

Settlement Patterns in Staffordshire in the late Eighteenth and Nineteenth Centuries

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Introduction

During the late eighteenth and nineteenth centuries, there was a sharp acceleration in the growth of population in Staffordshire in association with that county's rapid economic development. Its population increased from 190,000 in 1781 to 1,246,000 in 1901, while population density rose from 165 per square mile in 1781 to 1,057 in 1901.¹ This more than six-fold expansion in both numbers and density brought drastic changes to the settlement pattern of the country. There have been many analyses of aspects of the general process that led to population growth and hence to the transformation of the settlement plan in the county — the rationalisation of agriculture, the development of industry, the spread of urbanisation.² However, there has been a relative neglect of the settlement pattern itself in Staffordshire during these two centuries. Few attempts have been made either to depict the varying settlement plan or to identify changes in its pattern in this period of economic growth. A settlement plan of the whole county was included in the land utilisation report by Myers but the pattern related to a single survey carried out in 1931-33, with no discussion of its development from the eighteenth century.³ Moislely provided an indication of the degree of change in the settlement pattern from 1770 to 1946 in an interesting, although inaccurate, series of maps, but restricted his analysis to the Potteries area.⁴ Clearly, a reconstruction of the changing settlement pattern of Staffordshire is required from the late eighteenth century to the end of the nineteenth century so that the impact of the process of industrialisation on settlement can be fully determined.⁵ The purpose of the present paper is to make a contribution towards that reconstruction by assessing the value of two sources — the one-inch to the mile topographical maps of Staffordshire of the eighteenth and nineteenth centuries and the nineteenth-century census house data.

Cartographic evidence

Cartographic evidence of changing settlement patterns over this period is a product of the remapping of England after 1750 at medium and large scales first by private surveyors at the county level and subsequently at the national level by the Ordnance Survey.⁶ Amongst the considerable topographical and cultural detail on these maps is a clear record of settlement. For Staffordshire, the first of such surveys dates from 1775, the work of William Yates who published in that year a map of the county at the scale of one inch to one mile.⁷ The first edition one-inch to the mile Ordnance Survey sheets of the county were published between 1833 and 1842, and thereafter the Ordnance Survey produced medium scale maps covering Staffordshire regularly throughout the nineteenth century.⁸ In the present paper, the pattern of settlement in the county has been derived for three periods from these surveys at reasonably uniform intervals: for 1775 from Yates's map; for 1833-42 from the first edition one-inch Ordnance Survey; and for 1904-07 from the third edition one-inch Ordnance Survey.

Although a full portrayal of settlement is provided on each of these surveys, an understanding of the background to their production is necessary to assess the reliability of the resulting pattern. Yates's map was the first of the county to be based on an original field survey using a scientific framework of triangulation. As such, the topographic material was located with considerable precision, better than any previous map and comparable with the results of the first edition one-inch Ordnance Survey. The map was published in 1775, but the survey was begun in 1769 and the recorded settlement pattern must relate to the early 1770s. Yates's record has been taken to indicate the complete pattern of settlement in Staffordshire at this date, but it is clear from the map itself that Yates did not include all aspects of settlement. Only four settlement forms were distinguished: market towns and villages 'in their true form', gentlemen's seats and farm houses. Comparison with contemporary large-scale estate maps reveals that rural settlement forms such as cottages and farm buildings are neglected; that not all farmsteads are noted and their location is often wayward; and that within villages and hamlets although individual houses are plotted they can be assumed to represent only the broad rather than the precise pattern of settlement. Towns are marked by areas of solid engraving, but the distinction between town and village is based on historic status rather than size. The form and layout of each town is shown but little attempt is made to differentiate between their relative sizes.⁹ Yates's record should not be regarded as definite but it provides the best indication of the settlement pattern in the county in the late eighteenth century.¹⁰

Staffordshire was covered by five Ordnance Survey first edition one-inch sheets, numbers 61, 62, 72, 73 and 81. The first four sheets were published between 1833 and 1838, the last in 1840-42 and the pattern of settlement derived from them has been allocated a date encompassing these publication years. However, Harley has shown that the publication dates do not represent those periods when the topographical survey was undertaken. Although the principal triangulation of the survey in much of the region was carried out in the early 1800s, the topographical survey in the county was accomplished in several stages from 1814 up to the dates of publication.¹¹ Thus, sheet 62, published in 1834 and depicting the Lichfield area and the Black Country, had a two-part topographical survey: a field survey dating from 1814 to 1817 which included much rushed work, and a revision in 1831-32 before publication.¹² The topographical material on sheet 72 covering the area around Stafford and the Potteries and published in quarter sheets between 1836 and 1838 also had a lengthy period of production. The earliest plans for the sheet relate to the southwest section and date from 1817; some mapping was undertaken in the southeast portion of the sheet in the 1820s; the northern part of the sheet was surveyed from 1831 to 1837; and those parts surveyed before 1820 had to be revised in the 1830s before publication.¹³ Sheets 61 and 73 had similarly chequered records. In contrast, the production of sheet 81, relating to the northern part of the county, was achieved in a far shorter time period: the southeast and southwest quarter sheets were published in 1840 and 1842 respectively and the topographical survey was undertaken in the three or four years before publication.¹⁴ Thus, unlike Yates's survey which was completed within six years, the topographical survey of Staffordshire of the first edition one-inch Ordnance Survey covered a much longer period and the pattern of settlement obtained from these sheets relates to a much wider time span than that suggested by the publication dates.

