An Archaeological Resource Assessment of Modern Leicestershire and Rutland (1750 onwards)

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Note: For copyright reasons the figures are currently omitted from the web version of this paper. It is hoped to include them in future versions.

Introduction

It is my brief today to present a short statement of the current state of knowledge about industrial archaeology in Leicestershire. The serious study of industrial archaeology is a phenomenon of the second half of the 20th century that arose out of a concern to record and even preserve some of the monuments of the British industrial revolution at a time of wholesale urban redevelopment. The term has come to mean different things to different groups of people, so some definition is required. The more generally accepted current definition of industrial archaeology is the systematic study of structures and artefacts as a means of enlarging our understanding of the industrial past. Industrial archaeology will not only be responsible for recording the appearance of structures and artefacts of the recent past, and attempting to set them in an economic and technological context, but also trying to explain how they indicate change or continuity in human behaviour. In this way, industrial archaeology may make a distinctive contribution to an understanding of the development of human society.

Its study is becoming established as a part of mainstream professional archaeology. As in any other field archaeology, the material evidence prompts a series of questions which the industrial archaeologist is often fortunate in being able to answer from documentary evidence. A theoretical agenda is required which embraces not only functional and technological questions but also those concerned, for example, with social relations and the symbolic meaning of structures. The preparation of research frameworks for the East Midlands must take account of all these aspects applicable to the archaeology of the past 250 years which may even trespass into the post-medieval period.

The study of industrial archaeology in Leicestershire, which, for the purposes of this paper includes Rutland, has not been comprehensive by any means and until very recently has been done mainly by amateur groups. The Leicestershire Industrial History Society was formed in 1969 and has carried out fieldwork and recording ever since, often in response to specific development or demolition threats. In 1976, as part of the first CBA-sponsored Industrial Monuments Survey, it compiled a list of recommendations for protection of local industrial buildings and structures, of this list some 7 recommendations out of 25 have been subsequently acted upon. LIHS members contributed to the Leicestershire Museums publication in 1983 in their *Present State* series. Two University of Leicester certificate courses led to some specific recording projects by adult students from 1977 to 1983. More recently industrial archaeology has formed part of the curriculum offered at the School of Archaeological Studies at Leicester and some local recording projects have been carried out by students. All of these surveys are listed in the bibliography. The archaeological units themselves have done some valuable landscape studies but little site or building recording. Although ULAS has been recently involved in several building and site investigations as part of the development process. Some specific industries have been studied on behalf of English Heritage under the Monuments Protection Programme but much remains to be done and, to my knowledge, no comprehensive re-listing surveys have been done.

During 1996-7 I checked through the listings looking at various categories: wind and watermills; brewing and malting; bridges; canal and railway structures; public utilities; village forges; industrial housing; factories; warehouses and workshops and miscellaneous. The totals for the counties were:

26 wind and watermills; 3 brewing and malting; 50 bridges; 42 canal and railway structures; 17 public utilities (including village pumps); 4 forges; 22 industrial houses; 19 factories, warehouses and workshops and 8 miscellaneous, including a blast furnace and an engine house.

This is a total of 191. I do not have the total numbers of listings for all the districts, but where I do, the percentages of industrial structures in those listings vary considerably, from 13.1%

in Oadby and Wigston to 1.9% in Rutland. These variations show the inconsistency of listing so far. For instance there are 13 canal structures listed in Harborough compared with none in Leicester and one in Charnwood, yet the Grand Union Canal has similar structures right along its length. The total of 19 listed textile mills, factories, warehouses and workshops for the whole county must point to the under-representation of these categories. In many cases the components which ought to form part of a given listing description have not all been included.

As far as the local sites and monuments records are concerned, the statistics I have been given for the county again serve to illustrate the unbalance of the industrial records. The records, some 174 in all comprise 112 water mills, 30 brick or pottery kilns, 3 quarries, 11 tramways or railways and 16 old coal mine workings – oddly, no windmills or windmill sites. Some of these inclusions are sites shown as the result of monitoring excavations for new supply systems and rebuilding and do not necessarily represent above ground remains. So the industrial period records for the county are very depleted.

Resources

The only overviews of the county, following David Smith's 1965 *East Midlands* book in the David and Charles series are the 1983 *Present State* booklet in the Leicestershire Museums series and then the sections on the county produced by Marilyn Palmer and I which were included in the Association for Industrial Archaeology's East Midlands Loughborough Conference guide produced in 1986 and our Phillimore book: *Industrial Landscapes of the East Midlands* published in 1992.

