A guide to the Industrial Archaeology of the

EAST MIDLANDS

Parts of Northamptonshire, Leicestershire, Derbyshire and Nottinghamshire

by Marilyn Palmer and Peter Neaverson

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This guide does not purport to be an intensive gazetteer of the IA sites in the East Midlands. The authors have selected sites within seven regions within the four counties and seven towns mainly located within those regions; they are shown on the map opposite. These sections and the county introductions are lettered A to T and the sites numbered A1, A2 etc within each section. A classified subject index is provided on page 51.

Although the booklet is divided under county headings, for convenience of access and description there is some crossing of county boundaries, eg parts of Derbyshire are included in the Trent Valley under Nottinghamshire and parts of west Leicestershire are included in the South Derbyshire and Leicestershire Coalfield section.

It is hoped that the reader will appreciate the diversity of industry within the East Midlands and be tempted to investigate further. Any omissions or errors are the responsibility of the authors who gratefully acknowledge the comments and suggestions received from members of the Derbyshire, Northamptonshire and Nottinghamshire societies.

USEFUL MAPS

1:50,000 First Series Sheet Nos 119, 120, 128, 129, 139, 140, 151 and 152.

One Inch Series Sheet Nos 111, 112, 120, 121, 122, 123, 132, 133 and 134.

FURTHER READING


Cooper, Brian, Transformation of a Valley: The Derbyshire Derwent, Heinemann 1983.


Ford T D and Riewerts J H, Lead Mining in the Peak District, Peak Park Planning Board 1983.


LOCAL SOCIETIES

Derbyshire Archaeological Society, Industrial Archaeology Section. Sec I H Mitchell, 159 Draycott Road, Sawley, Long Eaton NG10 3BX.

Leicestershire Industrial History Society, Sec Dr M Palmer, 54 Chapel Street, Measham, Burton on Trent DE12 7JD.

Northamptonshire Industrial Archaeology Group, Sec G. Starmer, 11 Broadway, Northampton NN1 4SF.

Nottinghamshire Industrial Archaeological Society, Sec R Hodges, 44 Wadham Road, Woodthorpe, Nottingham NG5 4JB.

Railway & Canal Historical Society, Sec J Sheldon, 9 Gloucester Ave, Nuthall, Nottingham NG16 1AL.
A NORTHAMPTONSHIRE

Despite its rural appearance, Northamptonshire has experienced a variety of industrial activities over a very long period. There is evidence for the production of iron in the prehistoric period, an industry rediscovered after 1850 with the consequent development of ironstone quarrying and the construction of blast furnaces. Agricultural processing has always been important, including extensive textile and leather trades; a large order for boots for the army to
go to Ireland in 1642 both indicated an already flourishing trade and laid the foundation for the extensive footwear industry which has contributed so much to the landscape of the county during the late 19th century. One area and two towns have been selected for detailed treatment, the Nene Valley and the important footwear towns of Northampton and Kettering.

(All grid references are SP unless otherwise stated.)
B THE NENE VALLEY

The fertile valley of the River Nene is primarily an agricultural area, with pastoral farming providing the raw materials of wool and leather for its early worsted and boot and shoe industries. Nearly every village along the Nene and its tributaries possessed its own water mill for grinding corn or fulling cloth, and the river was made navigable between 1730 and 1761, providing an outlet to the Wash. The river navigation was connected to the main canal system via the Northampton Arm of the Grand Junction in 1815. Later rail links to the London-Birmingham Railway at Blisworth and the Midland Line at Wellingborough helped provide further industrial transport, particularly for the important ironstone deposits of the region.

B1 The Northampton Arm (720550 to 753597). The narrow canal link from Blisworth on the Grand Junction to Northampton was opened in 1815; a horse-drawn railway removed from the Blisworth Tunnel site had served this purpose for the previous two years. A flight of 11 locks at Rothersthorpe, a lock-keeper’s cottage and three timber lift bridges are to be seen between 723560 and 727571.

B2 Hunsbury Hill (738584). This Iron Age hill fort met a new demand for iron 2000 years later, with quarries being opened in 1873; 2 blast furnaces were in use from 1847 to 1921 when quarrying ceased. Now a Countryside Park, it
THE NENE VALLEY

is the home of the Northamptonshire Ironstone Railway Trust whose museum and steam locomotives operate on Sundays.

B3 Billing Mill (814611). An early mill site, much of the present building and the machinery dates from the 19th century. It is preserved as a museum of milling and is open weekend afternoons. The museum also houses a horse engine, removed from Eversholt in Bedfordshire.

B4 Victoria Mill, Wellingborough (902665). A 4-storey steam powered roller mill built by J B Whitworth in 1886 (see initials and datestone on gable). It stands alongside the Nene and has road, rail and canal access; grain was delivered by water until 1969 and the remains of the unloading wharf can still be seen. The mill was electrified in 1958 and is still in use.

B5 Water Tower, Finedon (926717). An elaborate Victorian polychromatic brick structure with a castellated top.