The accuracy of the topographical detail on the first edition may not be of the same level as subsequent Ordnance Survey maps, but the standard was an advance on that achieved by Yates, sheets published before 1840 being reduced from a field survey

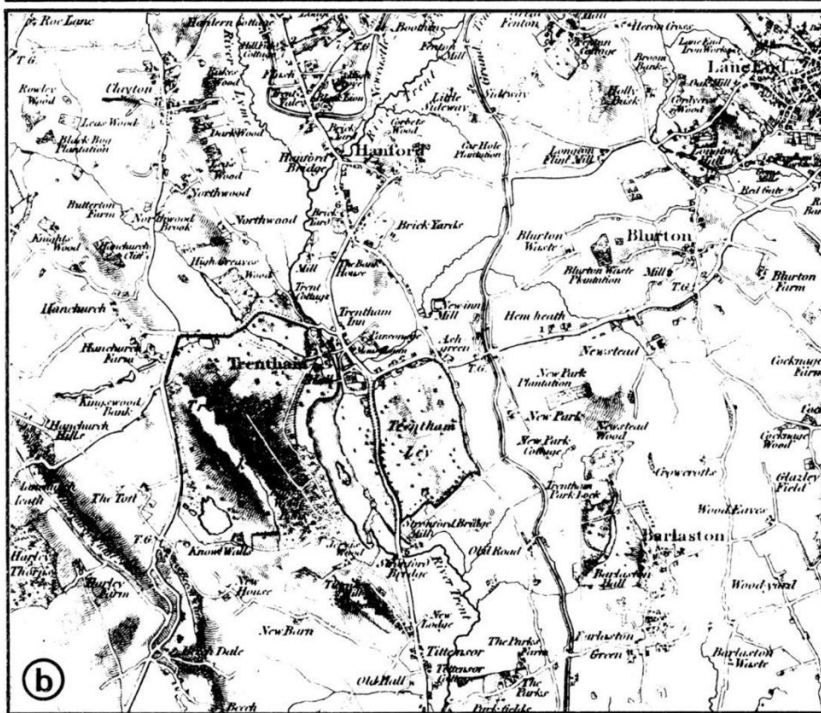
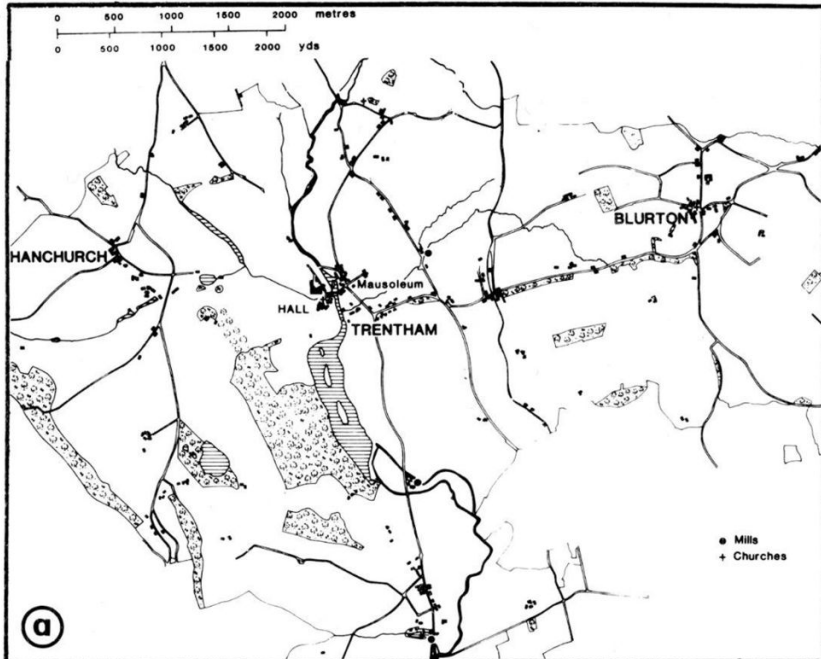


Figure 1. Part of the Trentham estate as depicted by L. Elliot in 1832 (A) and the Ordnance Survey in 1831-37 (B) (Sources: S.R.O., D593/H/3/448; Ordnance Survey first edition one-inch sheet 72 NW).

undertaken at the scale of two inches to the mile. By the mid-1830s there had been considerable improvements in engraving so that the density of detail was increased. The depiction of small towns and villages benefited from these developments and only in the centre of larger towns were the built-up areas blocked in.¹⁵ An indication of this new order of accuracy of the settlement pattern may be gauged from a comparison of L. Elliot's survey of the Duke of Sutherland's estate at Trentham undertaken in 1832 at the scale of one inch to 15 chains¹⁶ with the appropriate part of Ordnance Survey sheet 72 NW, the material for which was gathered in 1831-37 (Fig. 1).

The third edition one-inch Ordnance Survey sheets provide the most precise data of the three surveys under consideration. The sheets covering Staffordshire were published from 1908 to 1910 and were derived from reductions of larger scale surveys at 25 inches to the mile, a practice introduced from 1840 and ensuring that the accuracy of the topographical materials was of the highest level.¹⁷ As the revising survey for the third edition was carried out in Staffordshire in a short time period, 1904 to 1907, the resulting settlement pattern is the most complete.

The settlement traces for each period incorporate the limitations of the original surveys and this factor needs to be appreciated in the analysis of the patterns. Nevertheless, the traces from these surveys (Figs. 2-4) provide a strong visual guide to the changes in settlement within the county from the 1770s to the early 1900s.¹⁸ Although precise distinctions between grouped and dispersed settlement and between rural and urban farms cannot be made from these traces, broad patterns can be identified for each period.¹⁹

Yates's map indicates the dominance of rural settlement in Staffordshire in the 1770s (Fig. 2). Only the heathlands in the centre and south of the county, such as Cannock Chase, Sutton Coldfield and Kinver Edge, and to a lesser extent Needwood Forest, not enclosed until 1801, and the Trent-Tame lowlands on the eastern border are depicted as areas of little settlement.²⁰ In the rest of the county differences in the rural settlement pattern can be distinguished. Yates records in the northern, upland parts of the county the prevalence of dispersed settlement, with nucleation being of secondary importance.²¹ This pattern tends to be reversed in much of central Staffordshire, an area of heavy lowland soils, where nucleated rural settlement is more prominent, isolated farms being less common. The greater frequency of nucleated settlement is maintained on the lighter soils in the southwest and southeast of the county beyond the Black Country plateau.²² The map reveals only slight urban development in Staffordshire. The 18 towns identified by Yates would seem small and similar in size, although there is some indication of the beginnings of urban expansion on the Potteries coalfield and more clearly in the Wolverhampton, Walsall and Dudley area. However, the survey under-represents the extent of urban settlement in the early 1770s. Yates failed to make sufficient distinction between the relative size of towns. Thus, Wolverhampton contained 1,440 houses and a population of 7,454 in 1750, which had increased to 2,770 and 11,368 respectively in 1788, making it the largest town in the county. It was about three times as large as Lichfield, which in 1781 possessed 765 houses and a population of 3,771, and as Burton upon Trent with 728 houses and 3,479 people in 1789.²³ The dominance of Wolverhampton and the comparative size of Lichfield and Burton are far from adequately demonstrated on the map. Again, the pattern of settlement recorded for both the Potteries and the Black Country does not satisfactorily represent the process of urban expansion at work. It has been calculated that by 1775 Burslem in the north and Wednesbury and West Bromwich in the south

