

Housing the Leicester Framework Knitters: History and Archaeology

by Marilyn Palmer

The city of Leicester has owed much of its prosperity to the hosiery trade since the 17th century. This paper uses both physical evidence and documentary sources to investigate where stockings were made, from the adapted houses of the 17th and early 18th centuries to the purpose-built terraced rows of houses incorporating workshops in the late 18th and 19th centuries. Finally, the paper considers the slow transition to powered production, transferring the industry from the domestic environment to the close-packed factories which are still a feature of many Leicester streets today.

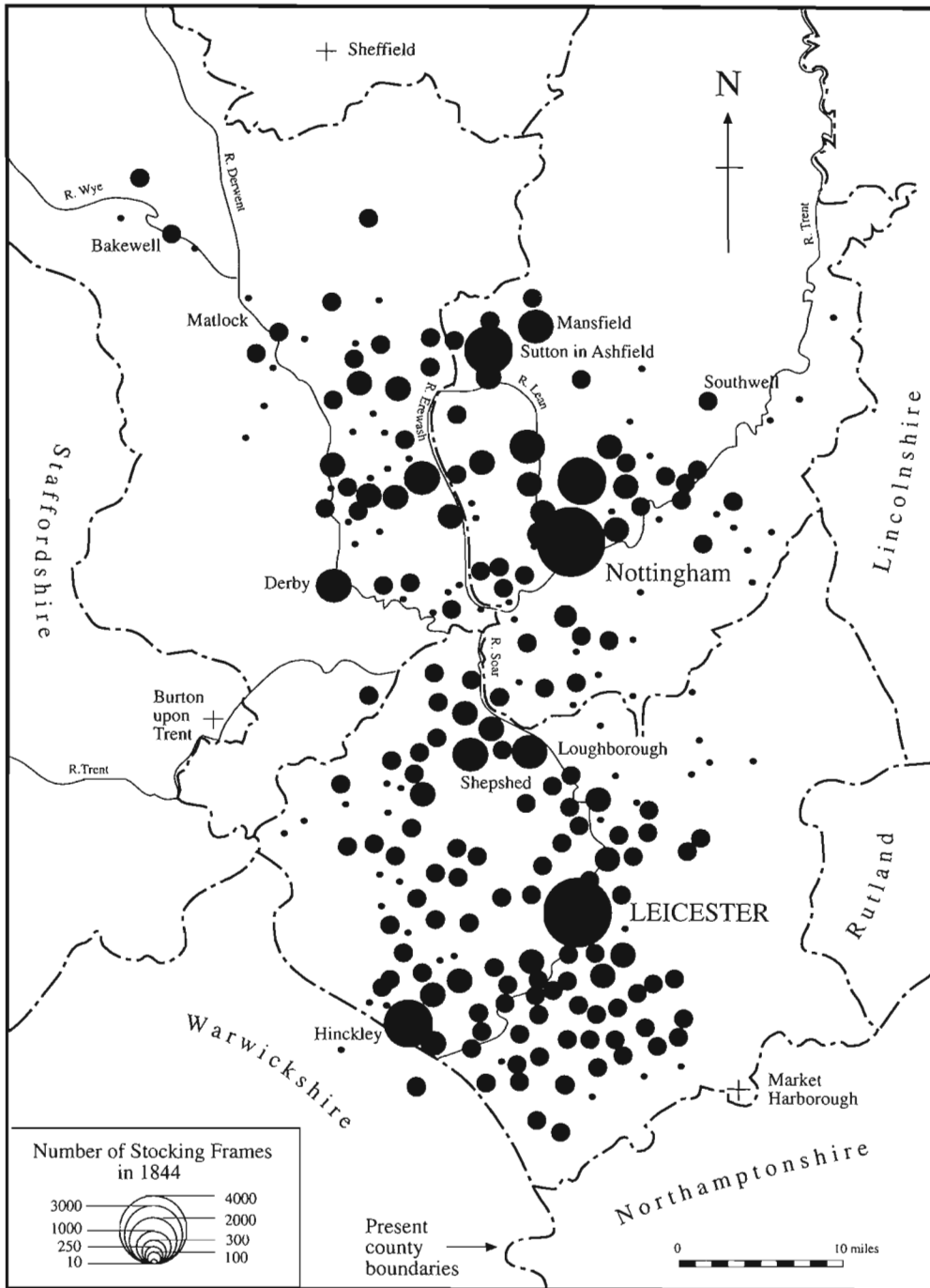
Introduction

This paper was first given at a conference on the Legacy of Hosiery, organised in partnership between Leicester City Museums and the Pasold Research Fund as the first of a series of events to mark the 150th anniversary of the Leicester City Museum, and, as it happens, the 150th anniversary of the invention by Matthew Townsend of the latch needle which brought about a radical change in the way in which knitted fabric was made. The importance of Leicester in the East Midlands hosiery trade during the 19th century is shown in illus. 1, drawn by the historical geographer David Smith, whose work on the East Midlands in the 1960s did much to stimulate interest in the buildings of the hosiery industry. His map is based on the Framework Knitters' report of 1844,¹ by which time Leicester was not just a centre for framework knitting but also for the production of yarn which was distributed to the many satellite villages where knitting was also carried out.

The author's interest as an industrial archaeologist has been largely concerned with the physical evidence left by the industry – the machines themselves and the houses, workshops and factories in which they were operated. It was the last of the major textile trades to succumb to the discipline of the factory, and it has therefore been possible to examine the conditions under which people worked in their own homes since some of these survive from the nineteenth and even late eighteenth centuries. Out-working of this kind also continued in other trades such as handloom weaving, boot and shoe making and the manufacture of nails and chains, which taken together suggest that industrialisation was not a sudden cataclysm but a long-drawn out process.² Most historical accounts of late eighteenth-century industrialisation are based on documentary sources which tend to concentrate on what was new and spectacular, like Arkwright's water-powered factory of 1771 in Cromford or the Robinsons' first steam-powered cotton mill at Papplewick in Nottinghamshire in 1786. Archaeology of any period is generally concerned with the everyday, the mundane, and so can demonstrate continuity as well as change. The long

¹ Smith, David, 'The British Hosiery Industry at the Middle of the Nineteenth Century: an Historical Study in Economic Geography', in *Transactions and Papers of the Institute of British Geographers*, 32, 1963, 130. The photographs of buildings taken by David Smith, many of which have now disappeared, have been deposited with the National Monuments Record Centre in Swindon.

² Palmer, Marilyn, 'Industrial Archaeology: Continuity and Change', in *Industrial Archaeology Review*, XVI/2, 1994, 135-156.