B6 Irchester (915660). Now a Countryside Park, it is the site of the quarries opened by the Irchester Ironstone Company in 1912 and, despite tree planting, gives an impression of the hill and dale method of ironstone working. Exposed quarry faces can be seen around the perimeter, together with the remains of mineral railways.

B7 Barnwell Mill and Lock, Oundle (TL 038870). A stone built mill with wooden lucam, part dating from 1746 (see datestone at rear). It is a good example of a mill associated with a river navigation. The lock is typical of many on the Nene, with a pair of standard gates at one end and a massive guillotine gate at the other for flood prevention.

B8 Oundle. An attractive town, it was an important agricultural processing centre with extensive remains of the brewing and malting industry which once prospered here: the characteristic long, low buildings with small windows in East, South and North Roads have been converted to other uses. There is a brick maltings with a lucam at TL 044888 and a stonemill built at TL 044886. A three-storey red brick brewery, the Anchor Brewery, can be found in South Road. The Nene was made navigable to Oundle by 1730 and there are warehouses alongside a now disused arm of the navigation close to the North Bridge at 045888. The South Bridge over the Nene is worth looking at, as is the now disused neo-Tudor railway station of 1845 (TL 046981) on the Northampton and Peterborough Railway.

B9 Ashton Mill, Oundle (TL 051875). A Domestica site, the present mill ground corn until 1900 when it was converted to supply water and electricity to the village and the Rothschild Estate. Two turbines and two gas engines were installed and have been restored; the mill is open as a museum, with associated fishery, basketry and forge displays on weekend afternoons.

B10 Wallis’ Mill, Brigstock (945856). An impressive four-storey Weldon stone mill, very tall for its width. It was opened in 1873 as a clothing factory with extensive fenestration to provide light working conditions for machinists. It was converted to the office of an architectural practice and was awarded a prize by the RICS in 1984 for sympathetic re-use of an industrial building.
C NORTHAMPTON

A centre of the footwear industry since the 17th century, its present landscape is indicative of the late 19th century powered industry rather than its earlier domestic phase, when much of the sewing of footwear was carried out in back garden workshops. The invention of sewing machines in the second half of the 19th century transformed the industry, which moved into multi-storey factories interspersed among terraced rows built to accommodate the workforce. The increasing weight of shoe machinery led to the construction of single storey buildings with roof lights by the end of the century. There has been much clearance in Northampton's city centre, resulting in the loss of such splendid buildings as the 1857 Manfield Factory in Campbell Square. The visitor can gain an impression of earlier industrial Northampton by following the short trail given below, beginning at Lower Mounts behind the bus station. First, though, he may care to visit some outlying sites. The main road south from Northampton crosses the River Nene, where there is still evidence of its importance as a transport route. At 755598 is a four-storey brick corn warehouse, with wooden lucans to both river and road, belonging to Latimer and Crick (C1). The Northampton and Peterborough Railway followed the route of the river and a 3 storey LMS goods and grain warehouse survives at 755596 (C2). Within the town itself, the Derngate Theatre retains the front elevation of the premises of Phipps' the shoe mercers (C3). There are two museums of some interest, the Museum of Leathercraft (754603) in Bridge Street (C4) and the Central Museum (756604) in Guildhall Road (C5); the latter contains the country's largest collection of boots and shoes, together with machinery and tools for their manufacture. On the A50 north of the town is Barratt's Footshape Works (C6), built in 1913, with ornamental terracotta embellishment (752620).

Boot and Shoe Trail

C7 G T Hawkins' factory at the corner of Overstone Road and St Michael's Road. They were established in 1886 and are still well known manufacturers of mountain boots.

C8 St Michael's Road. On the north side, rows of houses with workshops at the rear in Dunster Street. On the south side, a number of shoe factories, some with cast iron windows; the latest seems to be R E Tricker Ltd, built in 1903 with a brown glazed tile exterior. The British
American Last Works at the east end of the road is marked by the squat tower reflecting its former use as a brewery.

C9 Grove Road. The factory of G M Tebutt and Sons founded in 1872, where shoes were made until 1968. It demonstrates both phases of machine made shoe manufacture, the earlier multi-storey factory and the later single storey building with glazed roof lights fronting Clare Street.

C10 Talbot Street. On the south side, another multi-phase factory, once owned by Norvic, with the single storey additions behind. At one time it had a gas engine and generated its own electricity. On the opposite side of the road is the 3-storey Norwich Boot and Shoe Factory of 1889.

C11 Whitworth Road. The 3 storey late 19th century factory, with a later extension, of Crockett and Jones; a stone pediment contains the firm's name. The parallel street of Artizan Road contains some interesting housing, interspersed with factories.

C12 Henry Street. An assortment of shoe factories of different dates from the last quarter of the 19th century.

C13 Cowper Street. Another example of intermingled housing and factories including the fine boot factory known as the Cowper Works. The adjoining building was occupied by Lennards.

C14 Carey Street. The housing here abuts on to a 3-storey L shaped boot factory with cast iron round headed windows.