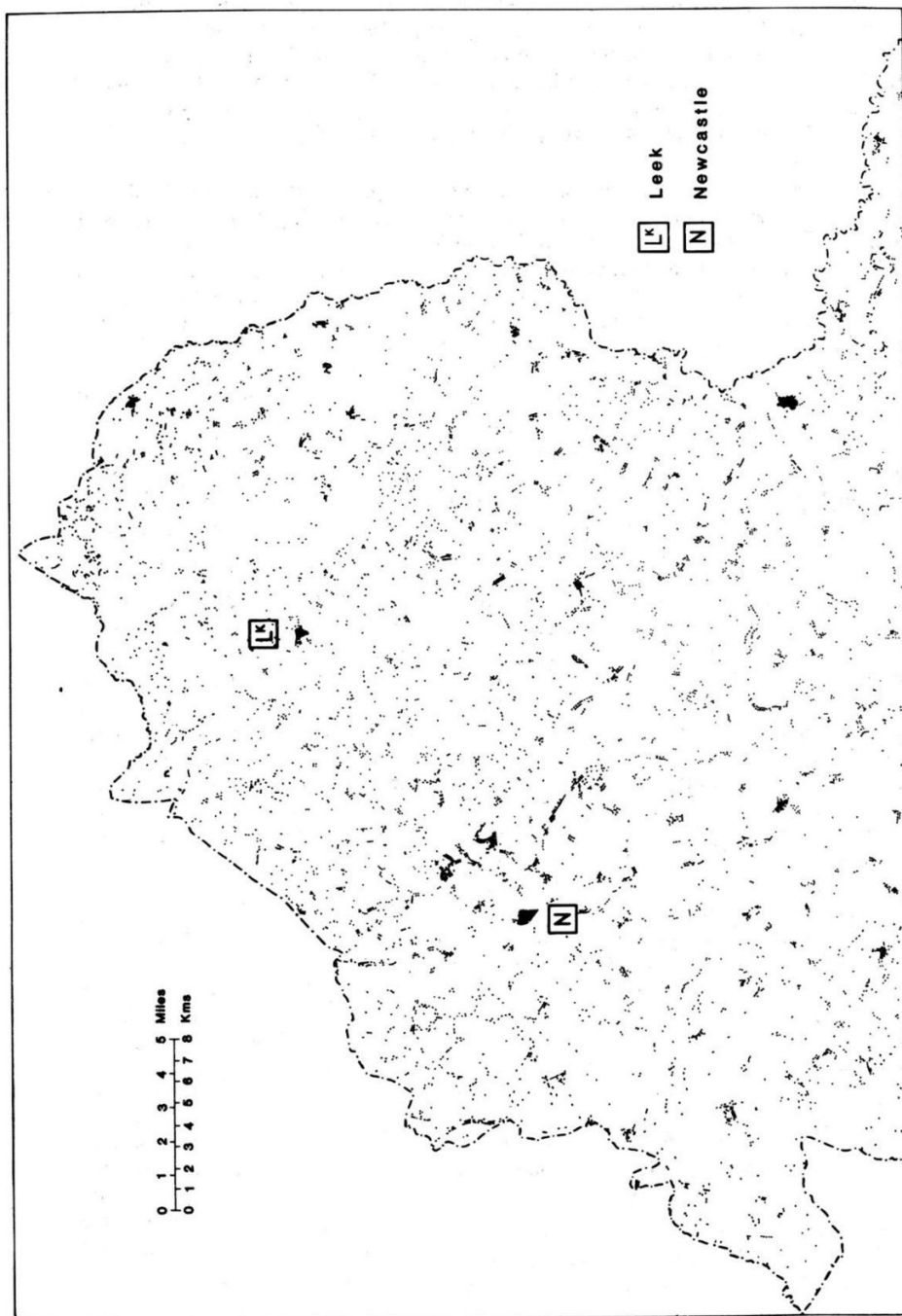


Figure 2. Settlement in north Staffordshire in the early 1770s (Source: W. Yates, *Map of the county of Stafford, 1775*).

would each have had populations of about 2,500, the size of an average Staffordshire town, but such settlement concentrations are not evident on the map.²⁴

The overall settlement pattern recorded on the first edition one-inch Ordnance Survey maps published between 1833 and 1842 is not greatly different from that on Yates's map: the limited urban development and the predominance of rural forms are the most immediate features of settlement (Fig. 3). Cannock Chase still remains the major area of little settlement, but there has been some encroachment into Needwood Forest, onto the Trent-Tame lowlands and onto other heathland districts. Although there has been a general increase in the density of settlement in all rural parts, possibly reflecting a more accurate survey base, the pattern of rural dispersion and nucleation has not changed materially from that of the early 1770s. Similarly, the urban plan has undergone little alteration between the two surveys, the main difference being that the relative sizes of the built-up areas can be more clearly discerned and that there is a thickening of settlement on both the South Staffordshire and Potteries coalfields, the nuclei of the later six towns being depicted on the latter.