Leicestershire's major industries

The county was a predominantly agricultural county, Daniel Defoe wrote in 1724 of Leicestershire: ' the whole county seems to be taken up in country business '. It is not one of the most industrialised in Britain and was never dominated by one industry but had a variety of them many originally based upon the produce of local agriculture and a range of natural resources. Little attention has been paid to the farms themselves, many attached to landed estates. LIHS recorded the Carlton Hayes model farm at Narborough before demolition for the Alliance and Leicester complex. There are many others worthy of attention.

PROCESSING THE PRODUCTS OF AGRICULTURE

Activities included malting, brewing, flour and grist milling, and the manufacture of cheese. Animal products in the form of skins and wool provided the raw materials for shoe making and framework knitting – ultimately to become major mechanised manufacturing industries. Agriculture required blacksmiths, wheelwrights, cart makers and implement makers; mills required millwrights and it was these trades which developed into another important industry in the county – engineering. Marketing produce and natural resources required communications in the form of road, river and canal transport and finally railways. I want to look at some of these industries in the archaeological record.

Brewing and Malting In 1855 there were 83 maltsters and 20 brewers in the county, by 1881 there were 60 maltsters and 40 brewers [**OHP**], by 1932 there were 3 maltsters and 11 brewers – we now have one working traditional brewery and no maltsters at all. Possibly one reason for this decline is the close proximity of Burton on Trent. Major breweries have disappeared during town centre rebuilding in Oakham and Leicester and the remains of the industry include some disused or converted maltings, such as Ketton and Market Harborough and one intact maltings and tower brewery in Sileby.

Corn and grist milling The county was once fairly well endowed with water mills although the lack of very high ground to provide good falls of water restricted their size. [**OHP**]. The Domesday survey listed 179 mills, probably actually around 110 sites – many of these have disappeared without trace and new sites have been created, particularly in the more heavily populated western half of the county. My map surveys of around 1980 identified 113 sites, with varying degrees of survival. The River Sence in the west, rising on Bardon Hill provides a good example of the husbandry of water resources for power by building leats and ponds, There was a fall of about 20 feet per mile over its 13.5 mile length on which ten mills were built and functioned well into the 20th century, many of them had their water wheels replaced by turbines. Many of the

water mills have been converted, few retain their wheels and machinery – there is a working corn mill at Claybrooke and a unique rural roller mill at Odstone.

Looking at windmills, some 160 sites have been confirmed from map evidence, the majority of them have no standing remains. Very few have sails and are complete with machinery, the post mill at Kibworth Harcourt and two tower mills are being restored to working order at Wymondham and Whissendine. Others survive with caps and sails as Shepshed – whilst the mills at Morcott and Arnesby are replicas, several empty towers remain standing. None of these appear in the SMR.

The dramatic rise in population during the 19th century led to the construction of steam mills, some of which remain, for example in Market Harborough, North Mill, Leicester, Ashby de la Zouch, Melton Mowbray and South Luffenham, the last two built beside railways.

Textiles Probably the county's richest and most important, yet still vanishing resource, is from the textile industry in its various branches. Local flocks of sheep originally provided the raw material for the wool and worsted industry, the fibres were spun, woven or knitted by hand in a domestic environment. Houses were adapted by the insertion of large windows for lighting the complex knitting frame or new houses were erected with workshops incorporated. There are, fortunately, still some examples remaining, in Bond Street, Hinckley; Shepshed, Pinfold Gate in Loughborough and Earl Shilton. The need for increased production led to the introduction of the wide frame for knitting, so taking the trade out of the home and into small workshops, often attached to a master hosier's house, as for example in Darker Street, Leicester, in Ratby, Shepshed and Kegworth.

The county took no part in the introduction of powered carding and spinning of cotton pioneered in the Derwent valley but did introduce power spinning of wool and worsted at the end of the 18th century, using steam power. Leicester itself probably lost out initially due to resistance to the introduction of machines, but many mills were built during the early decades of the 19th century: there were 38 wool or worsted spinning mills in 1838 in the county. The earliest survivals are the Queens Road mill in Loughborough begun in 1794, and in Leicester, Friar's Mill in Bath Lane, Whitmores mill at West Bridge and the St Leonards mill on Northgate Street of 1867. This yarn production gave rise to a number of merchants' warehouses in the city to service the knitting trade.