1. The distribution of stocking frames in the East Midlands in 1855 (courtesy of Professor David Smith).

survival of hosiery workshops is an example of this continuity, and helps counteract the emphasis on change which total concentration on documentary sources may bring about. The discipline of industrial archaeology, in which the study of documents and artefacts come together, can therefore contribute to our understanding of the Leicester framework knitters, particularly the long-drawn out process by which the industry finally became factory-based.

The origins and growth of framework knitting in Leicester

The early development of the Leicester hosiery trade has already been investigated by David Wykes.³ His close study of documentary sources has shown that its origins lie in domestic hand-knitting which dominated the trade until the end of the 17th century, a century after the invention of the stocking frame. Most hand-knitting took place in the 'open' parishes to the south of Leicester and east of Hinckley, where the supply of labour outstripped the level of agricultural work, and the poor supplemented their wages by knitting hose from the excellent Leicestershire wool, which had for many years been combed in the area and sent to Northampton and East Anglia for weaving. What prompted this growth in hand knitting was, as Joan Thirsk pointed out in her article on the 'fantastical folly of fashion', the transition in men's fashion from long robes to doublet and hose, putting the legs on display.⁴ Aristocratic stockings were knitted of silk, but knitted worsted stockings also became popular.

This change in fashion is usually cited as the reason for the invention of the stocking frame in 1589, which has recently been re-considered both by Negley Harte⁵ and by the author⁶, and it is not necessary here to attempt to prove or disprove that William Lee of Calverton was its inventor. What is clear is that the early frames were used in London and then in France, where the town of Troyes to the south of Paris has its 'Musée de la Bonneterie' and hand-frames as well as Leicester-built knitting machines on display. There is little evidence for the existence of stocking frames in the East Midlands before the second half of the 17th century, and then the adoption of the frame was faster in Nottingham than Leicester, probably because both Nottingham and Derby concentrated on the production of silk stockings, whereas Leicester continued with the hand-knitting of worsted stockings. According to tradition, the first frame in Leicester was introduced by Nicholas Alsop in the 1680s, when it is said that he had to operate the frame secretly in a cellar in his house because of the prejudice of local hand-knitters.⁷ But the growth of demand for stockings led to an increase in the need for woolcombers, which may have absorbed some of the local people who had previously been knitters and allowed a more rapid take-up of the hand frame. Technical changes were made to the frame to enable it to knit worsted stockings successfully, and Daniel Defoe, who visited the town in 1705 and 6, could write twenty years later:

A Considerable Manufacture carry'd on here, and in several of the Market Towns round for Weaving of Stockings by Frames: and one would scarce think it possible

³ Wykes, David L., 'The origins and development of the Leicester hosiery trade', in *Textile History*, 23/1, Spring 1992, 23-54.

⁴ Thirsk, Joan, 'The Fantastical Folly of Fashion: the English Stocking Knitting Industry, 1500-1700', in Harte, N.B. and Ponting, K.G., eds., *Textile History and Economic History. Essays in Honour of Miss Julia de Lacy Mann*, Manchester University Press, 1973, 50-73.

⁵ Harte, Negley, 'William Lee and the Invention of the Knitting Frame', in *Knitting International*, 96/1142, February 1989, 14-20.

⁶ 'William Lee', *New Dictionary of National Biography*, forthcoming.

⁷ Gardiner, W., *Music and Friends, or Pleasant Recollections of a Dilettante*, II, Leicester, 1838, 811.



2. A timber- framed house in Shepshed, showing the extension containing long windows which have been inserted by cutting through the timber framing.

so small an Article of Trade could employ such Multitudes of People as it does; for the whole County seems to be employ'd in it: as also Nottingham and Derby.⁸

Clearly framework knitting had taken off in the last decade of the 17th and the first two of the 18th centuries for Defoe to be able to write this, and the aulnage accounts indicate that over 200,000 pairs of stockings were made in 1707-8/9.⁹ Where were they being made?

Framework knitters' houses and workplaces

The fragmentary documentary sources we have for this period suggest that few knitters owned their machines, but that they were frequently hired to them not by the hosiers who marketed the goods, but by people independent of the trade – shopkeepers, innkeepers and so on. Frame rent was endemic in the hosiery trade from its early days, and became a serious problem in the days of low wages in the nineteenth century. When it comes to where the stockings were actually made, the archaeological evidence is equally fragmentary. Historical sources suggest that 13,000 hands were engaged in the trade in the first decade of the eighteenth century¹⁰, including those who spun the yarn

⁸ Defoe, Daniel, *A Tour through the Whole Island of Great Britain*, 1725 (ed.) G.D.H. Cole, London, 1927 II, p.488.

⁹ Wykes, 'Origins and Development', p. 34

¹⁰ *Ibid.* p.35

and seamed the stockings, but we have little evidence in the city of Leicester of where they worked. It is likely that, as in Nottingham, most used a frame wherever they could in their homes and made few adaptations to them. In the county of Leicestershire, there are one or two examples of timber-framed houses having extra windows put into them to light the frames, or an extension added; both these characteristics can be seen on this house in Shepshed (illus. 2). The expansion and rebuilding of Leicester has meant that if such evidence ever existed, it has long since gone. Later in the eighteenth century, speculative developers exploited the thriving industry by building rows of houses which incorporated workshops with long windows on either the ground floor or first floor: the former meant that the floor did not have to be strengthened, but meant less light: the latter was perhaps more popular in towns where houses were close together. The top-shops in Stapleford (illus. 3), which may have been built for lace machines rather than stocking frames, were recorded by David Smith, who found that the floor of the workshops was composed of a 3in thickness of a concrete-like substance of gypsum and pebbles, interbedded with straw, supported by one wooden beam of 8in x 6in and cross-beams of 3in x 3in at 15in intervals.¹¹ At least two of the workshops were interconnected, while the attic ran over all four houses and was used to store yarn. There are no surviving examples in Leicester, although top shops certainly existed. John Farmer of Green's Lane, Leicester, told Richard Muggeridge, the Commissioner appointed to enquire into the conditions of framework knitters in 1844, that:

I have four frames in my house, in one room. This is the room upstairs. It is five yards by four (i.e. 15ft by 12ft); about 9 feet high: and there are five frames in it. Four are now in work. It is more commodious and better aired than most rooms in which the stocking trade is carried out in this town. There are windows facing each other on opposite sides of the room.¹²

William Jones, a glove knitter of Willow Bridge Street in Leicester, also gave evidence that the top-shops, being close to the slats, were cold and damp in the mornings, which affected the working of the frame; by the middle of the day, however, they became extremely close and warm and got even worse when candlelight was necessary.¹³