The third edition one-inch Ordnance Survey maps of 1904-07 present a dramatic change to the settlement pattern and the extent of the built-up area is the most distinctive feature (Fig. 4). Not only has virtually every existing town expanded, but new areas of urban settlement have emerged, as on the Cannock coalfield with the appearance of Cannock, Cheslyn Hay, Brown Hills and Pelsall. Some centres are shown to have experienced exceptional growth, as at Burton upon Trent, while the Black Country and the Potteries are urban-industrial realities with extensive areas of continuous development. Change is less evident in rural Staffordshire. The limits of Cannock Chase have been reduced with the exploitation of the coalfield, but it is still marked as largely without settlement. A slight increase in emphasis on nucleation and some decline in dispersion can be detected in the north of the county, and villages like Keele and Madeley in the northwest and Mayfield, Alton and Butterton in the northeast are plotted as distinct centres.²⁵ Such a trend is not clearly evident in the rest of the county and in general the settlement trace would point to a broad stability in the rural pattern from 1833-42.

Census house data

Although the traces indicate vividly the spatial patterns of settlement distribution for each period and the degree of change between periods, they provide no quantitative statement on those patterns. Full-proof indices of dispersion and nucleation may never be achieved and their devising is beyond the scope of the present study,²⁶ but a quantifiable measure of settlement would greatly enhance the analysis of the patterns in the county. Settlement incorporates a vast range of components from factories and churches to farm buildings, but the overwhelming proportion of the pattern is made up of houses. From the taking of the first census in 1801, records were included in the censuses of the nineteenth century of the number of houses in each civil parish and from these data a measure of settlement density may be produced. Although not available for the 1770s, the material provides amplification of the settlement patterns derived from the nineteenth-century surveys.

A distinction was made in the 1801 census between inhabited and uninhabited houses, which from 1811 was extended to include houses being built. No definition of a house was made before 1851, the enumerator being allowed to use his own judgement,

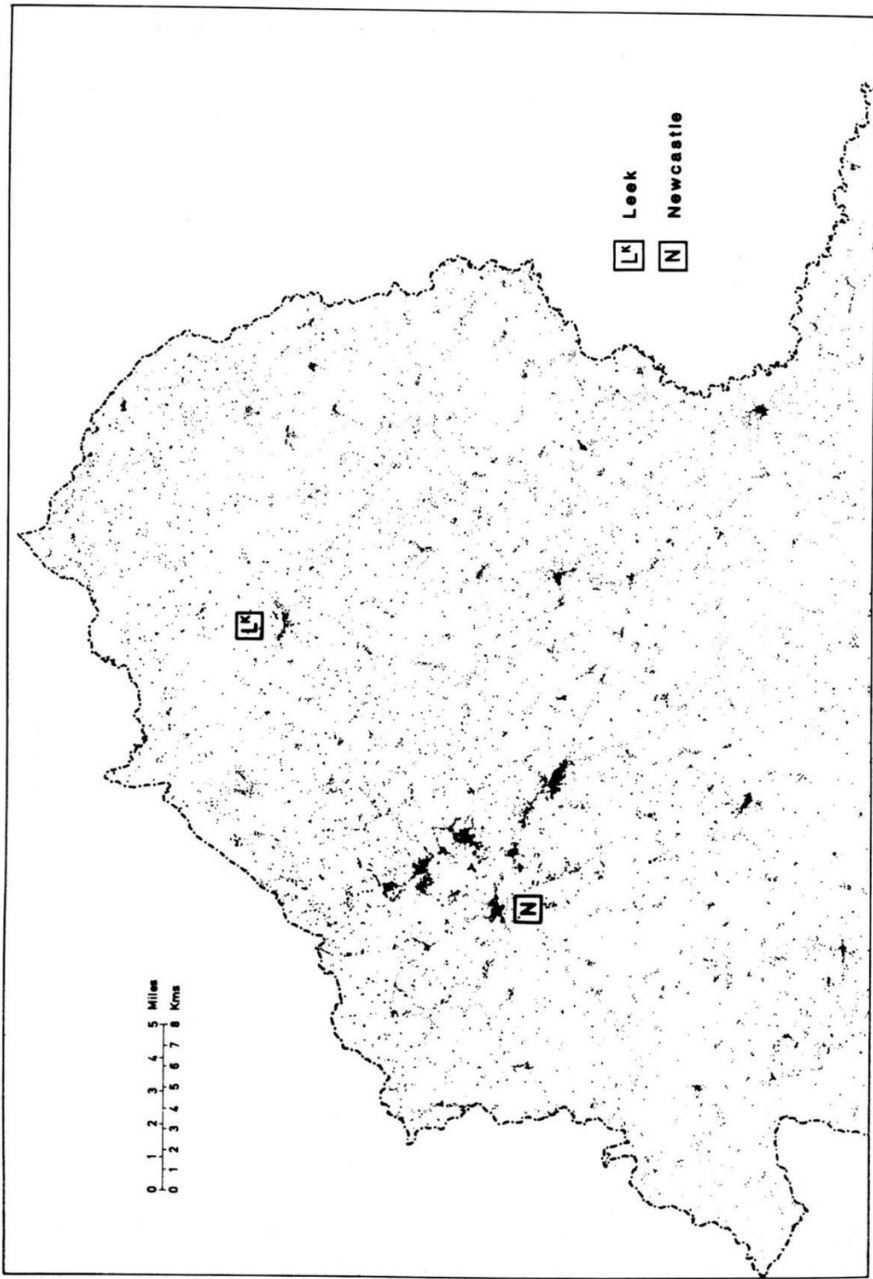


Figure 3. Settlement in north Staffordshire, 1833-42 (Source: Ordnance Survey first edition one-inch sheets 61, 62, 72, 73, 81).

