally born inhabitants and the volume of short- and middle-distance migration. In dominantly industrial towns the proportion in these two groups was 80 per cent or more, but in Manchester it fell to 65 per cent, and Liverpool 54 per cent. An examination of the 1851 birthplace returns for the whole of Britain suggests that centres which drew more than one-third of their inhabitants from distant places were very rare, and that in most large towns upwards of 75 per cent of the population comprised those born locally or within a relatively short distance of the place of enumeration. Thus the experience of the majority of
towns in Lancashire as revealed by the evidence of the published and the manuscript returns was paralleled elsewhere in Britain, although our detailed knowledge of patterns of local migration and of the links between occupations and migrational mobility will remain obscure until the manuscript material has been more thoroughly analysed.

The census of 1911 provides the next opportunity to compare the broad outlines of migration in Lancashire. As noted above (page 244) the published data for the County Boroughs make it possible to trace movement in some detail, although the returns are far less detailed than those which can be abstracted from the 1851 manuscripts. The principal features of the relationship between place of birth and place of enumeration are shown in Table 18. The proportion of locally born inhabitants and short- or middle-distance migrants combined was high in each locality, ranging from 65 per cent in Blackpool to 88 per cent in Blackburn. Only three places had a migrant population totalling 50 per cent or more of the inhabitants — Barrow in Furness 50 per cent, Southport 64 per cent, and Blackpool 74 per cent. Even though these new coastal cities had a predictably high proportion of migrants, many of them had come over relatively short distances as Table 18 shows. About half of the "long distance" migrants to the two resorts came from Yorkshire or Cheshire, and the balance largely comprised women drawn from a wide range of localities by the prospects of tertiary employment. The "long distance" migrants in Barrow had more frequently come
### Table 18: Lancashire County Boroughs 1911, Arranged in Descending Order of Proportion of Total Population Locally Born or the Product of Short/Middle Distance Migration

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackburn</td>
<td>133,000</td>
<td>68%</td>
<td>7%</td>
<td>13% (88%)</td>
</tr>
<tr>
<td>Bolton</td>
<td>188,000</td>
<td>68</td>
<td>8</td>
<td>11 (87 )</td>
</tr>
<tr>
<td>Preston</td>
<td>117,000</td>
<td>70</td>
<td>6</td>
<td>11 (87 )</td>
</tr>
<tr>
<td>St Helens</td>
<td>96,500</td>
<td>72</td>
<td>5</td>
<td>9 (86 )</td>
</tr>
<tr>
<td>Bury</td>
<td>58,600</td>
<td>62</td>
<td>8</td>
<td>15 (85 )</td>
</tr>
<tr>
<td>Rochdale</td>
<td>91,000</td>
<td>62</td>
<td>9</td>
<td>13 (84 )</td>
</tr>
<tr>
<td>Wigan</td>
<td>91,000</td>
<td>65</td>
<td>5</td>
<td>14 (84 )</td>
</tr>
<tr>
<td>Oldham</td>
<td>147,000</td>
<td>64</td>
<td>7</td>
<td>11 (82 )</td>
</tr>
<tr>
<td>Warrington</td>
<td>72,000</td>
<td>65</td>
<td>6</td>
<td>11 (82 )</td>
</tr>
<tr>
<td>Burnley</td>
<td>116,000</td>
<td>54</td>
<td>7</td>
<td>20 (81 )</td>
</tr>
<tr>
<td>Manchester- Salford</td>
<td>945,000</td>
<td>65</td>
<td>4</td>
<td>8 (77 )</td>
</tr>
<tr>
<td>Liverpool - Bootle</td>
<td>616,000</td>
<td>70</td>
<td>2</td>
<td>5 (77 )</td>
</tr>
<tr>
<td>Barrow in Furness</td>
<td>65,700</td>
<td>50</td>
<td>4</td>
<td>15 (69 )</td>
</tr>
<tr>
<td>Southport</td>
<td>51,500</td>
<td>36</td>
<td>18</td>
<td>13 (67 )</td>
</tr>
<tr>
<td>Blackpool</td>
<td>58,000</td>
<td>26</td>
<td>23</td>
<td>16 (65 )</td>
</tr>
</tbody>
</table>

* and Cheshire; * and Yorkshire; + and Cumberland/Westmorland.

Figures in brackets give the total percentage of locally born and short-, middle-distance migrants in the enumerated population. Population totals have been rounded off, as have the percentages.

Data from Census 1911, Birthplaces Report.
from far afield, for the non-native half of the population contained substantial minorities from Scotland (3,044), Northumberland and Durham (1,708) and Staffordshire (1,421). The importance of migrants from other iron smelting and ship building districts is evident, and made its mark on the urban landscape in the barrack-like blocks of sandstone tenements built on Barrow island to house workers brought from Scotland during the second half of the nineteenth century. In both Liverpool (with Bootle) and Manchester (with Salford) the proportion of locally born inhabitants was much higher than it had been in 1851, as was the proportion of short- and middle-distance migrants. The two cities did not differ greatly from the manufacturing towns of Lancashire in 1911 (Table1B) for they had lost their attraction for migrants and were beginning to lose population to suburbs beyond the municipal limits. The returns of the 1911 census also make it possible to analyse movement out of the County Boroughs. In general this was relatively slight, for a high proportion of those born in the major towns of Lancashire were enumerated either in their place of birth or in other parts of Lancastria. Less than 10 per cent of the natives of the County Boroughs had moved far afield, and these migrants were so widely scattered that it is impossible to ascribe any particular cause or discern any clear pattern of movement.

The census report prudently notes that "the nett gain or loss to the population of a place shown by the balance of migration forms but a very imperfect measure of the total
movement of population". This brief analysis of the major demographic trends of the nineteenth century in Lancastria reveals many of the imperfections, but one major point emerges. Local increment of population together with short- and middle-distance migration — the bulk of it over thirty miles or less — was the dominant element of town growth before 1911, and in this respect the experiences of Blackburn and Burnley were largely shared by the other mining and manufacturing centres of Lancastria. Even so there were sufficient minor variations within this dominant trend to demonstrate the existence of differences in the detailed pattern of town development and to reveal the persistence of intra-regional contrasts.

iv. Conclusion

This study has sought to achieve two ends. The first and most important was to analyse and describe the evolution of the landscape in the Calder-Darwen Valley, and in doing so to examine the various forces which produced this distinctive industrial region of Lancashire. The second was to see what the repercussions of this nineteenth-century development were in the period after the 1914-1918 War, and to consider how the locality's evolution fitted the broader context of change in the whole of Lancastria during the period of the main study. A third aim which might have been included had space permitted would have been to compare the post-1921 influences of the nineteenth century in the Calder-Darwen Valley with their impact elsewhere in Lancastria. In the field of economic
readjustment this topic has received attention elsewhere, and we must be content at this juncture with the general observation that with the possible exception of Barrow in Furness and parts of Rossendale the long-term effects of nineteenth-century development in Lancastria have been most persistently damaging in the Calder-Darwen Valley.

The principal conclusions that can be drawn from this study fall under four main headings, the structure of industry during the nineteenth century, the character and status of towns, the long-term importance of nineteenth-century growth, and the comparability of events in the Calder-Darwen Valley with those elsewhere in Lancastria. In the few pages which remain an attempt is made to summarise the principal points which emerge from the discussion presented above.

An analysis of the use of the term "weaving area" as a descriptive regional title shows that however widely the outer boundaries of the locality may have fluctuated the core of all "weaving regions" has been the Calder-Darwen Valley.* We find this notion being given support as early as the 1880s, when contemporary observers could claim, without apparent fear of contradiction, that weaving had been the dominant element of the growth of cotton manufacture in the locality. While it is true that by 1921 relatively little of Lancastria's spinning capacity remained in this area, it is also important to remember that weaving never gained the degree of physical separation attained by spinning, and the Calder-Darwen Valley

* See Figure 58
was not to achieve the kind of industrial dominance in weaving that the Manchester embayment had in spinning.

Having said this the fact remains that within the Calder-Darwen Valley cotton weaving was both the most important section of the textile industry and the leading employer of industrial labour by 1921. The reasons for the concentration of weaving in the locality are by no means fully understood, and it seems unlikely that an material evidence survives to provide a complete explanation. What the evidence does suggest is that the growth of specialization in weaving was a lengthy process, beginning in the 1830s but not gaining final momentum until after 1865. The materials quoted above (pages 65-67) indicate a growing interest in the installation of powered looms at combined mills from the late 1830s onwards, and that by 1851 a large proportion of the employment in combined mills must have been for weavers. The reasons for this bias towards weaving cannot be explained with certainty, but two arguments which have been employed in the past can safely be dismissed. One asserted that the foundations of mechanized weaving rested upon the flight of weaving masters from southern Lancastria, with its organized labour and anti-mechanical ideas, to the quiet countryside beyond Rossendale. There is no evidence to support this romantic idea, and much to refute it, for most of the early capital investment in weaving machinery was made by spinners, not weaving masters, and the Calder-Darwen Valley had its share of anti-machinery riots. Indeed yet another school of thought would have it that these riots were
responsible for the locality's arrested development. The second argument employed to explain specialization in weaving bases its case on the existence of a large pool of hand-loom weavers whose skills could readily be transferred to the power loom. The role of the hand-loom weavers has often been approached from the standpoint that they formed a coherent group, either aiding the growth of weaving by their expertise, or preventing its development by their solid opposition to power-driven machinery. It is quite clear that the hand-loom weavers did not act and think as a group, for in some localities they were recruited by power-driven mills, in others power- and hand-loom weaving co-existed for many years, and in others the opportunities for employment at the power-loom did not exist, so that hand-loom weaving survived alone. Whatever else may have favoured the rise of powered weaving in the Calder-Darwen Valley it was not the hand-loom weavers per se, for they were numerous in other parts of Lancastria, and their presence was not a prerequisite of establishing power-loom sheds.