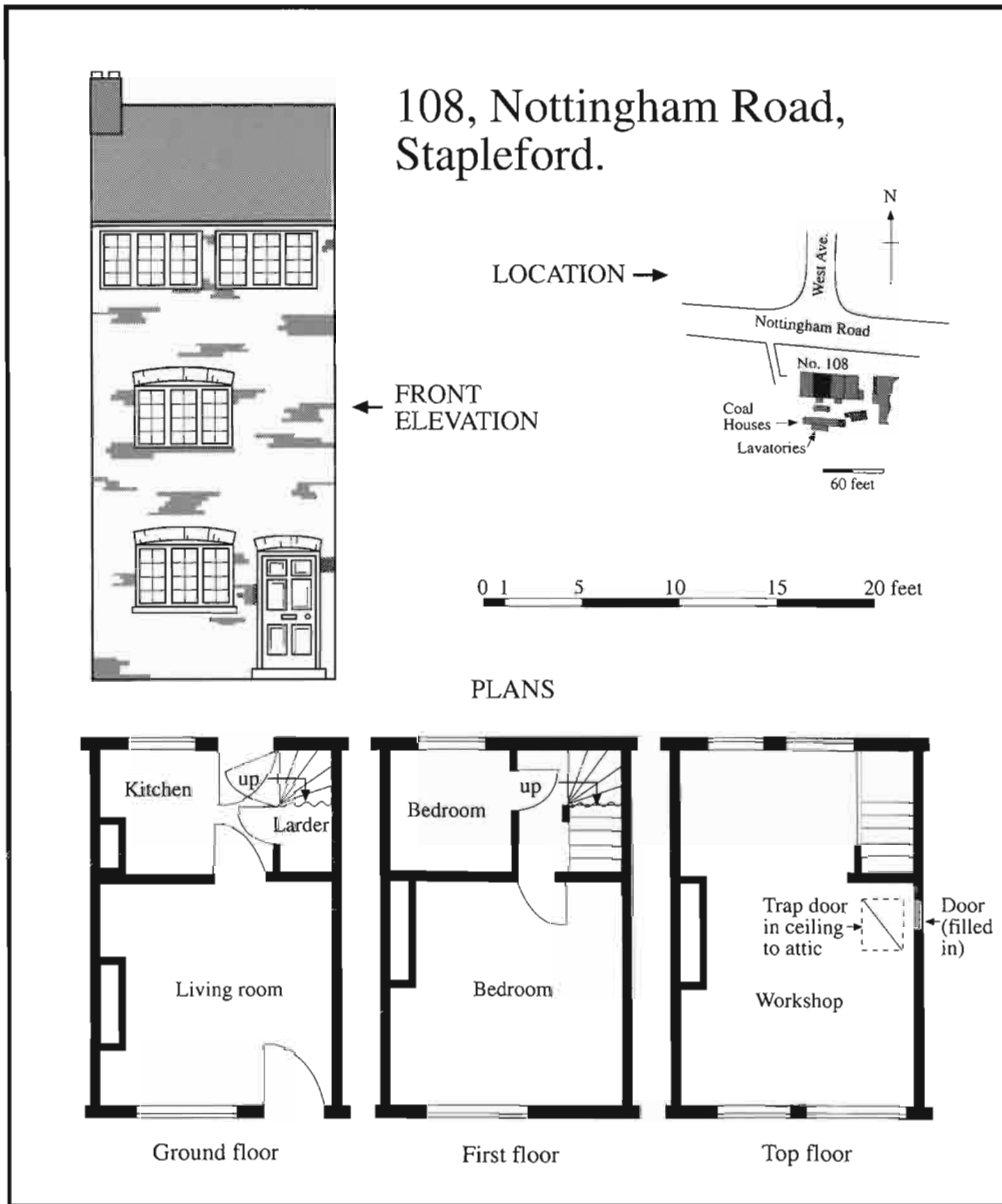
These two accounts indicate that, as in other East Midland towns, top-shops were a feature of the built environment of Leicester, certainly by the first half of the 19th century. These combined houses and workplaces were not rented from employers, as was the case in factory colonies such as Cromford and Belper in Derbyshire. It was rarely necessary in established towns like Leicester to attract the workforce by the provision of housing, and the knitters were obliged to rent their houses from speculative developers. Thomas Winters said about knitters' houses in 1844 that:

They have been built by different builders generally. It has been the custom for them, at Messrs. Clarke and Philips' bank, to get money out under any pretence almost, and then they would build a number of houses, and sell them to other parties again. The shops have been built, I might say, generally by persons independent of the hosiery trade.¹⁴

¹¹ Smith, D.M., *The Industrial Archaeology of the East Midlands*, David and Charles, Newton Abbot, 1965, p.38.

¹² FWK Report, Leicester section, 5.

¹³ *Ibid.* 23.



3. A terrace of four three-storey cottages with typical long windows front and back on the second floor (courtesy of Professor David Smith).

It is, of course, impossible to identify rows of houses with top-shops from map evidence. This does indicate, however, that there were many developments of court housing like the now-renovated Cramant's Yard off King Street, with its rather oddly inserted long window on the first floor (illus. 4). These were built in two phases, the first four cottages



4. Cramant's Yard, off King Street, Leicester.

sometime before 1841, while two more appeared before 1851. According to the census returns, framework knitters were still living there in 1861: No 5, for example, was occupied by Henry Taylor and his wife and seven children, who may also have had to share their cramped home with a knitting frame unless Henry was working in one of the many workshops in the town. Stocking knitters, like most people at the time, paid rent for their houses: in the early nineteenth century this took between a sixth and a quarter of a knitter's weekly income.¹⁵ However, the knitter also had to pay rent for his frame, the cost of maintenance, replacement of needles and so on, and many cases frame-owners took what was called 'standing' – a charge to place the frame in the knitter's own home. It was not an easy life. Edward Sansome, a Leicester knitter, told the 1833 Children's' Employment Commission that most knitters worked a seventy-hour week, five days at about 14 hours a day, but he added:

We work, however, when we please; each man has full liberty to earn what he likes, and how he likes, and when he likes; we have no factory bell; it is our only blessing.¹⁶

This may have been true in 1833, but by the middle of the century, with the growth in population, work was shared out among an increasing number of knitters, and they certainly did not have the liberty to earn what they liked. Many could not get enough

¹⁴ *Ibid.* 13.

¹⁵ M. Palmer, *Framework Knitting*, Shire Publications, Princes Risborough, 1984, pp. 18-20.

¹⁶ 1833 Report, 10.

work, and the 1845 Report is full of accounts of idle machines. The obvious question to ask, then, is why the hosiery industry continued in this way on a domestic basis rather than become a factory industry along with most of the other textile trades? This was a question frequently asked, too, by the 1844 Commission, and we need to consider some of the possible answers.