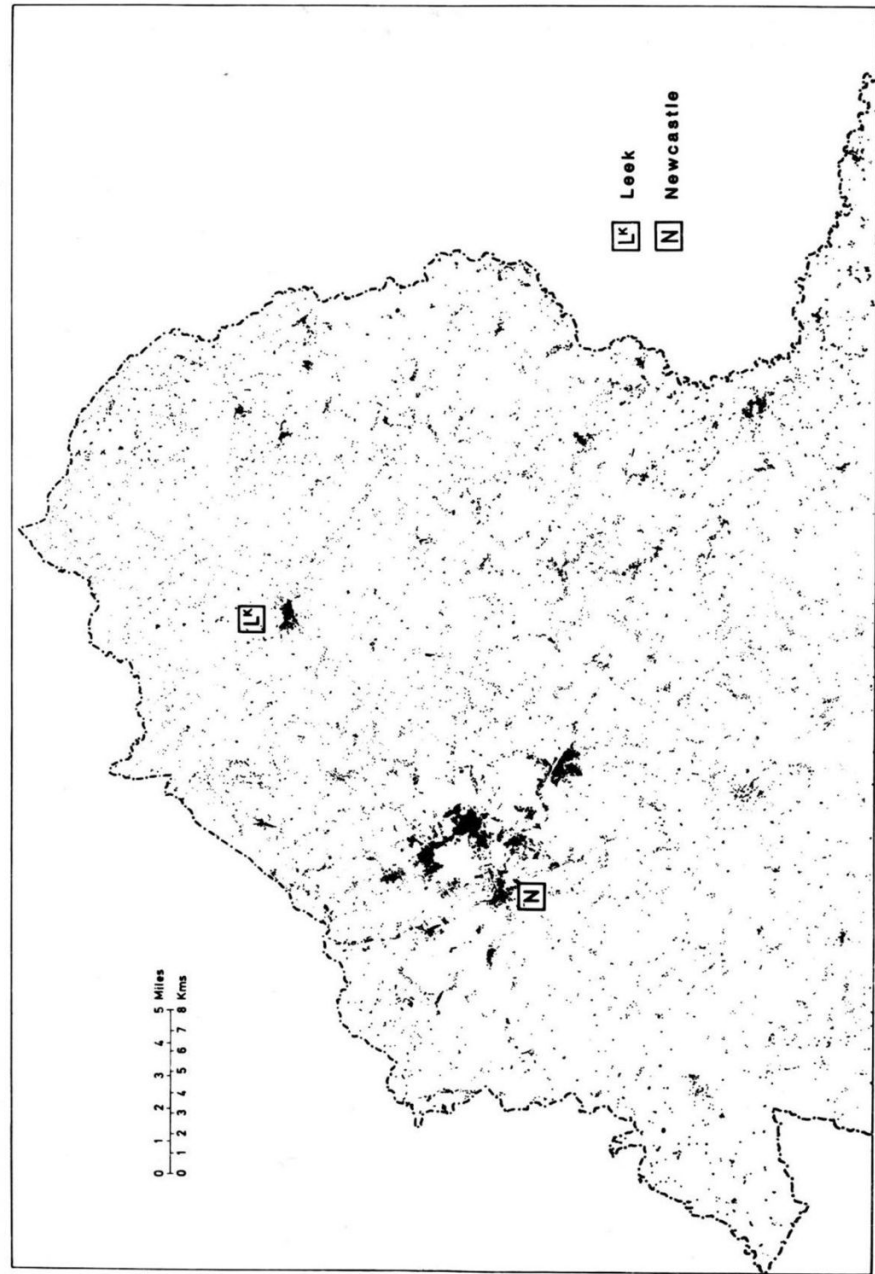


Figure 4. Settlement in north Staffordshire, 1904-07 (Source: Ordnance Survey third edition one-inch large sheets 45, 52-54, 61-63, 71, 72).

but in the 1851 census a house was defined as 'all the space within the external and party walls of a building', a ruling that was applied for the rest of the century. Although in urban areas after 1871 other items such as hotels, clubs, boarding houses and business establishments when inhabited by resident caretakers were included, the record throughout the nineteenth century was predominantly of individual dwelling houses.²⁷ By expressing the total of inhabited and uninhabited houses in each parish per 100 acres of each parish, a basic measure of settlement density can be derived. In Staffordshire as a whole, the number of houses recorded rose at a reasonably constant rate from 46,900 in 1801 to 226,600 in 1901, an overall growth of 566%, accommodating a similar increase in population (Fig. 5). The growth in density was of the same order, from a county average of 6.4 houses per 100 acres in 1801 to 11.1 in 1831; by 1861 the density had reached 21.3 and thereafter the rate of increase slowed down to 35.2 houses per 100 acres in 1901.

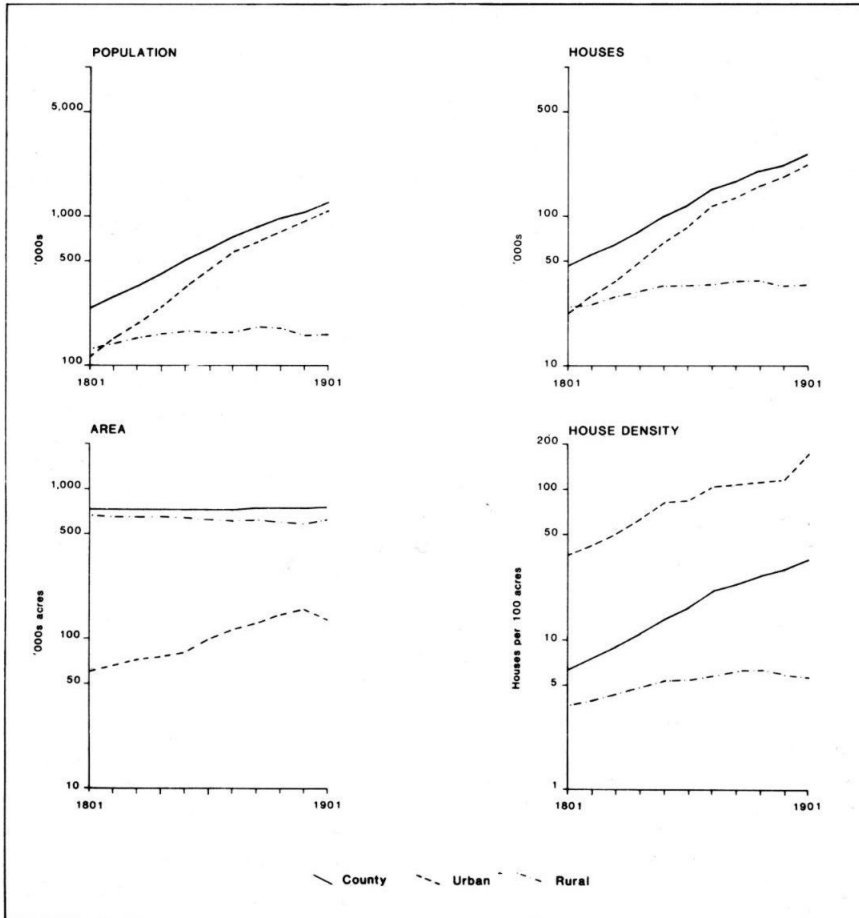


Figure 5. House numbers and densities in Staffordshire, 1801-1901
(Source: Censuses, 1801-1901)