If one single feature can be said to have influenced the pattern of events in the Calder-Darwen Valley more than any other it is that the relatively late perfection of the power loom meant that its widespread introduction could best be achieved in a locality possessing reserves of unskilled labour, or easy access to such reserves. Power-loom sheds largely recruited their labour among young and unskilled
workers, and this they found in the Calder-Darwen Valley and its adjacent rural localities. As the analyses of occupations and birthplaces in 1851-1861 have shown, cotton weaving drew most of its strength from local increment of population and migration from adjacent rural areas. Even so belated mechanization would not have accounted for the increasing separation of the spinning and weaving processes during the second half of the nineteenth century, and this is another aspect of the Calder-Darwen Valley's industrial development which defies rational explanation. From 1865 onwards the tendency of the combined mills to specialize in weaving only added greatly to the number of weaving sheds and concurrently reduced the amount of spinning equipment installed in the Calder-Darwen Valley. It is generally thought that this vertical disintegration of the cotton industry was necessary if its various parts were to survive as specialists, each needing to master different techniques of manufacture and marketing. It also seems that the emergence of local specialization in weaving was based on the same premises. Although the reasons for the dominance of weaving in the Calder-Darwen Valley are not easily explicable — once the initial choices had been made in the 1840s the industry may simply have followed a well-beaten path — its repercussions were clearly to be seen in the economy and the landscape of the locality.

The preoccupation of this account with the cotton industry's development is logical, for this was not only the dominant employer of labour throughout the period of study, it
was also the main generator of other forms of industrial development. The point has been made several times in the body of the text and requires little elaboration at this stage; almost all diverse industrial growth in the Calder-Darwen Valley before 1921 was a response to the needs of the textile trade. Engineering grew directly from the mechanics' workshops at the major cotton mills, and even when it moved into new fields, such as the manufacture of domestic appliances, it did so by first producing scaled-down versions of textile machinery — kitchen mangles and washing machines. Paper making used textile raw materials and served the market for wrapping papers; even the wallpaper trade derived its methods and early artistic inspiration from calico printing. Coal mining derived its greatest stimulus from demand fostered directly or indirectly by the cotton trade, and also benefitted from capital invested by textile firms. The influence of the cotton industry over other forms of industrial development had begun to weaken by the opening years of the twentieth century, but even so there was little in the economic structure of the Calder-Darwen Valley in 1921 that did not have links, however tenuous, with the cotton trade.

The towns of the Calder-Darwen Valley were also dominated by the textile industry, it could not have been otherwise. The urban landscape was partly a product of the industry's influence; the low-built weaving sheds, the much rarer bulk of the spinning mills, and the ranks of artisan housing. As
we have seen the textile industry made little direct contribution to the growth of settlement beyond the existence of its own plant. Provision of housing for the labour force was only made by textile firms in the early stages of industrialization, notably by the print works, which were often located in rural areas, and some of the larger cotton mills founded in the 1830s or earlier. The greater part of town growth was in the hands of speculators, who in turn secured building plots from those landowners who would, at any given time, sell land at the right price. The influence of the pre-urban pattern of land ownership in shaping the towns and in helping to promote functional separation has been noted frequently in the text. There can be little doubt that this aspect of town development was of critical importance, for much that is inexplicable on the basis of reasoned deduction becomes reasonably clear once the attitudes of landowners are understood. Thus the sharp break between town and country to the north of Burnley, the failure of Blackburn to expand westward along the Darwen Valley, the absence of a strict grid-iron plan in the centre of Nelson, the newest of all the area's nineteenth-century towns, the late development of Rishton, the curious shape of Clayton-le-Moors, these and many other puzzling features are more easily explained by a knowledge of land ownership. Moreover many of the variations in the urban landscape stem from the same cause, and help to make the towns far less monotonous than a superficial examination of their character would imply.
One feature of urban development which is outstanding but admits of no easy explanation is the fact that no centre within the Calder-Darwen Valley gained complete dominance over the locality, and no town rose above the rank of city in the urban hierarchy. Blackburn did no more than maintain limited local supremacy, and there are indications that its position was weaker at the end of the nineteenth century than at the beginning. In preserving its historic function as capital of Blackburnshire the town had to face competition not only from Burnley, but also from newer centres such as Accrington and Darwen. Blackburn lacked the nodality within the Calder-Darwen Valley which might have given it higher status; the prosperous rural areas to west and north fell largely within Preston's orbit, whereas the localities to the south were poorer and sparsely populated. On the other hand the strength of both Blackburn and Burnley effectively prevented a newcomer such as Accrington, with its strategically superior position, from becoming more than a successful industrial town.

No centre in the Calder-Darwen Valley was able to capitalize on the physical separation of the locality from other parts of Lancastria which might have prompted the growth of a strong urban focus. In addition to the reasons suggested above it seems likely that the late industrial development and narrow social structure of the locality militated against this. The existence of upland Rossendale did not prevent Manchester from establishing strong ties with the Calder-Darwen
Valley during the eighteenth century, and it is also necessary to remember that parts of the locality had also come within the sphere of influence of Preston and of Halifax at this time. Whatever the reasons the consequences are clear; nowhere in the Calder-Darwen Valley rose to major-city status, and Blackburn maintained its position partly by holding on to historic functions rather than by developing new ones.

The long-term importance of the nineteenth-century phase of growth to the Calder-Darwen Valley is clearly to be seen in its subsequent problems of economic readjustment, social development, and physical renewal. These topics have only been briefly mentioned in this study, for although it is important to see how the nineteenth century still casts its shadow over the locality a more detailed analysis is beyond the scope and competence of this work. The consequences of over-dependence on cotton manufacture, and on weaving in particular, have been discussed by the writer elsewhere, as have the problems of industrial diversification. The narrow range of social development and amenity within the towns of the locality has often been the subject of adverse criticism, although only one work has attempted to analyse these ill-qualities subjectively. The scale of physical renewal necessary is reviewed in a recent examination of housing needs, and a revealing, if somewhat superficial picture of the problem is provided by the series of aerial photographs (Plates 1-15).

The final conclusion to be drawn from this study is that which considers intra-regional variations within nine-
teenth-century Lancastria to be more important than the superficial similarities which several writers have seized upon. Although the towns of the Calder-Darwen Valley had much in common with their contemporaries elsewhere in Lancastria, notably in the important influences of land ownership and the similarities of population growth and migration, this is not to imply that all were Coketown or Mechansville under a different alias. It is also necessary to contest the view put forward by Smailes that "a common history of economic development" produced towns that could easily be categorized. Even had the histories of industrial growth been common to every textile manufacturing town there is no reason to suppose that they would all have developed in exactly the same way. But the important point is that their economic development differed appreciably, and this alone would have produced great internal variations. Consequently the combination of uniqueness of site, variation in pattern of pre-urban land ownership, and variety of economic development produced towns which differed greatly in detail.

The Calder-Darwen Valley emerged as a distinctive part of Lancastria largely through the varied influences of the cotton industry, and both its urban and rural landscapes reflected this. The growth of settlement, although prompted by industrialization, was also shaped by existing patterns of land ownership. This combination of economic and social features, set in a physically isolated locality, produced a chain
of distinctive industrial towns, which still bear the stamp of their nineteenth-century origin. But it would be going too far to suggest that their landscapes "stand complete, largely the gift of the Victorian age." The fact that they are so largely the product of an earlier phase of urban expansion means that they must increasingly change in order to keep pace with the economic readjustment to the collapse of the cotton trade. Even so it is doubtful whether the scale and pace of change will ever equal that of a century ago, or completely obliterate its impact upon the landscape.
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1. W. Bennett's lengthy four volume history of Burnley, and G. C. Miller's writings on Blackburn although published after 1945 faithfully adhere to the style of Victorian topographers in recording events rather than analysing their importance. Consequently these works are useful as sources of fact but not of interpretation.


3. L. Mumford, The Culture of Cities, 1938; the chapter on the "insensate industrial town" is particularly relevant as it employs an aerial view of Preston to support the thesis that all the industrial centres of the West were the same places with different names.


7. Much of the riverside parkland was laid out in 1862-65 as a means of giving unemployment relief during the Cotton Famine.

8. E. Baines, History ... of the County Palatine of Lancaster, vol I, 1824, page 539.


10. This was also under church ownership, the vicars of Bolton were known as lecturers.


12. The major exception, Ryland's Mill, existed in 1825 and its owners also controlled the Gidlow and Swinley collieries which lay to the north of the Rectory Glebe.


15. The seat of the Bankes' family, another major coal owning concern of the locality; (J.H.M. Bankes, "A nineteenth-century colliery railway", THS 114, 1962, 155.)

16. The market lapsed in 1762 according to Baines; borough status was regained in 1847, but Ashton never became a County Borough.


21. It is interesting to compare the policy of the Cavendish family to their development of land at Barrow with that which they applied to another of their seaside estates at Eastbourne, where the outcome was predictably different!