Workshops and adaptations to the frame

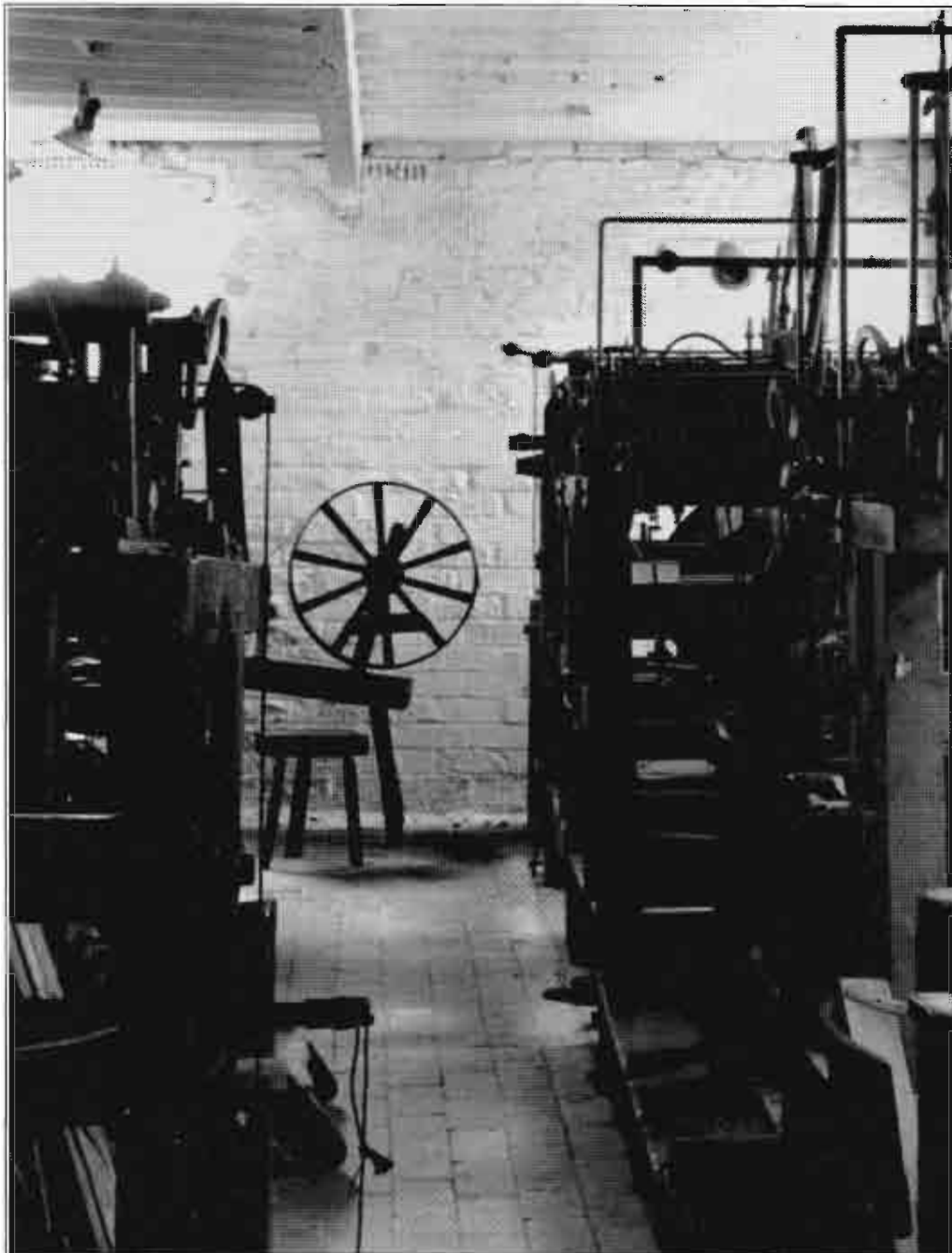
By the end of the eighteenth century, many adaptations had been made to the knitting frame so that it was an extremely flexible piece of machinery. As well as fully-fashioned hose, the frame had been adapted to knit gloves, produce ribbed fabric, turn off three or four stocking pieces at once – in fact, it is said that by 1800 it could produce 40 distinct types of fabric. One of the most important developments was the invention of the thread carrier which saved the knitter laying the thread across the needles by hand, and so enabled wider pieces of fabric to be made. This wide frame was the genesis of the Leicester knitwear industry, enabling cut-ups to be made which could be turned into combinations, shirts and so on, thereby greatly increasing the versatility of the frame. This was just as well, as men's fashion changed in the early nineteenth century and long hose were no longer required, merely half-hose to go with long trousers. Although resisted by the wrought-hose knitters at first, wide frames were to prove the salvation of the Leicester industry. But, although still powered by hand, they were unsuitable for use in the home because of their size, and tended to be placed in workshops separate from the living accommodation. The 1845 Report makes it clear how widespread the use of wide frames had become. Thomas Smith, a Leicester glove knitter born in Hinckley, was asked if he had observed of late years a tendency to congregate large numbers of frames in shops. He replied:

Yes. In the town I was born I never knew any large shops; but shops were considered large that held no more than eight frames; but now there are many men who have to walk a mile from their homes to work in large shops holding from 40 to 50 frames or more.¹⁷

Such shops often suffered from severe overcrowding, as the hosiers tried to cram in as many frames as possible – and still often took frame rent and standing charges from their workmen. In 1833, the Commissioner visited the workshop of Mr. Farmer, who had wide frames. The ground floor workshop was 13ft by 10ft 6in and 6ft 8in high. In that space there were 6 frames, each turning off three or four stockings at a time, and there was only a gangway of 6in between them. The men sat back to back at the frames, and inevitably had to touch each other in the course of their work. At the end of the shop was a little boy with a winding machine, occupying the only space left by an irregularity of the wall.¹⁸ Illus. 5, which is the interior of one of the frameshops in Ruddington in Nottinghamshire, gives an impression of what the interior of Farmer's workshop would have been like, although the central gangway is considerably wider than 6in! Workshops like these were often attached to the houses of master hosiers in order exercise some control over the quality of goods produced by their workforce. A surviving example in Leicester is the house and workshop in Darker Street (Illus. 6).

¹⁷ FWK Report, Leicester section, 5.

¹⁸ 1833 Report, Leicester section, 10.