Although indicating a general expansion in settlement throughout the county, these average densities mask the degree of change between the rural and urban parts of Staffordshire so clearly revealed on the settlement traces. Despite the considerable difficulties in the identification of nineteenth-century rural and urban districts, some analysis of settlement change on this basis is necessary. The most successful recent attempt to distinguish between the two types of settlement in the nineteenth century has been by Law using civil parish data from the censuses.²⁸ He adopted three criteria to define urban status: a minimum parish population of 2,500; a minimum parish population density of one per acre; and a marked degree of nucleation within a parish. These criteria have been applied to Staffordshire to delimit rural and urban areas on a parish basis. The allocation of urban or rural status was problematical in the cases of Audley, Cheadle, Stone and Uttoxeter. The last three were small towns but were located in large parishes with a considerable rural component. In all three cases for the greater part of the century, the census did not differentiate between the town and the rural area of the parish and population was given for the whole parish. As a result, the size of the parishes reduced the influence of the small towns within them. Thus, in 1841 the population of the parish of Stone was recorded at 8,349. As the parish covered 20,030 acres, population density was well below one per acre and given Law's criteria it could only be classed as rural, in spite of the fact that Stone town at that date contained about 2,900 people.²⁹ For present purposes, the parish of Cheadle has been classed as rural throughout the century as at no census was a population density of one per acre attained. Stone and Uttoxeter parishes have been defined as rural until 1891, when retrospectively from the 1901 census they were divided into distinct rural and urban parishes. Audley, again a large parish of over 8,000 acres, experienced continuous growth over the century, reaching a population of 8,955 in 1871, and therefore a population density of over one per acre. However, the parish comprised at least seven small distinct settlements, mainly of mining origin, and as there was little evidence of marked nucleation of settlement, it has not been termed urban.³⁰ The net effect of these decisions has been to under-represent slightly the urban and to overemphasise the rural element within the county.

The urban area as defined in these terms covered 60,500 acres in 1801, 8.2% of the total area of the county. By 1831, to correspond with the settlement trace from the first edition Ordnance Survey, parishes of urban status formed 76,800 acres, 10.4% of the total. Thereafter expansion was continuous, achieving 99,900 acres in 1851, 13.6% of the county, and attaining a peak in 1891 with 159,900 acres, 21.3% of the total. With the redefinition of administrative boundaries by the Local Government Act of 1894, there was a slight fall to 1901 when the urban area was 132,400 acres, representing 17.5% of Staffordshire (Fig. 5 and Appendix).³¹ Throughout the century there was thus a more than two-fold increase in the urban area.

The expanding urban areas absorbed the greatest part of the increase in settlement during the nineteenth century as defined by houses. There were 22,000 houses recorded in urban parishes in 1801, 47% of the total. This number increased to 49,800 by 1831, forming 61% of all houses, a proportion that grew to 77% in 1861, representing an absolute figure of 120,000. By 1901 houses identified in the census had risen to 229,700 in urban parishes, 86% of all recorded in the county. Houses in urban areas, besides occupying a growing proportion of the total, had increased about ten times over the century, a rate that was greater than for the whole county, where the figure was nearly six-fold, and for rural areas, where numbers failed to double. In addition, settlement

density within urban parishes was expanding. In such areas in 1801 there were 36 houses per 100 acres. A period of constant growth took place to 1841 when a density of 34 houses per 100 acres was achieved. From 1841 to 1891 only a slight upward movement in density occurred, reaching 117 houses per 100 acres at the later date. With the redefinition of administrative districts in 1894 reducing the urban area, the number of houses per 100 acres increased to 174 in 1901. The census information on house numbers and densities provides concrete support not only to the rapid urban expansion but also to the intensification of urban development in Staffordshire identified on the preceding settlement traces.

The degree of change in rural Staffordshire would seem less extreme. Although there was a decline in the proportion of rural parishes, falling from 91.8% of the total in 1801 to 90.6% in 1831 and to 82.5% in 1901, Staffordshire remained dominantly rural throughout the century. Within these rural parishes, however, the number of houses was not stable, there being a 44% increase in the recorded total over the whole period. From 1801, with 24,900 houses, there was gradual growth to the 1841 figure of 34,900. An expansion in numbers occurred again in 1861 and 1871, when a peak of 38,700 was reached. A slight decline from this figure was evident in the last part of the century, the number in 1901 being 35,900. As a consequence of this overall increase, average rural house densities were becoming greater throughout most of the nineteenth century. From the 1801 level of 3.7 houses per 100 acres growth was continuous to 1841 when the density was 5.3, demonstrating that the increase in rural settlement between Yates's survey and that of the first edition Ordnance Survey was not solely a product of greater accuracy. A less rapid rate of development obtained from 1841 to 1881, when at the later date a level of 6.3 houses per 100 acres was recorded. The last two censuses revealed some fall from that figure, being 5.8 in 1901. This trend was not an exact reflection of the movement in rural depopulation and between 1801 and 1881, rural house density had increased by 71%, while over the century as a whole the amount was 57% (Fig. 5 and Appendix).³²