Pioneering development of latched needles and knitting machines led to a rapid growth in powered hosiery production, with very few exceptions using steam power, gas or oil engines or electricity to drive the machines. Multi-storey factories were erected from the 1860s, particularly in Leicester and Loughborough, and later satellite factories in the larger villages to provide female employment. They made not just socks and stockings but also complete garments. Many of these factories outgrew themselves, moving to new larger sites, vacating space for other trades, such as boot and shoe manufacture, printing or box making – both the latter essential for the efficient marketing of hosiery, and shoe, products. This interchange of trades between buildings is an important area of study. By 1895, there were 231 listed hosiery manufacturers in the county. In Leicester, the industry employed 10% of the population in 1851, and around 7% in 1881 and 1911.

Another essential trade was the dyeing and finishing works, which required large amounts of water and were built close to river or canal or sank bore holes for their supplies. Many of these are still in use with their characteristic clerestory louvred roofs.

Another textile industry that grew up in the county in the 1850s was elastic web manufacture, incorporating a rubber thread into a knitted fabric. This was used both for the elastic-sided boots then fashionable and for corset making. Several factories were built to specialise in this branch of industry, such as Symingtons in Market Harborough, St George's Mills in Wimbledon Street and its associated warehouse of 1898, Deacon Street and Bridge Mills in Quorn.

There were only small local warehouses for the hosiery and knitwear industry, the bulk of the finished products were sent to London wholesalers but increasingly goods were packaged and labelled and stored at the factories until shipment direct to retail chains.

Boots and shoes The second major manufacturing industry in Leicestershire was boot and shoe manufacture – every village and town had at least one boot maker – but in the 1850s the trade began to supply more than a local market with the development of machines to enable bulk

production. Not all the processes were mechanised at the same time and it was a considerable time, into the 1890s, before all the separate processes, clicking (cutting out), closing (sewing the uppers together), rough stuff (cutting soles and heels), making or lasting (attaching the sole to the upper) and finishing (trimming and polishing). As in Northamptonshire, the industry was based upon an outwork system using domestic garden and yard workshops. This putting out or basket work system worked in the same way as for the knitting trade except there were usually no bag hosiers or middle men. These small workshops, provided with stoves for heating are a feature of houses in Earl Shilton and Sileby, in many cases close to the factory or warehouse which housed the mechanised processes. These workshops could also be suitable for housing a knitting frame and no doubt, in many cases this happened. Only work upon census or factory records could provide the answer to this. As with knitting frames, several sewing machines might be gathered together in small workshops for closing uppers, these are a feature of the Belgrave area of Leicester.

In the last years of the 19th century and the first two decades of the 20th, a considerable number large multi-storey boot and shoe factories had developed, specialising in some degree in ladies and childrens' footwear, particularly in Leicester itself, but also in the developing suburbs, such as North Evington and new Humberstone. In Leicester, the labour force was around 2% of the poluation in 1851 and around 10% in 1881 and 1911. Like the hosiery trade, shoe manufacturers built factories in the villages too, places like Anstey, Barwell, Sileby and South Wigston expanded rapidly with shoe factories in new streets of terraced houses. Once again further research is required here to ascertain the reasons why a degree of specialisation took place in these new centres of production.

A feature of the industry was the co-operative movement, several societies were formed, both in Leicester and the villages. One of them, based in Asfordby Street in North Evington, was responsible for the development of the Humberstone Garden suburb for their employees. One of the co-op factories still operates in Western Road whilst the Wheatsheaf works, built by the CWS in the 1890s was then the largest shoe factory in the world.

In contrast to the hosiery trade, the boot and shoe industry had a considerable warehousing element, both for the raw materials and finished product. Some of the latter belonged to shoe chain stores, who both manufactured and retailed footwear. Many of these remain, for example Humberstone Gate, Colton Street, Queen Street, Belvoir Street in Leicester – with some of them the ground floors have been converted as retail shops.

Engineering All the industries discussed so far required various support trades, those for agriculture have already been mentioned, many blacksmiths shops turned to tool and implement making; needles were required for knitting machines, nails and rivets for shoe making, carpenters became framesmiths and so on. The mechanisation of both hosiery and footwear production gave rise to a large number of machine makers, some evolving from millwrights, many of them forming the basis of an extensive engineering and ironfounding industry, many becoming sub-contractors for component supply.

Many general engineering companies developed, such as Gimsons in Leicester. Others came to specialise in a limited range of product, for example, British United and Standard Engineering for boot and shoe machinery, Wildts, Mellors, Stibbes, Cottons and Bentleys in textile machines, Pollards, Jones and Shipman in machine tool making, The Brush company in electrical engineering and transport, Morris's for lifting equipment and cranes and of course Imperial Typewriters. These are but a few of a large number of engineering firms based principally in Leicester and Loughborough. Many have left a legacy of good buildings, others have disappeared completely. By 1911, in Leicester alone, engineering employed nearly 3% of the population.