29. J.T. Danson & T.A. Welton, "On the population of Lancashire & Cheshire during the fifty years 1801-51", THS 9-12, 1856-60, in four parts.

31. Five towns had drawn more than one-third of their inhabitants from further afield than the town and its adjoining counties, Newport 49%; Liverpool 46%; Glasgow 41%; Merthyr Tydfil 40%; Manchester 35%. It must be noted that the census provides only a crude index of migration and covers a relatively small sample of towns.

32. In 1851 Ulverston Registration District (in which Barrow lay) contained 197 inhabitants of Scots origin.

33. Census 1911, Vol. 9, Birthplaces; pages viii-ix.

34. Rodgers, op. cit. (1964); Regional Shopping Centres in N.W. England, R.H. Kantorowich et al., 1964, particularly pages 41-97.


36. op. cit., pages 499-500 observes that hand-loom weavers were opposed to factory work.

37. For example the range of news and advertisement in its local paper covered much of Craven, Bowland, and the middle Ribble; Rossendale, and the area between Chorley and Preston in 1815. A century later the territorial coverage had shrunk to the town and its immediate vicinity. The support given to the "Northern Daily Telegraph", published in Blackburn by the Kemsley Press after 1920, again made it a major centre of newspaper publishing in northern Lancastria, but many local editions were printed so that the circulation area did not entirely centre on the town as that of its nineteenth-century predecessor had.

38. M.A. thesis, op. cit.;


41. The view put forward by Mumford in his caption to the aerial view of Preston.

42. R. Millward, op. cit., page 124. This was a curious conclusion to reach in a work which had so lucidly demonstrated the constancy of change in the Lancashire landscape; on the other hand the author's field work was carried out in 1953—before most of the industrial towns had embarked on their great schemes of clearance and rebuilding.
Appendix A
The Ranking of Lancashire Towns

At any stage in the evolution of a group of settlements it is likely that different grades of status will emerge to reflect the varying range of functions performed by each place. Over a period of years the relative importance of places will change, for the ranks rarely remain stable. During the nineteenth century the status of towns frequently changed as the improvements to communications and growth of industry favoured some settlements and passed others by. Bearing in mind these variations of rank over a period of time it seemed necessary to examine the grading of towns in Lancashire at different dates in order to view the functions of centres in the Calder-Darwen Valley in a wider regional context. This account briefly examines the method of urban ranking used, and comments upon the pattern of distribution which emerges from the investigation. It is not an attempt fully to explain the evolution of the urban hierarchy in Lancashire, but a study to place the Calder-Darwen Valley towns in a broader perspective.

Three published accounts have sought to examine the historical aspects of urban hierarchies. The methods used by Carter and by O'Dell are, however, difficult to apply to Lancashire, for both writers were dealing with dominantly rural areas, with at most a single large town to dominate the hierarchy. Not only is the urban structure of Lancashire more complex from a relatively early date, it is also impossible to employ some of the major statistical sources used to good
effect by the previous authors. For example both relied heav-
ily on the 1831 census returns of occupations in retail trades,
handicrafts, and the professions, but this information is
largely worthless in a study of Lancashire which already had
a complex industrial structure at this time. Consequently
data taken from directories have to be used instead, and these
lack quantitative values, and are likely to be less consistent
than the census returns.

The range of information provided by the directories is
outlined below; it should be noted that the value of some of
the indices changes as urban functions alter.

1 COMMERCIAL FUNCTIONS

a: Markets and fairs. The presence of a regular market
was a clear indication of town status; the holding of
fairs for produce and stock provided less clear evidence,
but a combination of markets and fairs strengthened the
index.

b: Banks. These also gave evidence of town status, par-
ticularly when joint-stock companies developed.

c: Offices. A variety of commercial and semi-administr-
ative offices gave evidence of a centre's relative imp-
portance — post, revenue, and insurance offices formed a
particularly important group in this category.

d: Shops. No simple index, such as chain stores, existed,
but it is possible to construct indices from the returns
published in the directories in order to reveal the
range of shopping facilities.
2 SOCIAL FUNCTIONS

a: Newspapers. Local newspapers reflected town status, initially by their existence, ultimately by the frequency of publication.
b: Educational Establishments. Grammar schools (many of which were ancient foundations but subsequently formed the basis of secondary education in the county), mechanics institutes and technical schools, reading rooms and public libraries.
c: Hospitals. General hospitals were normally located in the more important towns and provided further evidence of a centre's significance.
d: Theatres. Initially rare and situated in the most important towns; even when they became commoner theatres still provided a sound index of town status, as did cinemas.
e: Professions. As with commercial functions it is possible to produce an index of professional services from directory entries.

3 ADMINISTRATIVE FUNCTIONS

a: Judicial. Various types of court indicated a town's status, although as was the case with markets lack of flexibility may have meant that past, rather than current importance was reflected.
b: Poor Law. By the Act of 1834 headship of a Poor Law Union was normally conferred on major market towns.
c: Registration District. The creation of head and sub Registration District offices based on the more important centres provided additional evidence of administrative functions.

d: Electoral. Before the division of the county into small constituencies polling for county seats was carried out at a handful of centres which appear largely to have been chosen for their relative importance and accessibility.

Before turning to the methods of ranking employed it is necessary to make two observations on the range of localities covered by the survey. First the hierarchy has largely been confined to Lancashire, for it is not always possible to obtain data for adjacent areas, other than the towns of N.E. Cheshire. Second no detailed treatment has been extended to Liverpool and Manchester which so obviously held a clear lead over their nearest rivals. Similarly no attempt has been made to work out the status of suburbs within these cities.

**Methods of Ranking**

Having assembled the various indices of town status it is necessary to rearrange them in such a way that comparisons of urban grades is possible. One method involves recognising the minimum range of facilities which different urban grades ought to possess and plotting the data for each centre in order to see which groupings emerge. Places with like facilities can be said to fall into the same urban rank, but the
weakness of this approach is that centres which possess only
the minimal functions will appear equal to those which have
the minimum duplicated several times over. For example, using
this method for 1851 Ulverston ranks as a city because it had
the bare minimum of facilities that were represented many time
over in Lancaster and Preston. The simple array of functions
therefore gives a rapid assessment of urban grades, but has
the disadvantage of coarseness.

The second method attaches numerical values to the
various functions according to their relative scarcity, so that
a total points score can be calculated for each centre, taking
into account both the range and the volume of facilities.
These scores can be plotted on a dispersion diagram in order
to reveal the major groupings and, therefore, the various
grades. The technique can also incorporate, on the basis of
relative scarcity, both commercial and professional indices.
For example we may assume that the less common a service is
the larger a population it will serve and the more likely it
is to be located in a place of high rank. In 1851 grocers'
shops were more numerous (6,617 entries) than book sellers'
(261 entries): the former rate a lower points score (0.04)
than the latter (1.00). By using this information it is possi­
ble to gain a broad basis of town functions upon which to
grade the relative importance of centres, and to produce a
more accurate analysis than the simple array method permits.
The use of indices based on commercial, professional, and general functions also demonstrates important variations in the constitution of towns which the simple array method does not reveal. In particular, many centres held on to high rank because they maintained 'historic' functions which bore no immediate relationship to their current status. For example in 1851 towns such as Lancaster, Ulverston, and Clitheroe had strong general functions but relatively weak commercial and professional status, while smaller centres such as Garstang, Kirkham, and Poulton le Fylde retained their prestige as market towns with very poor commercial facilities indeed. On the other hand, several towns had high scores for their commercial and professional facilities that were not backed up by general functions because the 'historic' element was missing. Notable examples were Accrington, St Helens, and Stalybridge. It would, however, be of no avail to disregard the 'historic' element, for in many towns these inherited functions were vigorous and properly indicated a centre's status. Consequently it is essential to employ as full a range of indices as can be derived from the directories in order to give full weight to as many functions as possible.

During the period for which the hierarchy can satisfactorily be worked out by means of the points-score method — 1827 to 1913 — there were evidences both of stability and of change within the urban grades. Of forty centres recorded throughout the period fifteen remained in the same category at each date, nine improved their position, eleven declined in importance, and six remained in the same category at the terminal dates.
but had changed grades at the interim stages. Many of the changes were, however, marginal — notably those within grade 2 between city and minor city — and roughly half the places recorded in 1827 had maintained their status in 1913. Of the changes which did occur the most impressive advances were made by Oldham (Grade 3 to Grade 1b), Blackpool (Grade 5 to Grade 2a) and Ashton under Lyne (Grade 3 to Grade 2a). Loss of rank was rarely dramatic, but Hawkshead fell from Grade 3 to Grade 5, and Prescot from Grade 2b to Grade 4. In addition to the towns recognised in 1827 a further twenty had entered the lists by 1913. Some of these had enjoyed a meteoric rise, notably Barrow in Furness and Southport, and even the smaller ones affected the ranking of established towns. The competition between old and new centres was clearly seen in such pairs as Prescot - St Helens, Ulverston - Barrow, Lancaster - Morecambe, and Colne - Nelson.

It is important, however, to bear in mind the fact that many of the leading centres in 1913, and indeed in subsequent years, already held these positions in 1827. Of the places falling into Grade 2 in 1827 only Ulverston and Prescot were ranked lower in 1913, and the new entrants to this category largely comprised the new industrial towns and resorts of the county; the major exception was Bury, an old-established market town which narrowly failed to make the grade in 1827. As a comparison of the accompanying maps shows much of the hierarchical pattern in 1913 can be discerned in that of 1827. Were it possible to go back further a different picture
might emerge, but it is difficult to believe that the leading centres of the early nineteenth century would not also have ranked high for at least three hundred years before. The rise of the industrial town in Lancastria during the nineteenth century did not completely transform the urban hierarchy, largely because so many centres effectively combined their existing functions with the new ones of mining and manufacturing.