This growth in density was not spread uniformly throughout rural Staffordshire and the degree of spatial variation can be demonstrated by plotting house densities on a parish basis for 1801, 1851 and 1901 (Fig. 6). With the exception of parishes adjacent to urban areas where densities were higher, most rural parishes in 1801 had less than 5 houses per 100 acres and considerable parts of central and northeastern Staffordshire were below the 2.5 level. The 1851 pattern indicates the problems that the parishes of Cheadle, Stone and Uttoxeter pose in definition, but excluding these an increase in density was evident in most rural areas. House densities were greatest in that growing number of rural parishes close to the extended urban areas, products of the development of suburbanisation as in Trentham or in the extension of industrial activity as in Audley or Norton in the Moors near the Potteries.³³ Although of a lesser order, throughout the northeastern and central parts of the county, where levels had been low in 1801, there had been distinct growth and in certain areas, as at Needwood Forest, settlement had expanded rapidly. By 1901, the pattern had become more ordered. As in 1851, the highest density levels in rural Staffordshire were found in parishes surrounding the urban areas, but there had been a distinct increase in the number of such parishes, especially around the Potteries. In other rural areas less movement had taken place save for a slight reduction in the northeast and the establishment of a more uniform pattern of density in the centre of the county. Although not at the same rate as in urban Staffordshire, settlement in the rural areas of the county was experiencing change, both in pattern and density, perhaps more extensively than the settlement traces would indicate.

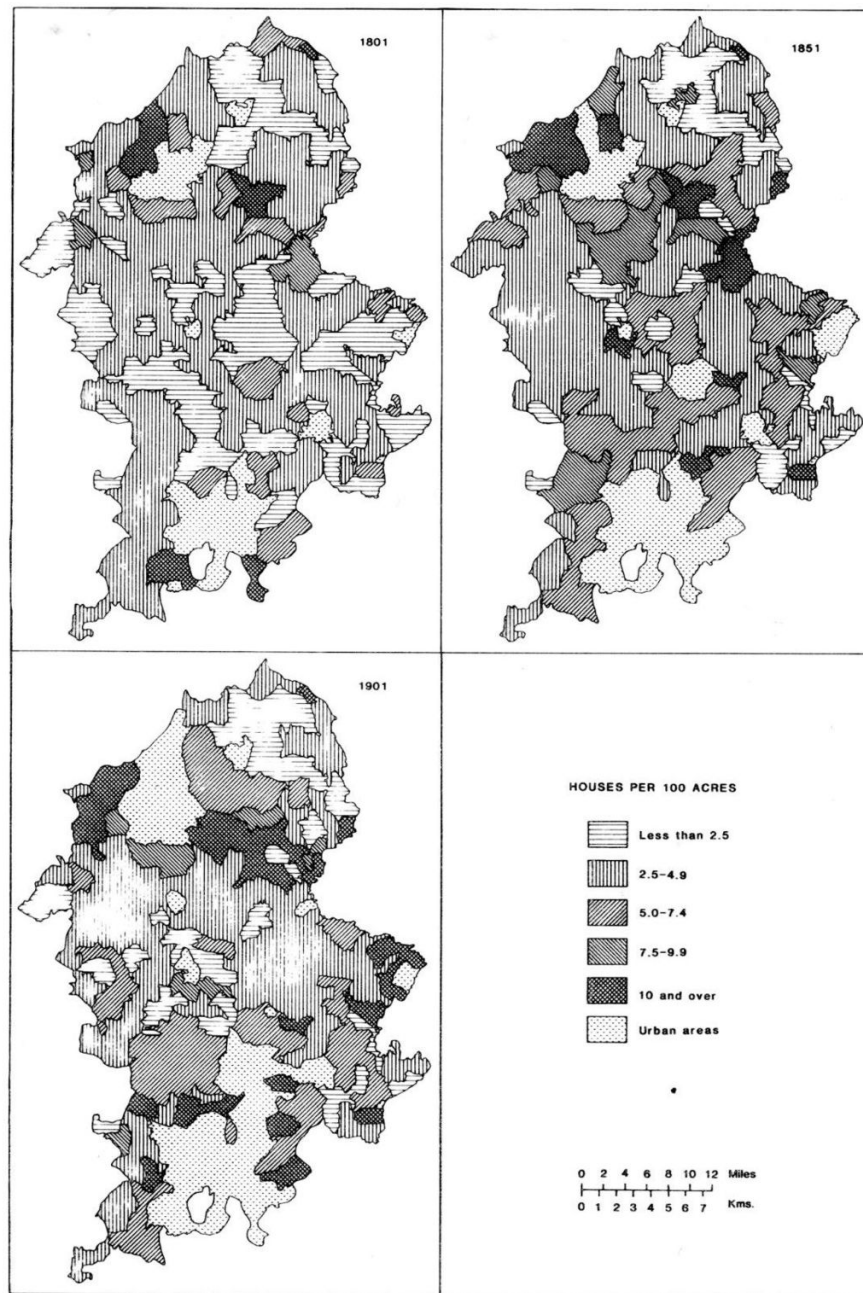


Figure 6. House densities by rural parish, 1801-1901 (Source: as for Fig. 5).

Conclusion

Despite the limitations of the source materials and the difficulties in defining rural and urban areas, the cartographic and census data combined provide an effective measure of the changes in the spatial distribution and density of settlement within Staffordshire in this period, not available in such detail before. Whilst there was an overall increase in the density of settlement in the county, the material from the cartographic and census sources reveals the diverging pattern found in urban and rural areas. The exceptional growth not only in the extent of the urban area of the county but also of the density of settlement within these areas becomes very apparent from the analysis. In a study of the spread of urbanisation by county in England and Wales, Friedlander, using the percentage of adult males in agricultural occupations as an index, designated Staffordshire as urban in 1861.³⁴ On the basis of the distribution of houses (and for that matter population) between rural and urban areas, it would seem that Staffordshire could be termed urban much earlier, possibly by 1811, when the greater number of recorded houses were located in urban parishes. Although the dynamics were less extreme, both the maps and especially the census material demonstrate that settlement in the rural areas was changing, displaying elements of growth close to the towns, and of growth, stability and some decay away from their influence: the pattern of settlement in rural Staffordshire could not be described as static over this period.