Other companies, such as Frederick Parker and Goodwin Barsby made civil engineering and quarry plant for the county's extensive extractive industry which I will now look at.

EXTRACTIVE INDUSTRIES

Leicestershire and Rutland have a variety of useful minerals ranging from coal and fireclay, limestone and roadstone, to sand and gravel in the extensive low river valleys, all of which have left scars upon the landscape which various schemes endeavour to obliterate or disguise. **[OHP]** This has been responsible for removal of much of the above ground archaeological evidence of these industries.

Coal-getting was recorded at Swannington in the 13th century, first from surface and outcrops, then from bell-pits followed by shaft mining, whose depths could only increase through the use of steam driven pumping and winding engines. Coal mining has now ceased, except for opencasting which has been instrumental in exposing some of the underground archaeology of medieval and later mining. Early shaft mining, using timbers felled in the mid-15th century, was exposed at the Lounge site and other workings have revealed early 19th century underground workings including stables for pit ponies. By its very nature, coal mining tends work shafts for long periods with the result that surface buildings are renewed, so destroying earlier structures. Many installations have been completely cleared. In many cases the below-ground archaeology still survives. At Snibston we are fortunate to have one of the last working mines in the county, first sunk in 1831/2 with its 1946 twin shaft steel head-gear now accorded proper protection. Many of the surface remains elsewhere have been cleared, with little value paced upon the remains, at Calcutta colliery the pumping engine house is listed but not the head gear and winding house for lifting the pump rods from the shaft.

In some of the Coal Measures in the north-west, fireclay also occurred and this led to an extensive pottery and sanitary ware industry at Moira and Swadlincote. On the Ashby Woulds, iron ore nodules were also found which led to the construction of the Moira Blast Furnace, in 1804, never successful, possibly why it survives and now restored as an ancient monument. The only other blast furnaces built in the county were at Holwell works near Ashby, opened in 1878 and working until 1958 using local ironstone as raw material; another ironworks was proposed at Nevill Holt, near the Northants border, but was never completed.

The extraction of ironstone of fairly poor quality has left considerable landscape remains, in the form of edges of workings, inclines, cuttings and tunnels of the extensive railway system which serviced the quarries in the east of the county.

Limestone was found both in the north-west and east of the county and was burnt to produce lime for agricultural improvement and mortar and cement for building. Kilns were constructed at the quarries themselves, as at Dimmindale and Pickworth, or alongside canals or rivers as at Moira, where the stone could be brought closer to fuel supplies. Many of these kilns have now disappeared and the only working quarries are now based in Rutland, at the Ketton cement works which opened in 1928.

Brickmaking was once widespread on a local basis, old maps indicate brick pits at many villages. Large scale production of bricks is a feature of the Leicestershire coalfield with works at Coalville, Ibstock, Ellistown and so on. Many other brickworks were on-site in newly developing towns, canal or railway construction sites and have disappeared under new development. There are now few remains of the industry, with active works at Shepshed and Measham.

The quarrying of stone, sand and gravel is still an extensive industry, the former producing a wide range of materials from slate, granite to roadstone. Many local buildings testify to the durability of Swithland slate and Mountsorrel granite for example, both of which have considerable early remains. In the far east of the county there were excellent freestone quarries at Clipsham and Ketton in the Jurassic limestone belt.

Extraction of sands and gravels in the river valleys continue to expose a vast amount of archaeology, in the form of mill, fish-weir and boat timbers along with remains of old bridges which have been covered up by shifting river courses as in the Trent valley. None of these industries could grow and flourish without a transport infrastructure which will form my last section.

TRANSPORT

The road network of the county to a great extent follows an ancient pattern with some Roman roads still remaining as major routes. By the early 19th century nearly 300 miles of road had been turnpiked, raw materials in the form of granite setts and other road stone, were readily available. Many roads of the Enclosure period are still marked landscape features. Roads across the low lying river valleys, particularly the Trent and Soar provided repeated flooding and bridging problems. Several early packhorse bridges remain, along with several series of milestones and the occasional toll house. In general road widening and improvement schemes have removed many of these items.