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2. See the map in A.E. Smailes, "The urban hierarchy in England and Wales", Geography.

POSTSCRIPT

This study of the urban hierarchy was originally made in 1962; in 1964 Regional Shopping Centres in N.W. England produced among other things, a more modern hierarchical grading than that of Smailes noted above. This recognised eighteen centres of Grade II standard or better in Lancashire (excluding Furness, but including Stockport), compared with sixteen in the writer's hierarchy of 1913. All sixteen appeared in the 1961 hierarchy plus two newcomers, St Helens and Accrington. The position of St Helens was affected in the nineteenth century by its earlier administrative subservience to Prescot; even so, in 1961 it ranked relatively low among the Grade IIb
centres. Accrington’s position in the hierarchy at Grade IIb level appears to be a transient feature based on its having produced a scheme of central redevelopment ahead of its nearest rivals, Blackburn and Burnley; it is asserted that by 1971 Accrington will have reverted to Grade III status, thus emphasizing the persistent importance of the two older centres.
BIBLIOGRAPHY

The bibliography lists the principal sources used in compiling this work, except those dealing specifically with the period since 1920. Works in this category which appeared before 1955 are listed in the bibliography of the writer's M.A. thesis (Manchester 1955); the major sources which have appeared since that date are referred to in Chapters 6 & 7.

The list of abbreviations given below conforms to that used in the World List of Scientific Periodicals where possible; references to journals quote volume number, date of publication, page number as in the textual references. Place of publication of books and pamphlets is London unless otherwise stated; titles of papers appear within inverted commas, but the names of journals, books and pamphlets are given in plain type. In addition to the lists of references brief notes are also provided on some of the less familiar sources of material.

Abbreviations

| Econ Hist | Economic History |
| Econ Hist Rev | Economic History Review |
| Econ J | Economic Journal |
| EHR | English History Review |
| Geogr J | Geographical Journal |
| Geogr Studies | Geographical Studies |
| Inst Brit Geogrs | Transactions & Papers, Institute of British Geographers |
| JIE | Journal of Industrial Economics |
| JRSS | Journal of the Royal Statistical Society |
| Jnl Textile Inst | Journal of the Textile Institute |
| Liverpool & Manchester | |
| Geol J | Geological Journal |
| Manchester Geogr J | Journal of the Manchester Geographical Society |
For abbreviations used in connection with Parliamentary Papers and Manuscript Sources see the relevant sections of the bibliography.

The bibliography which follows is divided into five main groups:

I General Sources of Published Information.

II Published Sources on the Calder-Darwen Valley

III Trade and Topographical Directories

IV Manuscript Sources and Parliamentary Papers

V Maps and Plans
I General Sources of Published Information

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(f) General Topography and History

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Various editions of:-

Skinerr's Cotton Trade Directory.
Worrall's Cotton Trade Directory.

IV Manuscript Sources & Parliamentary Papers.

The principal items used in the Lancashire Record Office are noted below, with references to the main calendar and bundle numbers; in the text these are prefixed LRO. For a description of the range of material covered in the collection see R. Sharpe France, Guide to the Lancashire Record Office, Preston 1961.

DDBd  Records deposited by Messrs Shaw, Mottershead & Badgery, Colne.

DDBd 10: 2-216 Stoneyholme Estate Burnley.
27: 4-3 Survey of Little Maraden 1836.
27: 11 Marriott of Edgend, Trustees Correspondence.
55: 4-170 Railway Prospectuses.

DDPt  Petre of Dunkenhalgh, Estate Papers.

DDPt 156-157 Enclosure Awards & Plans.
7 Papers relating to Whitebirk Colliery.
25 Plans of Clayton, Church, Oswaldtwistle.

DDLx  Trappes-Lomax of Clayton, Estate Papers.

DDLx 1: 3-7 Rentals and Surveys, Clayton & Great Harwood.
4: 49 Clayton Colliery Report 1848.
11: 2 Lomax Estates in Clayton.

PR  Parochial Records
DRB  Diocesan Records Blackburn

PR 13-16 Tithe Award Maps Padiham (1839) Ightenhill Park (1839) Habergham Eaves (1842) Altham (1842).

25 Enclosure Award, Oswaldtwistle.
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31 Burnley 1846.
55 Colne 1842.
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81 Foulridge 1842.
90 Habergham Eaves 1842.
115 Ightenhill Park 1839.
129 Marsden 1849.
146 Padiham 1839.
188 Trawden 1844.
218 Yate & Pickup Bank 1851.

PU Rate Valuation Books and Lists.

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2 Barrowford
4 Briercliffe
5 Brierfield
9 Foulridge
11 Habergham Eaves
12 Hapton
14 Huncoat
15 Marsden
18 Nelson
26 Padiham
32 Roughlee
35 Worthorne
38 Burnley
44 Colne

PUH:5 - 1 Accrington (1885)

In addition miscellaneous documents in classes TTA and TTB relating to turnpike roads, and the records of Great Harwood Colliery (CYC 2) were consulted.

Files of the following newspapers were also examined, either in the Lancashire Record Office, or in the reference sections of libraries in the Calder-Darwen Valley.

Blackburn Mail: Blackburn Times: Northern Daily Telegraph:

Burnley Express.

Documents consulted in the Public Record Office, London, were the enumerators’ manuscript returns for the censuses of 1841,1851 (HO 107) and 1861 (RG 9); a brief note on this general source is given below.
The final manuscript source of note is J. Graham's history of print works and list of establishments operating in the 1840s; this is housed in the Manchester Central Reference Library and is referred to in the text as the Graham MS.

Parliamentary Papers: the major sources which have been used are listed below. Series of papers from which factual points have been taken (e.g. Factory Inspector's Reports) are not included, nor are the various census returns which have been drawn upon extensively.

- Factories Enquiry Commission 1834; HC 20 (1834).
- Select Committee on Machinery; HC 7 (1841).
- Trades & Manufactures Commission; HC 14 (1843).
- Childrens' Employment Commission; HC 13 (1843).
- Factory Commissioners - Power Loom Census; HC 24 (1836).
- Returns of Persons Removed (Poor Law Act); HC 36 (1846).

Of the other parliamentary papers those of the Factory Inspectors for 1841 (HC 22 - 1842), the Coal Commission Reports of 1871 and 1881, the returns of the Mines Inspectorate and the various offices responsible for recording mineral statistics, miscellaneous enquiries into the workings of the Poor Laws, and the reports of the Rivers Pollution Commission are most informative. In addition there are numerous quasi-parliamentary papers, including reports to the General Board of Health and the Local Government Board, Local Improvement Acts, and Parliamentary Petitions. It is almost certain that other points of factual information could be derived from a thorough search of parliamentary materials, but data are often scattered and appear in reports whose titles give no indication of the range of contents. Consequently such information would have to be derived from a meticulous search through much unpromising material, a task rendered difficult by the bulk of published
data available and the physical problem of working through it even on micro-card.

V Maps and Plans.

The range of maps available is noted in H. Whitaker, A Descriptive List of the Printed Maps of Lancashire, Manchester 1938. An interesting account of the earliest detailed maps is provided by J. B. Harley, "Wm Yates and Peter Burdett; their role in the mapping of Lancashire and Cheshire in the Eighteenth Century", THS 115, 1963, 107.

The principal collection of maps of the county (outside the British Museum Map Collection) is to be found in the Lancashire Record Office, which has copies of maps by William Yates (1786 and subsequent reprints); C. Greenwood (1818, reprinted 1836); and G. Hennet (published by Teesdale 1828-29); all of these approximate to early Ordnance Survey 1/63,360 sheets. Ordnance Survey 1/63,360 maps date from about 1844-46 in the Calder-Darwen Valley, with revisions in about 1892, 1912, and 1920. Ordnance Survey 1/10,560 maps also date from these years, and a complete range is held by Manchester Central Reference Library. The so-called first edition of 1844 exists in several versions, published between 1844-51. Manchester University Arts Library has a complete collection of genuine first edition maps, the other versions are available at Manchester Central Reference Library and the Lancashire Record Office. The latter also has good coverage of large-scale plans; in addition the various tithe awards provide large-scale plans, and most of
the towns also produced detailed plans between the dates at which Ordnance Survey maps were published. H. Whitaker's list provides reasonably full details of the printed maps available this note is intended to outline the major sources in existence, and the places at which they can be consulted.

Bibliographical Note.

(a) Worrall's Directory.

First published in 1882 the first full edition is that of 1884; that of 1887 has been used here as it is the first complete volume in the Manchester Central Library's run of copies. Several writers on the cotton industry have made use of the returns, but no detailed maps have ever been published making use of the data.