5. The interior of one of the frameshops in Chapel Street, Ruddington, Nottinghamshire.



6. Master hosier's house in Darker Street, Leicester, with attached rear workshop.

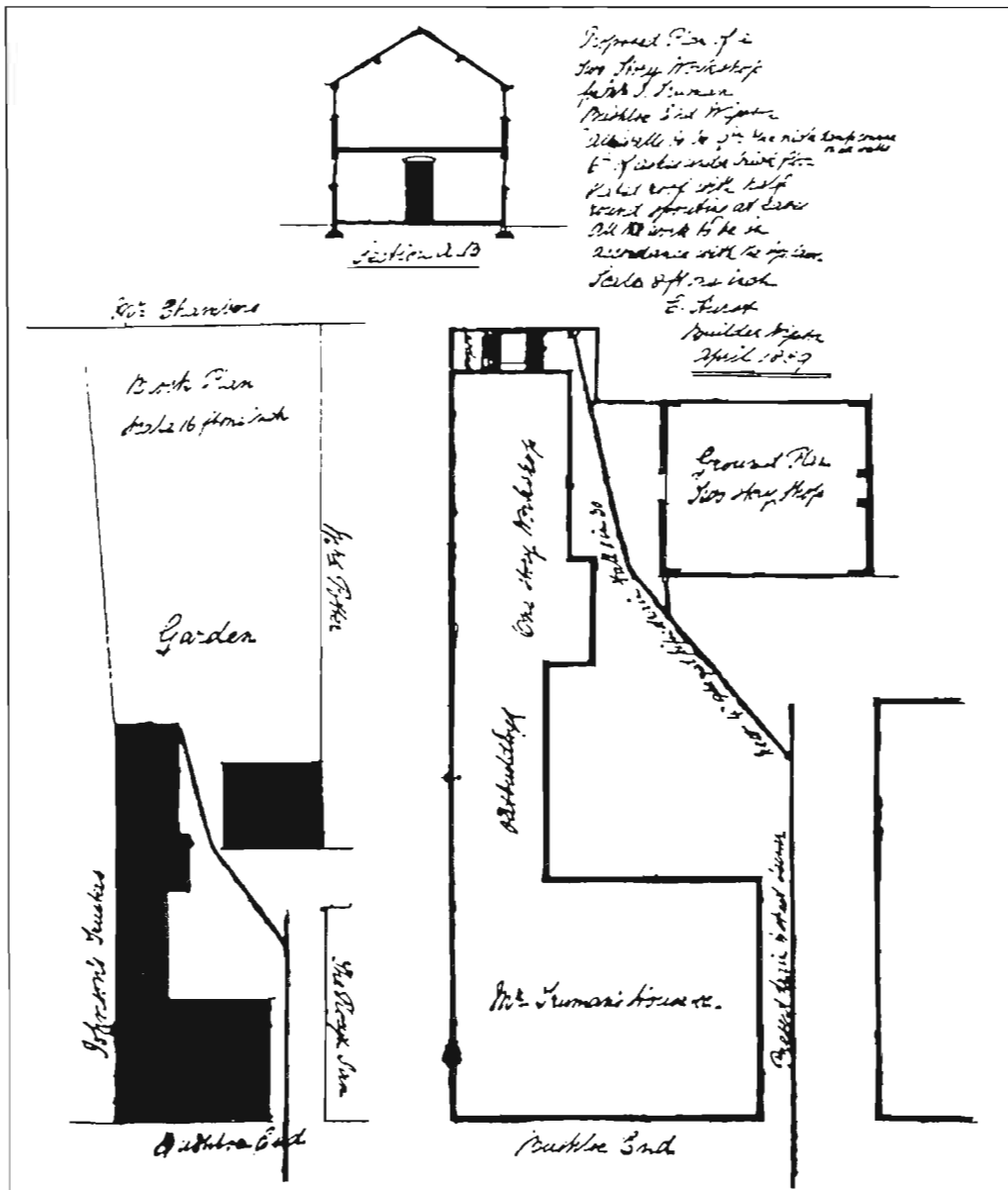
The three storey house has an elegant Georgian façade while the rear workshops are strictly functional in design. This division between house and workplace is echoed elsewhere in the East Midlands, for example in Leicester Road, Shepshed where the three storey master hosier's house has not only an adjoining three storey workshop but also a terrace of small cottages for the workforce. A similar complex in Albert Street, Hucknall, Nottinghamshire, has been recorded by Garry Campion.¹⁹

The best local example of an evolving workshop complex is that at 42-44 Bushloe End, now the Wigston Framework Knitters Museum. The site was first described by David Smith in *The Industrial Archaeology of the East Midlands* in 1965²⁰ and was analysed by Dobson in 1993.²¹ The house fronting the road dates from around 1740 and rear extensions with long windows for finishing goods were added in the mid-19th century. In 1880, the house was bought by a framework knitter, Joseph Truman, who appears to have added a separate garden workshop as well as extending the existing yard buildings c.1889 (illus. 7 & 8). Gloves continued to be made here until its closure on the death of Edgar Carter in 1952, when the garden workshop was locked up until the last member of the Carter family died in 1986. Consequently, the layout of the surviving frames gives

¹⁹ Campion, G., 'People, process and the poverty-pew: a functional analysis of mundane buildings in the Nottinghamshire framework-knitting industry', in *Antiquity*, 70, 1996, 847-60.

²⁰ Smith, *East Midlands*, p.49.

²¹ Dobson, Steve, 'Reading a building: 42-44 Bushloe End, Wigston Magna', *Bulletin of the Leicestershire Industrial History Society*, 14, 1992/3, 3-14.



7. Plan of proposed two-storey workshop for Mr J. Truman, Bushloe End, Wigston, April 1889 (courtesy of Peter Clowes, Wigston Framework Knitters' Museum).

some idea of the cramped working conditions as described in evidence to the various Commissions (illus. 9). The arrangement of the eight frames maximises available light and much of the equipment for maintaining the frames also survives. Different frames produced the ribbed cuffs, fingers and plain body of the gloves which were presumably



8. The garden workshop behind 42 Bushloe End, Wigston.

seamed in the workshops attached to the house. An upper floor accessed by a ladder contained five hand-operated Griswold circular knitting machines. As with so many small industrial buildings, the documentary evidence is very sparse and only analysis of the buildings can reveal the phases of development (illus. 10).

The transition to powered factory production.