In order to move heavy goods, the improvement of the River Soar for navigation to the Trent was [OHP] opened in 1778 as far as Loughborough, then the navigation was opened to Leicester by means of several new cuts and locks and finally opened through to form part of what became the Grand Union north-south route through the country. The driving force behind these constructions was to move coal and stone, immediate reductions in the cost of coal in the manufacturing towns were effected over that brought by pack horse or wagon. There were various other schemes in the county, only the Ashby Canal in the west being still open. There are numerous remains of these closed canals and also of the Wreake Navigation from the Soar to Melton and Oakham, which presents an interesting study of the mutual existence of watermills and a river navigation. The latter was eventually closed after its line being modified to allow construction of the Syston to Peterborough Railway, which eventually bought it out. Various restoration schemes are in hand on the Grantham and Ashby Canals and a trust proposes to re-open the Foxton inclined plane.

The first railways in the county were horse-drawn waggonways which connected collieries and limestone quarries in the north-west with the canal system and river Soar, some of these lines eventually being converted to standard gauge steam operation. [**OHP**] One of the country's pioneering steam railways, the Leicester and Swannington line, opened in 1832 in order to bring coal into Leicester, immediately in competition with canal-borne coal from the Erewash valley. This was a composite line with locomotive hauled sections and inclines, many landscape features still remain. The full extent of the standard-gauge network is shown nut much is now closed, even the last main line, the Great Central opened through the county in 1899. A section of this, however, along with other lines at Shackerstone and an ironstone railway at Cottesmore, remain in private operation.

A comprehensive survey of the archaeological resource of the roads, waterway and railway systems, including associated housing and goods yards has never been carried out to my knowledge.

PUBLIC UTILITIES

Leicester and the larger towns in the county grew considerably in the 19th century, In Leicester, the population was around 17,000 in 1801, by 1851 this had risen to over 60,000 and in the next 30 years was to double to over 120,000. Until 1848, water supplies were obtained from wells, often polluted, and a local waterworks company was established in 1851, building reservoirs at Thornton, and reserevoirs and pumping stations at Cropston and Swithland. The county towns developed their own schemes, Loughborough at Nanpantan and Hinckley pumped water from an exploratory mine shaft at Snarestone. But the county later had to rely for future supplies from Derbyshire.

The disposal of sewage from Leicester until the 1850s into the natural watercourses caused serious pollution problems in the Soar valley and a piped system was introduced but the removal of waste continued along the canal until the Beaumont Leys sewage farm was opened in 1891, with the waste being pumped up from the Abbey Pumping Station.

There were many gas works in the county ranging from large country houses, individual factory plants, small towns and in Leicester itself, where the first works were built in 1821 in Belgrave by the canal. Coal gas production ceased in 1969 and many of the buildings connected with it have gone, gas holders remain for the time being along with some buildings and housing at Aylestone Road.

Electricity generation for public supply began in Leicester in 1894, with a DC plant at the Aylestone Road gasworks. The next plant was for the electric tramway system introduced in 1904, now part of Charles Keene college, followed by a large station at Aylestone Road. Other stations were built in the county at Loughborough and Hinckley, but a large part of the rural areas relied upon supplies from outside the county, until the National Grid system was opened.

This has been a brief run through what has been traditionally regarded as industrial archaeology. If we are to take the wider definition as the 'archaeology of the industrial period', many other aspects of the built environment need to be brought under the umbrella of industrial archaeology. Housing, cinemas and theatres, hospitals and workhouses, sports arenas and so on should all fall within the orbit of the industrial archaeologist.

I want to conclude with some pointers to the way forward in the Frameworks project, and suggest some points for discussion later on today.

First, there are several important omissions in the assessment and possible protection of the industrial archaeological resource:

1. Complete the Monuments Protection Programme.

2. Afford listing and/or scheduling protection to the resulting recommendations.

3. Define above and below-ground remains as archaeology.

4. Carry out a check on present listed buildings etc to ensure that listing descriptions cover all valuable components

5. Carry out a survey of transport features remaining, roads, waterways and canals.

6. Carry out a survey of farmsteads and estate buildings.

7. Ensure the expansion of the Sites and Monuments Records so that the planning process can be adequately informed. Unlisted structures of local value must also be included.

8. Ensure that amateur knowledge and record is collated and preserved.

9. Ensure compatibility of data storage systems, English Heritage, SMRs, National Trust, Archaeological Units etc.

There are several specific research agendas that could be followed:

1. The tradition of domestic outwork has been a factor in both the hosiery and the boot and shoe industry. Some villages specialised in one or the other, some supported both trades and others, in spite of favourable communications, did neither. Why?

2. Spheres of influence in various villages to main towns and the development of satellite factories.

3. Interchange of factory buildings and workshops between trades e.g. hosiery – boot and shoe – printing – box-making – engineering.

4. Continued monitoring of opencast coal operations, coal mine reclamation projects and sand and gravel workings.

5. Establish a theoretical agenda and form of record.

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