The returns list for each firm the number of looms and/or spindles installed (but not necessarily at work), and for most also quotes the types of cloth woven and/or the counts of yarn spun. One problem of mapping the data occurs where a firm owned equipment in more than one mill, or in parts of different mills. Changes of mill ownership often make it possible to estimate the size of individual units, but in some instances it has proved impossible to separate the figures. As far as can be ascertained the directory has always given a reasonably full coverage of firms — in an industry as fragmented as the cotton trade it was virtually imperative for concerns to record details. It is, however, possible that the
closures of mills were not always immediately recorded, notably after 1921 when many abandonments were not accompanied by the formal winding-up of companies, thus producing a time lag between actual closure and legal closure. Within the period 1887-1920 the returns provide a reasonable indication of relative change for the ratio of equipment installed to labour employed and output appears not to have varied greatly. It would, however, be misleading to compare the returns now made with those of forty or more years ago, for the relationship between equipment installed on the one hand, and employment and output on the other has changed markedly.

(b) Census MS returns.

The returns for 1841-1851 are Home Office papers (HO 107); although long open for consultation (they were not subject to the hundred year rule, and Giuseppi's Guide to the Public Records of 1924 notes their availability) very few studies have been based upon them, the most noteworthy being those of R.Lawton. The manuscripts comprise the enumerators' copies of returns made by individual householders; those for 1841 give information on occupations only, those for 1851 additionally provide data on place of birth and, in many instances, size of industrial establishment. The unit of enumeration - the enumerator's district - varied appreciably in size and population. Generally speaking size was determined by the number of people who could reasonably be enumerated in a single day; thus in the towns districts might comprise a few densely populated streets, whereas in the rural uplands they might cover large
sparsely inhabited tracts. The range of sizes involved is shown on Census Index Maps 3 & 4.

The data for 1861 are similar in format to those of 1851, but the returns were only made available from 1962 onwards. They are known to be incomplete through lack of care while they were in store at Somerset House, and the Public Record Office, where they now repose, has yet to measure the full extent of the loss. Consequently these documents are much more difficult to consult and only a small sample of the returns has been undertaken.

The enumerators' districts were not exactly the same at each of the three censuses throughout the Calder-Darwen Valley, but in those instances where they were valuable information is to be derived on the nature of population change. The enumerators' books formed the basis of the published tabulations, and they are, therefore, a source of much detailed information that has never before been abstracted. The 1851 returns are particularly valuable and have been used to derive information on occupations and size of industrial concerns (total abstraction) and on birthplaces (sample abstraction). The numbers given on the Census Index Maps have been applied by the writer in place of the more cumbersome PRO system, in which each bundle of documents contains several books, each of which comprises several enumerators' schedules. The relationship between the writer's consecutive numbers and the PRO references is given in the accompanying table.
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Consecutive numbers 169-215 are shown on Census Index 3; 1-168 4.

In the series of PRO numbers the first group of digits (e.g. 2261/1) is the bundle number under category HO 107; the second group of digits (e.g. /1 - 1- 2) indicates the number of the book within that bundle and the number of the enumerator's schedule within that book. Where a township is allocated a single number in the list this indicates that it was not sub-divided for enumeration purposes.
THE EVOLUTION OF AN INDUSTRIAL LANDSCAPE:
THE CALDER DARWEN VALLEY, LANCASHIRE FROM c1740 to 1914

FIGURES AND PLATES

K.L. WALLWORK
PhD.
1966
The figures and plates have been bound separately, partly for technical reasons, but largely to facilitate reference, notably where it is desirable to have a sequence of maps close together rather than split by pages of text.

The detailed captions to maps, quoting sources of data, are also presented here; ideally the caption should come at the foot of the map, but this is difficult to achieve with the standard fount available on a typewriter. Instead the captions have been printed separately and bound as close as possible to the relevant figures.

The dates ascribed to some of the maps are approximate, for in many instances the revision of topographical sheets was spread over a brief period of years. This is particularly true of the 1/10,560 series.
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1 Morphological Sketch Map
2 Relief and Drainage
3 Solid Geology
4 Drift Geology
5 Sites of Quarries Active during the Period 1815-1914
6 Sites of Reservoirs 1815-1914
7 Industry and Communications c1780 - 1790
8 " " " " c1815
9 " " " " c1825
10 " " " " c1851
11 " " " " c1890
12 " " " " c1913 - 1920
13 Types of Cotton Mill 1825
14* " " " " 1851
15 " " " " 1865
16* " " " " 1887
17 " " " " 1899
18* " " " " 1913
19 Cotton Mills Closed Before 1920
20* Cotton Mills Opened 1900 - 1920
21 Types of Cloth Woven in 1887
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23 Cotton Mills Enjoying Disadvantage Allowances 1920
24* Cotton Mills Surviving in 1965
25 Calico Printing Works in the 1840s; Employment & Power
26* " " " " Equipment
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28* Increase in Power at Textile Factories 1835-1837
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30 " " " " 1913
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38 Employment in Extractive Industries, by Townships, 1841
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40 Employment in the Textile Industry 1841 & 1851
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Employment in Cotton Mills 1851

Employment in Other Industrial Establishments 1851

Industrial Establishments in Burnley & Nelson 1895

Employment in Other Industrial Establishments 1851

Industrial Establishments in Burnley & Nelson 1895

Employment in Other Industrial Establishments 1851

Industrial Establishments in Burnley & Nelson 1895

Employment in Blackburn & Rishton 1885

Employment in other Industrial Establishments 1851

Barrowford & Colne 1895-98

Employment in Other Industrial Establishments 1851

Padiham & Hapton 1890-95

Paper Mills, Engineering & Chemical Works 1911

The Lancashire "Weaving Area" According to Several Authorities

Road Development & Classification 1800-1895

Communications in c 1815

" c 1851

" c 1895

" c 1930

The Leeds & Liverpool Canal, and Trans-Pennine Canals

Carriers’ Journeys to & through the Calder-Darwen Valley 1825

" 1848

" 1864

" 1878

" 1887

" 1909

Railways and Railway Projects

Changing Distribution of Population 1801-1811

1811-1821

1821-1831

1831-1841

1841-1851

1851-1861

1861-1871

1871-1881

1881-1891

1891-1901

1901-1911

1911-1921

1921-1961

Changing Distribution of Population in Colne Registrati

on sub-District 1851-1861
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Population Change by Township Groups 1801-1961
Birthplaces of the Population 1851
Origin of Migrants 1851; South Lancashire & Ribble Valley
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" in 1894
" in 1912
Growth of Settlement c 1846 - 1920
Growth of Settlement post-1920
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Major Elements of Urban Land Use, Blackburn 1885
" " " " " Burnley 1895
" " " " " Nelson, Colne, Padiham, 1895
Land Ownership in Parts of Burnley/Habergham Eaves 1846
Land Ownership & Modern Building Pattern, Clayton le Moors
Elements of Nineteenth-century Origin in the Modern Landscape of Urban Areas, 1965
The Landscape of Hoddlesden, c 1850
" " " Altham c 1850
" " " c 1920
" " " Wilpshire c 1850
" " " c 1920
" " " Newchurch c 1850
" " " c 1920
" " " Nelson c 1850
" " " c 1920
" " " Towneley c 1850
" " " c 1930

All the Figures noted above are referred to in the body of the text; those which follow relate to the Appendices.
A copy of 1/65,360 sheet 95 is provided for reference in the end pocket of this volume.
Appendix A

130 The Urban Hierarchy in Lancashire 1824
131* " " " " " 1854
132 " " " " " 1851
133* " " " " " 1869
134 " " " " " 1895
135* " " " " " 1913

Index Maps

136 (Census Index 1a/b) Townships pre-1891; Civil Parishes 1891
137 ( " " 2 ) Administrative Areas pre-1891
138 ( " " 3 ) Enumerators' Districts, Blackburn 1851
139 ( " " 4 ) " " 1851
140 ( " " 5 ) Township Groups Used in Figure 90
141 ( " " 6 ) Urban Administrative Areas post-1891

142 Key to Maps Illustrating Landscape Evolution (Figs 118-29)
143 " " " of Cotton Industry 1887-1913 (Figs 29-37)

* Indicates figure printed on the same plate as that numbered immediately above.

PLATES

1 Central Burnley 1955
2 Central Burnley 1964
3 Burnley Wood 1961
4 North Burnley 1961
5 Nelson 1955
6 Darwen 1949
7 Accrington 1959 (Also used as the Frontispiece)
8 Accrington 1961
9 Church 1964
10 Colne 1963
11 Northern Blackburn 1932
12 Bank Top, Blackburn 1961
13 Central Blackburn 1925
14 Central Blackburn 1954
15 Central Blackburn 1965
16 Wigan 1938
17 Bolton 1962
18 Bolton 1949
19 Barrow in Furness 1960
20 Vickerstown 1960
21 Preston 1965

CAPTIONS

The captions to figures and plates are bound in this volume either facing the relevant figure, where a lengthy caption is necessary, or facing the first of a series of figures where common information is provided; the captions to the plates are placed before Plate 1.
Captions Figures 1 - 6

Figure 1: Morphological Sketch Map; simplified map of principal landforms and structures based on information derived from Geological Survey maps and on field observations.

Figure 2: Relief & Drainage; based on Ordnance Survey 1/63, 360 sheet 95.

Figure 3: Solid Geology; simplified map of solid geology, in which faults are omitted, as are small outcrops of Coal Measures Sandstones. Based on the Geological Survey maps noted in the key.

Figure 4: Drift Geology; based on the Geological Survey maps noted in the key.

Figure 5: Sites of Quarries Active during the Period 1815-1914, indicating various types of working. Based on Geological Survey memoirs and 1/10,560 maps, 1865 & subsequent editions, Ordnance Survey maps, and directories.