So, by the middle of the nineteenth century, house and workplace had often become disassociated and the truly domestic aspect of the industry lost, although women still seamed the stockings and children wound the bobbins. Why, then, did the hosiery industry not become a powered factory industry much earlier than in fact it did? Richard Mugeridge in his 1845 Report stressed the potential value of steam power to the industry but was well aware of the changes it would bring about:

The adoption of this power ... would, besides the probable advantage and improvement of the trade, be a boon of inestimable value to the workman ... from the slavery of his own physical energies. It would, however, be wholly impracticable to carry into operation ... without congregating the frames into large shops or factories, and thereby destroying, if not altogether, certainly to a great degree, the present domestic nature of the manufacture. How far the parties most interested in it, or the community at large, are prepared to welcome such a change, it is not for me to determine; but I entertain no doubt, that is alike essential to the



9. Interior of the garden workshop of Bushloe End, Wigston, shortly after it became accessible in the 1980s.

advancement of the manufacture, and to the real and permanent interests of all engaged in it, that it should be made as speedily as possible.²²

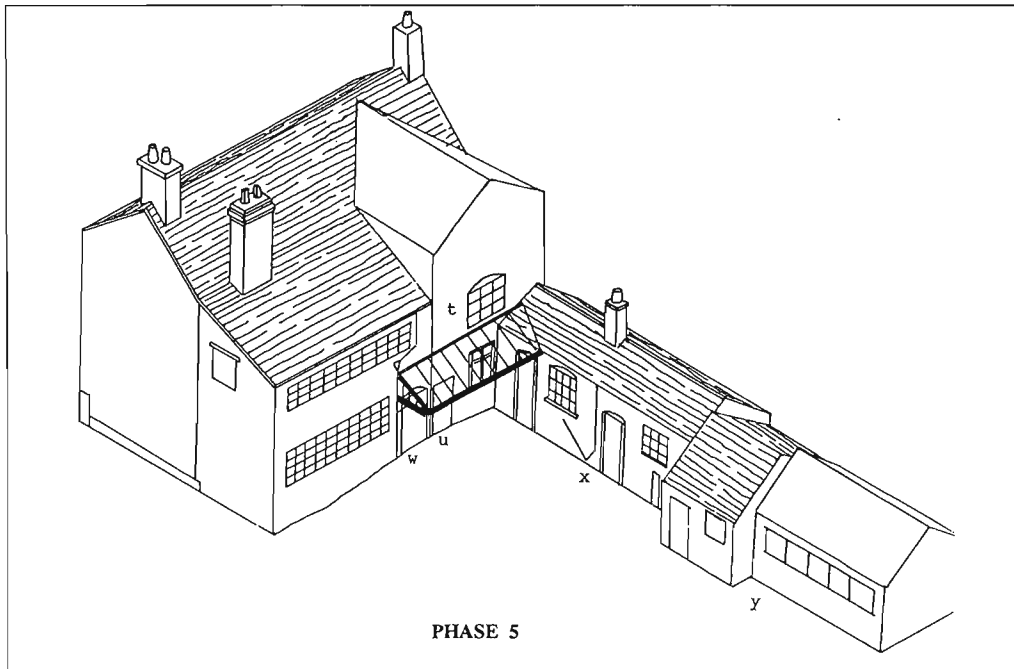
It proved much more difficult to adapt the stocking frame to powered working than, say, the cotton spinning machine or even the weaving loom. The early experiments with powered hosiery are well-known and need not be repeated here.²³ Power was first applied to circular, not flat-bed machines, and Thomas Collins opened a steam-powered factory in Barkby Lane in Leicester in 1845. Townsend's invention of the latch needle in 1849 was to revolutionise the circular knitting industry but it was not at first taken up with any enthusiasm by Leicester hosiers: Felkin suggests this was because of high royalties Townsend wished to charge.²⁴ However, Corahs built a new warehouse in Granby Street in 1845 and installed a steam engine to drive rotary machines; and at the opening of their new St Margaret's Works in 1866, Miss Jenny Corah set in motion a large beam engine which powered their works.²⁵ Powered flat-bed machines were a development of the late 1850s and 1860s, but licensing restrictions on Cotton's patents prevented their immediate widespread introduction. The returns of the Factory Inspectors show that in 1862, only about 4,000 people out of the 120,000 employed in the hosiery trade came under the Factory Act i.e. they worked in premises employing

²² FWK Report, 92.

²³ F.A. Wells, *The British Hosiery and Knitwear Industry: its History and Organisation*, rev. edn. David and Charles, Newton Abbot, 1972.

²⁴ Felkin, W., *History of the Machine Wrought Hosiery and Lace Manufactures*, (1867, reprinted David and Charles, 1967), 490-8.

²⁵ Jopp, Keith, *Corah of Leicester, 1815-1965*, n.d., 13.



10. Reconstruction of 42 Bushloe End in 1885, indicating the finishing rooms and additional workshops at the rear of the house which survived until the 1950s (courtesy of Stephen Dobson).

some form of mechanical power. Twelve years later, in 1874, the number of factories was 129, double what it had been earlier. This figure included some workshops which by this time came under the Acts, but the horsepower was less than double, indicating a very slow transition to power.

The structure of the industry itself helps to explain the reluctance to make the wholesale transition to the factory system. The Leicester merchant hosiers obtained their spun yarn, often from the steam-powered spinning mills in their own town, and stored it in warehouses, from which the yarn was doled out to the knitters. Dr John Barclay, the town's medical officer, said of Leicester in 1857 that:

on all sides vast blocks of warehouses have arisen, while the development of new manufactures, or the substitution of steam machinery for hand labour, has raised a forest of long factory chimneys.²⁶

The warehouses were not pretentious, like those of the Lace Market in Nottingham, since they were only used for the storage and finishing of yarn, not for its marketing which was usually done through London warehouses. Many survive on streets such as Wellington Street, (illus. 11) while those on Belvoir Street – now with shops inserted on the ground floors – are rather more elaborate.²⁷ These merchant hosiers were the organisers of the

²⁶ Barclay, J., *Modern Leicester*, A Lecture delivered to the Leicester Literary and Philosophical Society, 22nd February 1864, quoted in Ellis, Colin, *History in Leicester*, Leicester, 1948, 123.

²⁷ Palmer, Marilyn and Neaverson, Peter, *Industrial Landscapes of the East Midlands*, Phillimore, Chichester, 1992, p.176.



11. Former warehouse in Wellington Street, built *c.* 1865. Notice the cart entrance through the building which gave access to a courtyard surrounded by factory buildings of a more functional design than this elaborate façade.

industry, whose capital was tied up in stocks of yarn and finished goods rather than in buildings and plant. It suited them to exploit the cheap labour for which they did not have to provide premises. Arthur Morley, the Nottingham hosier, said in 1854:

Our business is entirely wrought hose and the hand loom: we have no machinery worked by power; we could not introduce frames into a factory; we should have to bring them in from all parts of the three counties to the town. The difficulties would be such as we could not overcome; a stocking frame is a very small machine; each frame requires a window close down upon it; therefore to build a factory that would be safe, it would be necessary to build it at least twice as wide as would be necessary to hold all the frames, for every frame must be against a window.²⁸

One has to ask whether he was aware of the gas lighting which had been used in spinning mills since the first decade of the nineteenth century! He continued: 'when I ask the workmen what they think of the factory system, they deprecate it universally; the beauty of the stocking trade, I think, lies in its domestic character'.²⁹

Morley was, of course, wrong: the hosiery industry had not been for a long time a truly domestic system of production but a dispersed factory system in which a knitter

²⁸ 1854 Report, 386.