The cartographic evidence and the census house data have been used to demonstrate only two facets — pattern and density — of settlement change in Staffordshire. To produce a more complete reconstruction of the settlement geography of the county during this period, similar assessments of data relating to other aspects of settlement, such as function and structure, would be necessary. Nevertheless, the present examination of these two sources has provided a more precise indication of the effects of the process of industrialisation on Staffordshire settlement in the late eighteenth and nineteenth centuries.

Notes and References

1. Throughout this study, the geographical county as described in the census of 1801 with the exception of the detached parishes of Clent and Broom has been used as the basis of analysis. All references to population numbers between 1801 and 1901 are taken from the censuses unless otherwise stated. P. Deane and W. A. Cole, *British Economic Growth, 1688-1959* (Cambridge, 2nd ed., 1967) 9, 103
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3. J. Myers, *The Land of Britain: Part 61, Staffordshire* (London, 1945) 605
4. H. A. Moisley, 'The industrial and urban development of the North Staffordshire Conurbation', *Trans. Inst. Brit. Geogr.*, **17** (1951) 155-158; Moisley produced a series of maps of settlement in the Potteries for 1770, 1799, 1836, 1890 and 1940

based on various editions of William Yates's map and the Ordnance Survey maps. Both the dates given for the settlement traces and some of the sources used by Moisley are questionable. Yates's map of Staffordshire was not undertaken in 1770: the survey began in 1769 and was not published until 1775. The 1799 edition of Yates's map did not incorporate a resurvey or a revision: it was a re-issue by William Faden of the 1775 map with cosmetic additions to the built-up areas. The first edition one-inch Ordnance Survey sheet of the Potteries was published in 1837, the survey for which stemmed from 1831 to 1837. The source for the settlement pattern of 1890 is difficult to trace; the second edition one-inch Ordnance Survey maps of the area were surveyed from 1870 to 1881, and revised from 1895 to 1898: none refers to the date 1890.

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9. Phillips, *op. cit.*, vii-xvii
10. It should be noted that in certain studies the pattern has been accepted as definite: Moisley, *op. cit.*, 155-158; J. E. C. Peters, *The Development of Farm Buildings in Western Lowland Staffordshire up to 1880* (Manchester, 1969) 21, 33
11. J. B. Harley, 'Error and revision in early Ordnance Survey maps', *Cartog. Jnl.*, **5** (1968) 115-119
12. J. B. Harley, *Introduction to Ordnance Survey sheet 62: David and Charles reprint 42* (Newton Abbot, 1970)
13. J. B. Harley, *Introduction to Ordnance Survey sheet 72: David and Charles reprint 34*, (Newton Abbot, 1970)
14. J. B. Harley, *Introduction to Ordnance Survey sheet 81: David and Charles reprint 27*, (Newton Abbot, 1970)
15. Harley, *op. cit.* (1968), 115-118, W. A. Seymour (ed.), *A History of the Ordnance Survey* (Folkestone, 1980) 105
16. Staffordshire Record Office, D593/H/3/448
17. Harley, *op. cit.*, (1964), 9, 12-15. In the present study the large sheet series was used.
18. To ease reproduction, the settlement patterns of only the northern part of Staffordshire have been shown in Figures 2-4. The complete maps are available.

19. See, for example, D. R. Mills, *Lord and Peasant in Nineteenth Century Britain* (London, 1980) 20, 175-180
20. W. Pitt, *General View of the Agriculture of the County of Stafford* (1974) 22; Myers, *op. cit.*, 614; S. H. Beaver, 'The development of the village pattern', in *The Future of the Staffordshire Village* (Stafford, 1977) 6-7; P. H. Nicholls, 'On the evolution of a forest landscape', *Trans. Inst. Brit. Geogr.*, 56 (1972) 64-71
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28. C. M. Law, 'The growth of urban population in England and Wales, 1801-1911', *Trans. Inst. Brit. Geogr.*, 41 (1967) 129-130
29. Census of 1841, enumerator's comments.
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31. V. D. Lipman, *Local Government Areas 1834-1945* (Oxford, 1949) 142-164
32. R. Lawton, 'Rural depopulation in nineteenth-century England', in Steel and Lawton *op. cit.*, 227-229
33. Census of 1861, enumerator's comments.
34. D. Friedlander, 'The spread of urbanization in England and Wales, 1851-1951', *Pop. Stud.*, 24 (1970) 430 and 435

Appendix

House numbers and densities in Staffordshire, 1801-1901

Staffordshire as a whole

Year	Area ('00 acres)	Number of houses ('00s)	Density per 100 acres
1801*	7367	469	6.4
1811	7367	562	7.6
1821	7367	666	9.0
1831	7373	819	11.1
1841	7373	1027	13.9
1851	7344	1209	16.5
1861	7344	1561	21.3
1871	7483	1754	23.4
1881	7483	2017	27.0
1891	7506	2226	29.7
1901	7545	2656	35.2

Urban areas in Staffordshire

Year	Area ('00 acres)	Number of houses ('00s)	Density per 100 acres
1801	605	220	36.4
1811	676	297	43.9
1821	728	371	51.0
1831	768	498	64.9
1841	808	678	84.0
1851	999	862	86.3
1861	1154	1120	103.9
1871	1272	1367	107.5
1881	1445	1637	113.3
1891	1599	1874	117.2
1901	1324	2297	173.5

Rural areas in Staffordshire

Year	Area ('00 acres)	Number of Houses ('00s)	Density per 100 acres
1801	6762	249	3.7
1811	6690	265	4.0
1821	6638	295	4.4
1831	6604	320	4.8
1841	6569	349	5.3
1851	6345	347	5.5
1861	6190	362	5.8
1871	6211	387	6.2
1881	6038	380	6.3
1891	5906	352	6.0
1901	6221	359	5.8

Source: *Censuses, 1801-1901.*

*Areas were not recorded in the 1801-1821 censuses. For these years data from the 1831 census were used.