Figure 6: Sites of Reservoirs 1815-1914; based on successive editions of the 1/10,560 map.
Figure 5

- **O** Quarries in Millstone Grit
- **•** Quarries in Coal Measures Sandstone
- **□** Brick Pits in Millstone Grit Shales
- **■** Brick Pits in Coal Measures Shales & Mudstones
- **△** Sand & Gravel Pits
- **○** Limestone Erratic Pits
To Face Figure 7

Captions Figures 7 - 18

The keys for Figures 7 - 12 are identical; the entire range of symbols appears on Figure 7.

Figure 7  Industry & Communications c 1780-1790; based partly on Yates' map of 1787, and on various documentary sources.

Figure 8  Industry & Communications c 1815; based partly on Greenwood's map of 1818, and on various documentary sources.

Figure 9  Industry & Communications c 1825; based partly on Teesdale's map of 1828-29, Baines' Directory of 1824-25 and other documentary sources.

Figure 10  Industry & Communications c 1851; based partly on Ordnance Survey 1/10,560 maps, and on Slater's Directory for 1851. The large symbol for cotton mills represents groups of five establishments.

Figure 11  Industry & Communications c 1890; based partly on Ordnance Survey 1/10,560 maps, entries in various trade & topographical directories, and on Rate Valuation Books. The large symbol for cotton mills represents groups of five establishments; that for foundries is confined to engineering works.

Figure 12  Industry & Communications c 1913-1920; based on sources similar to those used in preparing Figure 11; the note on symbols also applies.

The keys for Figures 13 - 18 are identical; the entire range of symbols appears on Figure 13.

Figure 13  Types of Cotton Mill 1835; based on entries in Baines' Directory.

Figure 14  Types of Cotton Mill 1851; based on entries in Slater's Directory.

Figure 15  Types of Cotton Mill in 1865; based on entries in Kelly's Directory.

Figure 16  Types of Cotton Mill 1887; based on entries in Worrall's Directory, which also provided the data in Figures 17 & 18.

Figure 17  Types of Cotton Mill in 1899.

Figure 18  Types of Cotton Mill in 1913.
Captions to Figures 19 - 24.

Figure 19  Cotton Mills Closed before 1920; Mills known to have been at work before 1920 are shown according to their last advertised function. In some instances mills which spun or wove only at the time of closure had formerly been combined.

Figure 20  Cotton Mills Opened 1900-1920; based on new entries in Worrall's Directory during the period, some of which may have been re-namings or subdivisions of partly abandoned mills.

Figure 21  Types of Cloth Woven in 1887; based on entries in Worrall's Directory. Some firms did not indicate the range of cloth produced, and in most instances each mill advertised a wide variety of fabrics.

Figure 22  Types of Cloth Woven in 1913; see Figure 21 also.

Figure 23  Cotton Mills Enjoying Disadvantage Allowances 1920. Based on returns made to the Industrial Court in 1920. The mills at Briercliffe and Higherford were excluded from the list after 1920, thus confining the award to a handful of rural upland mills.

Figure 24  Cotton Mills Surviving in 1965; based on entries in Worrall's Directory this map is provided for purposes of comparison with Figures 13-18. For maps of intermediate years see the writer's M.A. thesis (Manchester 1955).
Captions to Figures 25 - 37

Figure 25  Calico Printing Works in the 1840s, indicating employment and power installed; data are from Report of Commission, Trades & Manufactures, HC 14 (1843) pp 76-77 of Appendix B2.

Figure 26  Calico Printing Works in the 1840s, indicating equipment installed; data are from Graham MS.

Figure 27  Power Looms Installed by 1834; data are from the Power Loom Census of 1834.

Figure 28  Increase in Power at Textile Factories 1835-37; based on a list of actual and projected increases in installed horse-power published in the Poor Law Commission Report of 1838.

Figure 31  Employment in Cotton Mills in Darwen 1887; indicating the number of workers at each mill, data from Shaw's History of Darwen 1889.

Figures 29-30 and 32-37 employ the same symbols and are derived from the same source - Worrall's Directory. The position of the various maps is shown on Figure 143. The circles are proportional to equipment installed at each mill; split circles indicate combined premises. In some instances the totals for individual mills are not available and values have been plotted at a single point. The pecked line represents railways; the heavy continuous line the canal.
Figure 27

Figure 28
Figure 29
Figure 31
Figure 32
Figure 34

BURNLEY & DISTRICT 1887

LOOMS
2000
1000
500
250

SPINDLES
75,000
50,000
20,000
5,000

ONE MILE
Captions to Figures 38 - 49

Figure 38  Employment in Extractive Industries, by Townships, 1841; data are from Census MS returns 1841.

Figure 39  Employment at Coal Mines 1841; data are from the Report to the Children's Employment Commission of 1841, and are incomplete.

Figure 40  Employment in the Textile Industry 1841 & 1851; data are from Census MS returns 1841 & 1851; the distinction between hand- and power-loom weavers was not consistently maintained throughout the locality by census enumerators.

Figure 41  Structure of Employment in 1851; data are from Census MS returns 1851, and have been greatly simplified (see Table 3).

Figure 42  Structure of Employment in 1901-1911; data are from published census returns and exclude rural administrative areas and the small towns of Barrowford (1901) & Trawden (both dates). The classification of occupations was broadly comparable at both dates; the statistics of female employment do not permit distinction between cotton manufacture and other textiles, and all the figures relating to tertiary employment are inadequately defined.

Figure 43  Structure of Employment in 1921; data are from published census returns and exclude rural administrative districts. The classification of occupations differs greatly from that of 1911.

Figures 44-48 employ the same range of symbols.

Figure 44  Collieries 1844; data are from the 1/10,560 Ordnance Survey Maps.

Figure 45  Collieries 1854; data are from Home Office Mineral Statistics, as are those used in Figs. 46-47.

Figure 46  Collieries 1869.

Figure 47  Collieries 1880.

Figure 48  Collieries 1892; data are from the 1/10,560 Ordnance Survey Maps.

Figure 49  Collieries 1911; data are from the List of Mines, and show the number of workers employed at each colliery.
CALDER-DARWEN VALLEY
TEXTILE INDUSTRIES

Figure 40
To Face Figure 50.

Captions to Figures 50 - 58.

Figure 50  Sales of Coal from Great Harwood Colliery; data are from the colliery sales ledger, and relate to 1865.

Figure 51  Employment in Cotton Mills 1851; data are from the Census MS returns, & Whittle, Blackburn as it is.

Figure 52  Employment in Other Industrial Establishments, 1851; data are from Census MS returns, and are far less complete than those for cotton mills. C = Chemical Works; W = Worsted Mill

Figure 53  Industrial Establishments in Burnley and Nelson 1895; data are from Rate Valuation Books, premises valued at less than £100 not shown.

Figure 54  Industrial Establishments in Blackburn & Rishton 1885; data are from Rate Valuation Books. Key as for Figure 53; R = Rope Walk.

Figure 55  Industrial Establishments Barrowford & Colne; data are from Rate Valuation Books. Key as for Figure 53; T = Tannery.

Figure 56  Industrial Establishments in Padiham & Hapton; data are from Rate Valuation Books; key as for Figure 53; C = Chemical Works.

Figure 57  (a) Paper Mills, 1911; data from Paper Makers' Directory. (b) Engineering works, data from Ryland's Directory, and Chemical Works, data from Ordnance Survey 1/10,560 maps.

Figure 58  The Lancashire "Weaving Area" according to the authorities named in the key. The boundaries of the various areas have been drawn as accurately as descriptions of them permit; Jewkes' 'North Lancashire' was equivalent to his concept of a weaving area. The density of shading is directly proportional to the number of authorities placing a given locality within the "weaving area"; the heaviest cross hatching almost exactly coincides with the limits of the Calder-Darwen Valley.
Figure 53
Figure 55

BARROWFORD & COLNE
INDUSTRY 1895/98

PADIHAM & HUNCOAT
INDUSTRY 1890/95

RATEABLE VALUES

£ 2500
£ 900
£ 400

ONE MILE

Figure 56
THE LANCASHIRE WEAVING AREA
ACCORDING TO SEVERAL AUTHORS

BOUNDARIES OF "WEAVING AREAS"
- E. Helm, "British Industries" (1903)
- Census Report for Lancashire (1921)
- W. Fitzgerald, "The Ribble Basin" (1929)
- A. Wilmore, "Industrial Britain" (1930)
- J. Jewkes, "The Localisation of the Cotton Industry" (1930)
- Lancashire Industrial Development Association, "The Weaving Area" (1946)
- B.O.T. Survey of the Lancashire Area (except Merseyside) (1932)

(The shading density is directly proportional to the number of authorities who included a given area within Lancashire. The various patterns are only the accidental result of superimposition.)
Captions to Figures 59 - 70

Figure 59  Road development and classification 1800-1895; data on Turnpike Roads are from W.Harrison's list, and on other roads from contemporary maps.

Figures 60 - 63 use identical symbols.

Figure 60  Communications in c 1815; based on Greenwood's map.

Figure 61  Communications in c 1851; based on Ordnance Survey 1/10,560 maps.

Figure 62  Communications in c 1895; based on Ordnance Survey 1/10,560 maps and data from Great British Tramway Networks (1964).

Figure 63  Communications in c 1920; sources as for Figure 62.

Figure 64  (a) Proposed and actual route followed by the Leeds & Liverpool Canal within the Calder-Darwen Valley, and the line of the Haslingden Canal. Dates refer to opening of sections between the arrows; reservoirs cross hatched.