²⁹ *Ibid.*

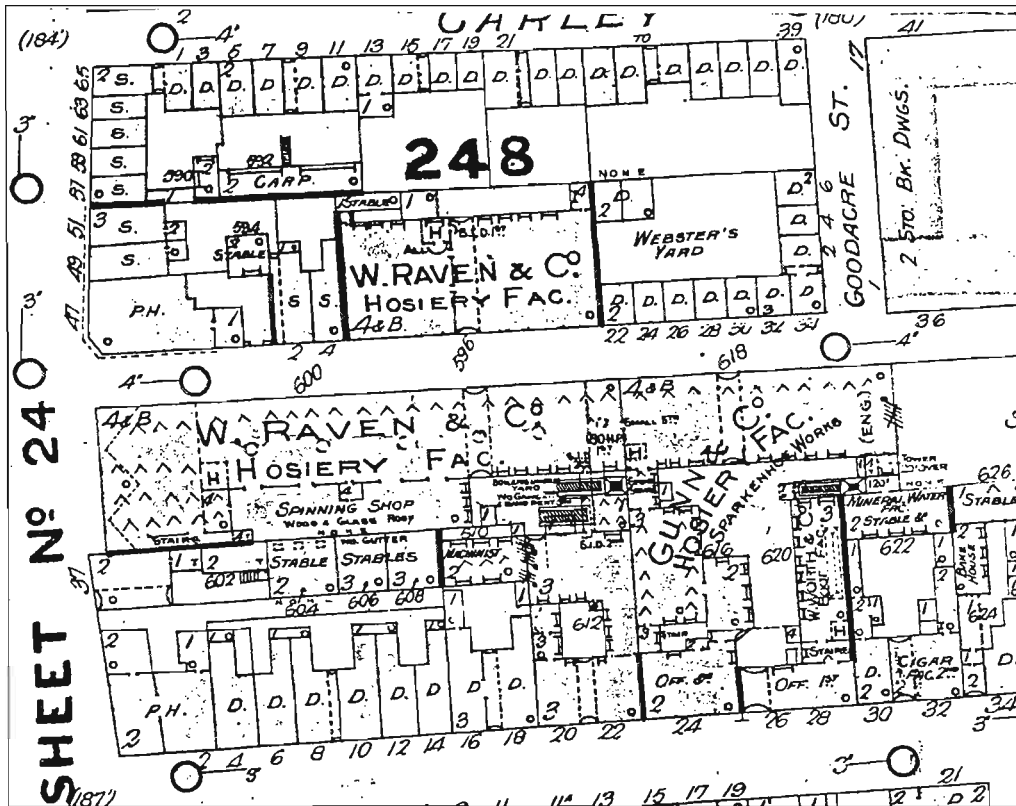
was as dependent on the hosier as if he did work physically in a factory building. Hosiers like Morley often made use of middlemen to take yarn from the hosier to the knitters who worked their frames. This introduced yet one more layer of dependence as the middlemen, especially the group known as the bag hosiers, often rented out frames themselves and charged for their services. It was in the interests of both hosier and middleman to keep the industry on this putting-out basis. The whole industry was riddled with vested interests, and it was therefore very difficult to achieve any radical reform. A government committee of 1854 recommended the abolition of deductions such as frame rent and standing changes from wages in the industry, but no legislation was enacted to enforce the recommendation.

What, then, altered the opinions of the hosiers between the mid-1850s and the 1870s, the decade from which many of our earliest hosiery factories date? Firstly, continental manufacturers, especially those in Germany, did not show a similar reluctance to adopt powered machinery and the Americans were also beginning to experiment. Secondly, the Education Acts of the 1870s, by insisting on a period of compulsory primary schooling, broke up the family unit of production and deprived the knitters of the services of their children, although the oral evidence from people living in the 20th century shows that the effect was not immediate and that many were obliged to wind and seam out of school hours. Thirdly, frame rent was becoming increasingly anomalous and was finally abolished in 1874. However, it must not be assumed that there was a great rush to factory production, and many firms adapted only slowly. New varieties of hand-cranked machines, largely developed in America, were becoming available for continued work in the home. The Griswold, a machine invented in America in the 1870s, was successfully marketed for use by women in their own homes, mainly for the production of half-hose.³⁰ It did not do so well over here, possibly because most hosiery machines had been operated by men who resisted machines which could deprive them of work. This also motivated their resistance to factory employment, which they feared would be largely for women rather than men.

The transition to power is very difficult to document as so few business records of Leicester firms survive, but some evidence is provided by the Goads' Fire Plans, made for insurance purposes in the industrial areas of large towns from the 1880s onwards. Illus. 12 is part of the 1892 plan for Leicester, which shows W. Raven's factory in Wheat Street, with an 80hp steam engine with two boilers and a chimney behind. Power from this was transmitted beneath the narrow road to the factory on the north side. The plan also shows how this factory was adjoined by another, the Sparkenhoe Works, with a boot factory jammed on one side and the whole situated in an area of densely packed housing. Illus. 13, taken from Raven's letterhead, illustrates their factory while illus. 14 shows the canyon-like nature of Wheat Street just before the renovation of the buildings. Many of the early factories in Leicester were on this comparatively small scale, often being financed by men who had previously been bag hosiers: there are few equivalents in Leicester of the tenements of Nottingham where small firms could rent 'room and power': Goad's plans indicate that most Leicester factories were in single occupation.

Once powered hosiery production was established, however, new types of machines developed very rapidly, particularly as the hosiery trade began to diversify more into knitwear as well as stockings. This often made it difficult for the small firms which had established factories in the 1870s, like the Leicester firm of Rowlett and Russell (later

³⁰ Candee, Richard M., 'Domestic Industry in the Factory Age: Anglo-American Development of the "Family" Knitting Machine', in *Textile History*, 29/1, 1998, 62-92.