(b) Trans-Pennine and other waterways, with dates of completion. The Lancaster Canal is included as it formed an integral part of the Leeds & Liverpool system as built. Data from various plans and contemporary sources of information.

Figures 65 - 70 use identical symbols and are based on the advertised carriers' services published in the directories for the relevant year. The maps show journeys which either originated in, or passed through the Calder-Darwen Valley; they exclude journeys between other places depicted which did not also serve the Calder-Darwen Valley.
Figure 64
Figure 71 Railways and Railway Projects.

This map shows those railways which were built, and a large number that were projected. Those built were owned by the East Lancashire Railway (E L), the Bolton, Blackburn, Clitheroe & West Yorkshire Railway (B B C W Y) and the Blackburn Railway (B R), all of which came under the control of the Lancashire & Yorkshire Railway (L Y). The Colne - Skipton line was built by the Midland Railway (M R); that from Cherry Tree to Boar's Head (Wigan) was jointly owned by the Lancashire & Yorkshire and the London & North Western Railways.

Data are from Greville's list & the Marriott Papers. The projected lines, it has been assumed for sake of clarity, would have made use of existing or already projected railways. The list given below is to be read in conjunction with that part of the key lettered A - L:

A Manchester, Liverpool & Great North of England Union; c 1850, with a branch from Preston to Thornton, and main line from Bolton to Settle and Richmond.

B Leeds & Fleetwood; n.d., map in prospectus shows it running across Pendle Hill.

C York & Kenyon Junction; n.d., in effect an extension of the E L Railway from Colne to Keighley, and from Clifton to Kenyon Jun.

D Burnley & Rawtenstall; 1887.

E Keighley & Preston; c 1855, would have followed same route east of Colne as C; as would the proposed line from Colne to Addingham of 1846.

F Blackburn, Chorley & Liverpool; c 1850.

G Preston Wyre & Darwen; n.d.

H A series of local lines in the Whalley area, c 1886.

I Lancashire & North Yorkshire; in effect an extension of the Colne-Skipton line, and a loop connecting the E L & L Y in Burnley.

J Manchester & Preston; 1846.

K Erewash Valley Extension; 1852. Locally the line would have linked Rossendale with Burnley and Blackburn.

L Liverpool, Manchester & Newcastle (via Bolton, Blackburn and Settle)
Captions to Figures 72 - 90

Figures 72-87 use the same range of shading throughout; maps showing decennial change use the key employed in Figure 72, with added categories where necessary; maps covering 30 year periods use the key employed in Figure 73, with added categories where necessary. The data are taken from the published census returns, and are plotted on Census Index Map 1a for the period up to 1891, Figure 83. Figures 84 - 86 are based on Census Index 1b, and it is not possible to make exact comparisons between these maps and Figures 72 - 83. Nor is it possible to produce an accurate map of changes during the period 1891 - 1921, due to numerous boundary changes, notably in the Pendle area. Figure 87 is based on the current administrative boundaries which differ little from those of 1921. It employs the shading categories normally used for decennial change.

Figure 88 Changing Distribution of Population in Colne Registration sub-district, 1851 - 1861. (a) is an enlargement of the relevant part of Figure 78. (b) shows the same locality but uses the data from the Census MS for each enumerator's district rather than the published returns.

Figure 89 Date of Population Peak 1801 - 1961; the peak year in those townships which remain blank was either 1901 or 1891, boundary changes make it impossible to be more precise.

Figure 90 Population Changes by Township Groups 1801 - 1961; data from published census returns are plotted on a logarithmic scale. The township groups are shown in Figure 140.
Captions to Figures 91 - 101

Figure 91 Birthplaces of the Population 1851; data are from Census MS returns. The circles indicate the size of sample taken, and are sub-divided to indicate the major origins of the population. The line-shading shows the proportion of the total population covered by the sample.

Figure 92 Origin of Migrants 1851; data are from Census MS returns. The circles are proportional to the number of inhabitants enumerated in 1851 but born in the various localities named in the key.

Figure 93 As for Figure 92, illustrating a further group of localities.

Figure 94 As for Figure 92; the large circles indicate the total number of residents born outside the Calder-Darwen Valley.

Figure 95 Origins of Migrants to Selected Townships in 1851; the maps show diagrammatically the relationship between place of enumeration and place of birth within the Calder-Darwen Valley. The tables show the composition of the birthplace sample in each of the five selected townships.

Figure 96 Dispersal of Migrants from Selected Townships 1851; the townships are those used in Figure 95, but the maps show diagrammatically movements of population from the five centres to other parts of the Calder-Darwen Valley. Data for Figures 95 - 96 from Census MS returns; in several instances the returns for Over and Lower Darwen, New and Old Accrington, Great and Little Marsden have been amalgamated. Movements of fewer than 10 people are not shown.

Figure 97 Origins of Selected Occupations 1851; data from Census MS returns. Each dot represents one worker's place of birth, the circles indicate the size of sample, and the shaded sector the proportion born in the township of enumeration (X).

Figures 98-101 employ the same basic source (Census MS returns), and similar symbols. Each dot represents one person's birthplace, X marks the place of enumeration, the large figure indicates the total number born in the township of enumeration, and the small figure the percentage which they form of the entire sample being mapped. On Figure 100 (Jewel Mill) this last item is omitted as the sample contained no locally born people.
Figure 97
Figure 98
To Face Figure 102

Captions to Figures 102 - 116

Figure 102 Birthplace Records of Migrant Families, 1851: a diagrammatic representation of a selection of families enumerated in the Calder-Darwen Valley in 1851.

Figures 103-108 are based on tracings taken from topographical maps in order to illustrate the pattern of settlement and its growth. Figure 103 is based on Teesdale's map (1828-29) and Figures 104-108 are based on the Ordnance Survey 1/63,560 map.

Figure 109 Growth of Settlement post-1920; solid shading indicates areas built over before 1920, lined shading land built over between 1920 - 1961.

Figures 109-110 show types of settlement in c 1851 and 1912 respectively; each is based on the Ordnance Survey 1/10,560 map and surviving field evidence. The key (Figure 111) gives illustrations of each type: top row, left to right Stanhill, Catlow, Blacksnape, Blacko, Worsthorne; bottom row left to right Brookhouse, Foxhill Bank, Hapton, Foulridge, Dunkenhallagh.

Figure 112 Major Elements of Land Use, Blackburn 1835; data are from Rate Valuation Books, greatly simplified in many instances. The same key is used in Figures 113-114. M = Market Sq., P C = Parish Church.

Figure 113 Major Elements of Urban Land Use, Burnley 1895; data from Rate Valuation Books, key as Figure 112. M = Market Hall, CM = Cattle Market, P C = Parish Church, B = Barracks.

Figure 114 Major Elements of Urban Land Use, Nelson & Colne, and Padiham 1895; data are from Rate Valuation Books, key as for Figure 112.

Figure 115 Land ownership in Parts of Burnley and Habergham Eaves 1846; data from Tithe Award Maps. Key letters relate to major owners outside the built up area: 1 Kay Shuttleworth of Gawthorpe; 2 Robinson; 3 Greenwood; 4 Dugdale (Calico Printer); 5 Ormerod; 6 Halstead; 7 Parker Townley of Royle; 8 Grimshaw; 9 Hargreaves (Coal Owner); 10 Collinge; 11 Mosley; 12 P.E. Towneley of Towneley; 13 Holden; 14 Curacy Glebe; 15 Brennand; 16 Burnley Grammar School; 17 Leeds & Liverpool Canal; 18 Greenwood.

Figure 116 Land ownership in Clayton le Moors c 1830, superimposed on the map of 1958; buildings marked by hatching erected before 1928. Data from Trappes-Lomax papers.
Figure 112
Captions to Figures 117 - 141

Figure 117  Elements of Nineteenth-century Origin in the Modern Landscape of Urban Areas 1965; based on field work. Buildings surviving from before 1920 are taken as features of nineteenth-century origin; in some of the localities so depicted small-scale rebuilding may have taken place. Surviving areas of parkland are bounded by a pecked line.

Figures 118 - 129 are extracts derived from 1/10,560 Ordnance Survey maps. Industrial premises are marked: C = Cotton Mill.

Figures 130 - 135 are based on the survey of the urban hierarchy which forms Appendix A.

Figures 136 - 141 are based on various Ordnance Survey maps at scales of 1/10,560 and 1/63,360 showing different types of administrative boundary.
Figure 136

TOWNSHIPS PRE 1892

CIVIL PARISHES POST 1892

UNNAMED AREAS ARE CONTIGUOUS WITH EARLIER TOWNSHIPS

1. Transferred from Hapton 1894
2. Added to newly created Sibden C.P. 1904

MILES
CAPTIONS TO THE PLATES

Plate 1: Central Burnley, 1955.
 Although taken in 1955 this photograph shows Burnley as an almost unchanged nineteenth-century town. Some sites had been cleared, as for example the group of canal-side mills at Scar Top (A), and on part of the Curacy Estate leased piecemeal in the 1820s (B); but little rebuilding had taken place on this land, with the exception of the Odeon cinema constructed in the architectural idiom of the 1930s on the site of a cotton mill (A). The valley of the River Brun (centre) is choked with a mixture of factories and houses; the principal shopping street, widening where the market was formerly held, runs sub-parallel to it, linking the oldest parts of the town around the Parish Church (C), with its more recent centre.

Plate 2: Central Burnley, 1964.
 This photograph shows how great the legacy of nineteenth century building is in the town; the volume of rebuilding since 1955 (Plate 1) has been relatively small in relation to the total amount of clearance that is desirable. The land adjoining the Odeon (A) has been built over, some thirty years after the mills were demolished, and considerable tracts of cottage property have been replaced by new building on part of the Curacy Estate. Note, however, that the system of leasing land leaves some old property embedded in the new shopping parades (B). Much of the town centre is still reminiscent of fifty years ago, and the belt of cotton mills along the banks of the canal (C) largely survives, although many now house diverse industries.

 An industrial suburb of the period 1850-1890 it forms part of the area depicted on Figures 128-129. The cotton mills (A) lie on the banks of the River Calder; the entrance to Towneley Park (B) marks the sudden end of this industrial zone. Much of the land here formed part of the Curacy Estate, and changes in the alignment of the grid-iron represent different plots of leasehold land. This landscape shows scarcely any change from that of seventy years ago.

Plate 4: North Burnley, 1961.
 The area depicted here also forms part of the locality depicted on Figures 128-129, and mainly shows the effect of the Hargreaves' Estate of Bank Hall (C - now a maternity hospital) on the growth of Burnley. Expansion to the north of the Parish Church (A) was blocked by this belt of parkland. In the 1880s high-quality residential building was permitted along Ormerod Road (B), and at the turn of the
century the large weaving shed was built near by. Much of the land was, however, preserved as public open spaces and building restricted to institutional uses, until 1938 when the Prestige Group factory (D) was erected. Part of the Hargreaves' industrial interests at Bank Hall appear at E, but the main colliery site lies further to the right. At F the artisan suburbs of North Burnley, built beyond the parkland wedge after 1860, begin.

This photograph shows part of the area depicted on Figures 126-127. Although built at a relatively late date Nelson differs little from the other towns of the Calder-Darwen Valley in its layout. The town grew at the turnpike junction (A) where the Lord Nelson Hotel stands; its earliest industrial zone ran along the valley of Walverden Water (B). Many of the buildings along the main shopping street (C) date from before 1850 and formed the pre-urban hamlet of Hebson (or Hibson). The irregular grid-iron at the centre of the town reflects the fragmentation of land holdings in the 1840s. As recently as 1960 this scene remained almost as it had been fifty years before; now (1965) the area between the railway station and the mills at B is being re-developed, the first major change in the town centre since its original creation sixty or more years ago.

Plate 6: Darwen 1949.
This photograph strikingly displays the haphazardness of town growth during the nineteenth century, for Darwen evolved through the coalescence of numerous mill hamlets strung out along the valley. The settling ponds (A) are a common feature of the paper mills of the locality. India Mill (B) is one of the few examples in the Calder-Darwen Valley of Victorian extravagance applied to factory building. A spinning mill, dating from 1865, its campanile chimney was considered to be a fitting monument to the great era of prosperity which came with the end of the Cotton Famine.

Plate 7: Accrington 1959.
This plate also appears as the frontispiece to the volume of text. It is included for its evocation of the romantic approach to Lancashire urban landscapes, which is far better expressed by a Lowry pencil sketch or painting.

Plate 8: Accrington 1961.
This photograph was taken in July, with minimum low level atmospheric pollution — plate 7 was taken in March. Re-development on the site of old cotton mills in the Hyndburn Valley (A) contrasts markedly with the surviving concentrations of mills (B) and other nineteenth-century building. The large works (C) is Howard & Bullough's textile
machinery factory. The land in the foreground (D) formed part of the parkland surrounding the Peel family's seat; Avenue Parade (D) follows the line of the carriage drive, but unlike the Hargreaves' and Towneley lands in Burnley this locality was built over by speculators during the second half of the nineteenth century.

Plate 9: Church 1964.
The original hamlet (A) was transformed from the late eighteenth century onwards by industrial development, beginning with Church Bank Print Works (B - being demolished at the time of the photograph), and including several cotton mills, and chemical works (C). The open land to the north (D) forms part of the Petre Estate at Dunkenhalgh Park.

Plate 10: Colne 1963.
The old town spread to east and west of the Parish Church (A) along the ridge top, but much of the nineteenth-century growth was on its steep slopes, first towards the industrial zone along Colne Water (B) and later towards North Valley (C). By 1963 considerable clearance of the central area had taken place, but the dominance of older buildings, including a few back-to-back houses (E) was still apparent. To the north, beyond Colne Edge with its large residential properties, are the summit reservoirs of the Leeds & Liverpool Canal (D).

Plate 11: Northern Blackburn 1932.
One of the few residential suburbs, and the only sizeable development of its kind in the Calder-Darwen Valley, is this area around Corporation Park. The park was laid out in the late 1850s having been purchased with money derived from the sale of the Town's Moor to the East Lancashire Railway Company.

Bank Top was the major industrial area of western Blackburn, with numerous textile mills strung out along the valleys of the Blakewater and Snig Brook (A). King Street and Montague Street (B) were high-quality Georgian residential thoroughfares, but the rapid growth of artisan housing in this locality from about 1845 onwards reduced their status to the advantage of the Corporation Park district. From 1958 onwards the area began to be transformed by redevelopment (C), but note that this still largely follows the nineteenth-century property boundaries.

Plates 13 - 16 form part of a sequence depicting central Blackburn; a common point of reference is the railway station.
Plate 13: Central Blackburn 1925.

This is the only clear pre-war photograph of a town in the Calder-Darwen Valley in Aerofilms' collection, and it gives a good impression of the salient features of central Blackburn's evolution. The original settlement focused on the Parish Church (A) and the jumble of streets to the left. The nineteenth-century town centre was built between the church and the Town Hall and Market House (B). Much of the early factory building, intermixed with artisan housing, took place on the Glebe lands (C), but after 1850 the town rapidly grew to engulf outlying industrial suburbs, such as that at Brookhouse (D).

Plate 14: Central Blackburn 1954.

Almost thirty years later but very little has changed. The parish church, now Blackburn Cathedral, has been enlarged (A), the tramcars have disappeared, and some clearance has taken place on the Glebe (C), with rebuilding again taking the shape of a super-cinema erected in the thirties. Elsewhere the scene is strongly reminiscent of the nineteenth century, particularly in the factory zone along the banks of the canal at Eanam (D).

Plate 15: Central Blackburn 1965.

More change has been crammed into the period 1960-1965 than that between 1914-1959. The rebuilt area on part of the Glebe (A) comprises new shops and market hall, replacing that to the west (B). The tall block (C) is one of several to occupy sites of poor cottage property at Larkhill, and the modern factory (D) is the rebuilt Dutton's Brewery. Thus since 1954 (Plate 14) the greater part of the Glebe has been subject to change, but, as the areas of later-nineteenth-century development beyond show, a considerable legacy of obsolete building survives in the town.

Plate 16: Wigan 1938.

The core of the town, centred on the Parish Church and old Market Place (A) stands out clearly; little factory building exists at the centre (cf Blackburn or Burnley) for most of this lay to the south and west beyond the railway. The large tract of open land to the north of the town centre formed part of the Rectory Glebe, out of which Mesnes Park (M P) and the Market Hall & Square (M H) were created. B marks the site of Blundell's Colliery which worked beneath the Glebe until the late 1860s. The preservation by the municipality of church lands in Wigan contrasts very sharply with its fate in Blackburn, Burnley, and Bolton.

Plate 17: Bolton 1962.

According to Baines' map of 1825 this area overlooking the Croal Valley was to have become a select residential area. The coming of the railway and the sale of the
church lands to speculators produced a very different result, as this photograph shows.

Plate 18: Bolton 1949.
This photograph illustrates the pattern of development on Bolton Moor (A) and the church land known as Lecturers' Closes (B); in both instances speculative building robbed the town of the chance to preserve tracts of open land as was done in Wigan.

Plate 19: Barrow in Furness 1960.
Ramsden's planned town stands out clearly on the right; Ramsden Square (with the founder's statue in the centre) stands astride the major axis of Abbey Road, a wide boulevard running from left to right. Much of Barrow was, however, speculatively built, a feature which is revealed in the irregularity of the grid-iron outside Ramsden's settlement at Hindpool.

Ramsden's Barrow, including part of the dock system and the iron and steel works lies on the far bank of Walney Channel. In the foreground is a later planned settlement - Vickerstown - built by Vickers Sons & Company as a "marine garden city" at the turn of the century. Although more spacious it was scarcely better endowed than the "new town" of the 1860s.

This photograph might well replace the more commonly used aerial view of the town which is normally employed to depict a 'typical' cotton manufacturing centre. The view illustrates several facets of Preston's character. The core of the town, now greatly modified by recently completed schemes of rebuilding (A) gives way on the south to the Georgian suburb around Winckley Square (B) and the riverside parks at Avenham (C). To the east the beginnings of New Preston, built on New Hall Fields (D) and now an area of extensive clearance, and to the north an area of redevelopment in a similar district of early factories and artisan housing (E). Beyond are the areas of bye-law housing and mill buildings dating from the period after 1865 (F), and in the far north the parkland of Preston Moor and the residential suburb of Fulwood. It is instructive to compare the fate of the town's moor here with the developments at Bolton (Plate 18).

Plates 16 - 21 form a small selection from a much larger collection; they are intended to convey an impression of the variety of urban landscapes in Lancashire.