12. Extract from Goad's Fire Plan of 1892, showing Raven's factories in Wheat Street, Leicester (courtesy of LLRO).

Benjamin Russell), some of whose business records survive. In 1859 they had built a new warehouse in Welford Place, a building of 3 storeys and a cellar, 30ft 6in wide and 109ft long. They had no mechanical power source, and a frame book of that date indicates that they employed 83 machines, including wrought hose frames, wide frames, circular frames and rotary rib frames. It is difficult to tell how many of these were actually worked in their warehouse, but some of their rotaries were in other shops and probably powered. In 1881 they installed a 2hp Crossley gas engine, and then invested heavily in Lamb frames for knitwear made by Gadd and Moore, another American development which were generally hand-cranked at this stage. Their power sources were augmented in 1886 by two more gas engines, which were all replaced in 1893 by a 6hp engine.³¹ Not until then is there any record of the handframes being sold off, but we do not, of course, know if they were actually still in use in the 1890s. As seen above, the workshop at Bushloe End actually dates from the mid-nineteenth century, but the eight glove machines on the ground floor went on being used until the middle of the twentieth century. Also in Wigston, Lewins went on employing hand knitters in their Spa Lane workshops and taking frame rents until their abolition in 1874.³² Like many others in Leicester, Lewin's

³¹ Benjamin Russell and Sons Ltd papers, LLRO 27D/56.

³² Charles Lewin & Co. papers, LLRO 3D/63.



13. Headed notepaper showing Raven's factory (courtesy of Leicestershire Record Office).



14. Wheat Street, showing the canyon-like street dominated by what were Raven's two factories.

workshop was taken over for the boot and shoe industry which had entered Leicester in the 1870s and 1880s largely on a domestic basis. As the hosiery industry moved into newly-built factories, so the boot and shoe industry took over the workshops and has contributed to their survival in the urban landscape. Hosiery factories were not confined to Leicester itself: many firms, like Benjamin Russell, expanded rapidly in the first decades of the twentieth century and built new multi-storey factories and warehouses both in the city and in some surrounding villages, no doubt absorbing skilled domestic knitters who had previously worked there to the extensive bag hosiery trade (illus. 15). Large numbers of terraced houses were built in Leicester for knitters who were now entirely factory workers and no longer needed workshop space at home.

Conclusion

This paper has tried to suggest reasons for the slow transition to factory production of the Leicester hosiery trade as well as to look at the evidence for the working conditions of the knitters themselves. For the industrial archaeologist, the hosiery industry offers a unique glimpse into the living conditions of those engaged in domestic industry, both through the survival of buildings and because the government thought their plight in the mid-nineteenth century warranted careful investigation. In Leicester, the late transition to factory production in the hosiery industry has resulted in an urban landscape reflecting solid late Victorian prosperity – well-built factories, terraced housing with very few back to backs. W. G. Hoskins claimed, rightly, that nowhere did the Leicestershire landscape attain ‘the dramatic and demented ugliness of the Potteries or the Black Country’ but that ‘it is profoundly dull, as one might expect from industries making such prosaic things as vests and pants, boots and shoes, biscuits and bricks’.³³ He summed up his views in his comments on the suburb of South Wigston, the creation of a speculator, Orson Wright, in the 1880s and built to contain terraced housing interspersed with the factories of the classic Leicester industries of hosiery, footwear, biscuits and iron castings:

The sight of South Wigston on wet and foggy Sunday afternoon in November is an experience one is glad to have had. It reaches the rock bottom of English provincial life and there is something profoundly moving about it.³⁴

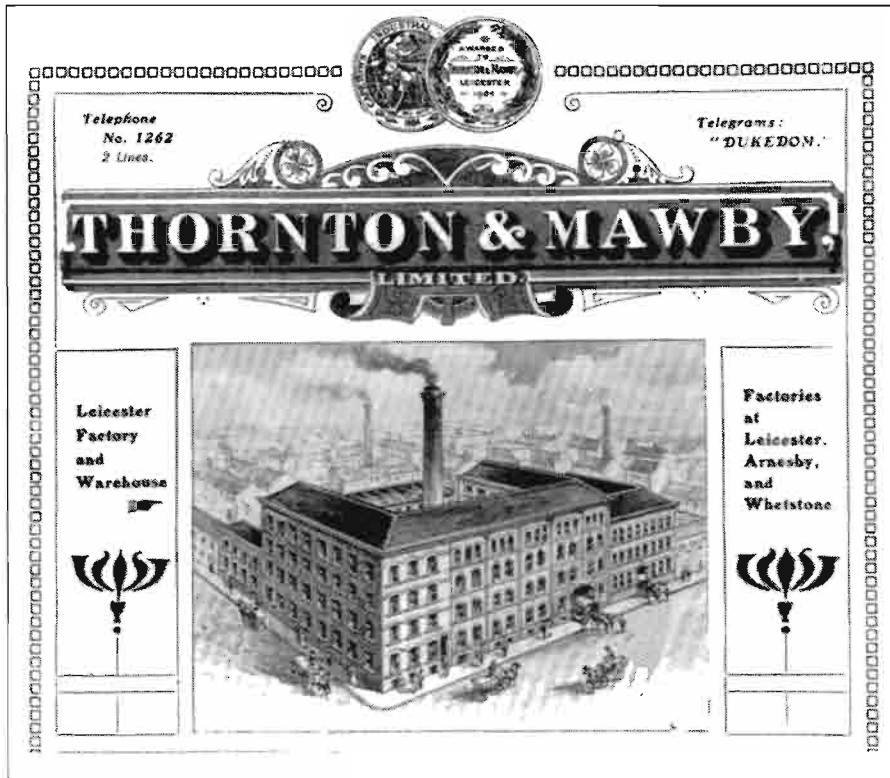
At least the industrial archaeologist benefits from the survival of such a suburb, which illustrates very well the solid prosperity which powered hosiery and its ancillary industries brought to Leicester in the last decades of the nineteenth century and the first half of the twentieth.

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³³ Hoskins, W.G., *Leicestershire*, London Hodder and Stoughton, 1957, p.85.

³⁴ *Ibid.*, 84.



15. Thornton and Mawby's factory as illustrated in the Leicester Chamber of Commerce Yearbook for 1911, showing the Leicester factory and warehouse with its boilers and chimney in an enclosed yard, typical of many Leicester factories, and the surrounding terraced housing. Note their additional factories in Arnesby and Whetstone.

Abbreviations

FWK Report. Report of the Commissioner appointed to enquire into the Condition of the Framework Knitters, with Minutes of Evidence, *British Parliamentary Papers*, (1845), XV. The edition used is that published by the Irish Universities Press, which appears in *Industrial Revolution (Textiles)*, Volume 8.

1833 Report. Report of the Commissioners on the Employment of Children in Factories, with Minutes of Evidence, *British Parliamentary Papers*, 1833. The Irish Universities Press version is published in *Children's Employment*, Volume 3.

1854 Report. Select Committee (Stoppage of Wages in Hosiery) 1854-1855, *British Parliamentary Papers* (421) XIV. The Irish Universities Press edition is published in *Industrial Relations*, Volume 6.

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