C15 Follow Hervey Street to Overstone Road; the corner of the latter with Dunster Street contains a 3 storey sole leather makers with wooden louvred windows for ventilation. Opposite is a large brick 3 storey shoe factory.
D KETTERING

Kettering was transformed in the last four decades of the 19th century from a small market town into a thriving industrial centre. Its earlier worsted weaving trade had declined by the early 19th century and the town was hampered by poor communications; the Midland Railway's Leicester to Hitchin line was finally opened through the town in 1857. The large footwear firm of Thomas Gotch was founded in 1778 but remained the only one in the town until the 1860s. The population in this decade was 6000. The footwear industry was stimulated by large government orders at the time of the Franco-Prussian War, and the mechanisation of the industry resulted in many factories and associated housing being built in the 1870s, during which decade the population of the town grew by 55%, and the 1880s, when it grew by 75%, reaching a total of 29000 in 1901. Manufacturers like Meadows and Bryan and J T S Stockburn built estates to the north and east of the town, where the 19th century landscapes of interspersed factory and terraced row can still be seen. The manufacture of shoe machinery diversified into more general engineering and still continues in the town.

Further north, the towns of Rothwell and Desborough also contain boot and shoe workshops and factories, especially the Co-operative Wholesale Corset Factory in the latter (801829), an industry deriving from the production of elastic web for the shoe trade.

D1 In Kettering itself, the Midland Station retains its decorative ironwork and terracotta ornamentation (863780). From any of the town centre car parks, the following trail will reveal the interest of this little known town.

D2 The Westfield Museum is open 12 - 5 weekdays (Not Mon or Tues) and 2 - 5 weekends during the summer. Its exhibits include a display of the processes of hand-making of footwear together with machinery and scale models of steam engines as well as local exhibits. Close to the Museum, off Meadow Road, are New Buildings, apparently 18 late 19th century back-to-back houses.

D3 Green Lane. A fine 3 storey shoe factory with stone quoins, stringers and lintels above round headed windows and an elaborate corbel table. It was built for Abbot and Bird in 1873 with the first bricks produced by the Kettering Brick and Tile Company.

D4 Newman Street. A factory built in 1870s for N Newman and Sons with the mixture of 3 storey blocks and single storey buildings with north lights which characterises many of the Kettering factories.

D5 Victoria Street. Much of the development by J T S Stockburn leading east off this street has been demolished, but the street itself retains various manufacturers of the 1870s including the large complex which was G Lewis and Sons, Agricultural Engineers, on the corner of Carrington Street, and the factory of J Salmon, with the name picked out on the brick pediment, at the corner of School Lane. A small factory with gable mounted crane survives at the end of Alfred Street.

D6 Scotland Street, off Montagu Street, leads to the works of Wicksteed Leisure, founded in 1870s by Charles Wicksteed as a small engineering firm. He equipped the Wicksteed Park to the south of the town and the firm now specialises in fairground and similar leisure equipment.
D7 **Digby Street** contains several factories, particularly that of Thomas Bird (now E A Tailby) at the corner of Bath Road. This is a factory with ornamental gables, with alternate brick and stone banding, facing both streets, and single storey buildings to the rear. A wall mounted crane survives in Digby Street, next to housing with the monogram and date of THB 1891.

D8 **Bath Road** contains the Perfecta Works, established by Timson, Bullock and Barber, as shoe machinery manufacturers, in 1896. This is a complex of buildings stretching back to the parallel Catesby Street. The main building has an interesting mansard roof and opposite a Methodist Chapel has been converted to Timson’s offices.

D9 **Tresham Street.** An uncompromising brick factory, of 13 bays, 3 storeys high with a wall mounted crane on one gable. It is probably that of Gravestock and Wright which appears in the 1906 directory.

D10 **Princes Street** contains terraced houses built in the 1880s by the local shoe making Co-operative Society, bearing the monogram ‘Union in Strength’. These continue into Crown Street and contain footwear workshops in the rear gardens.

D11 **Crown Street** boasts the elaborate Co-op. Model Bakery of 1900, with a grocery warehouse alongside. The elaborate tie bar plates bear the initials KICS — Kettering Industrial Co-operative Society. The Co-operative Movement was founded in the town in 1866 and played a large part in its affairs.

D12 **Regent Street**, together with Havelock Street and Wood Street, form part of the estate developed by the shoe manufacturers Meadows and Bryan in the late 1870s. Many of the houses have back garden workshops, while the streets are characterised by small shoe factories on the corners. The building is all of good quality, often with terracotta ornamentation.

D13 **Dryden Street**, west of the Rockingham Road, comprises a complex of factories, multi-storey to the road and single storey behind. The office block has an elaborate Venetian style porch. On the corner with Field Street is the elaborate building of the Kettering Clothing Manufacturing Co-operative Society, established in 1893: this has flat brick pilasters between the windows and ornate tie bar plates.

D14 **Field Street**, particularly on the corner with Cobden Street, contains an interesting variety of factories of different dates. J Avon Ltd, built in 1878, has polychrome brickwork and round headed windows, while the buildings opposite are later curtain wall buildings of the 1920s and 1930s.

D15 **Northall Street.** Much demolition has taken place between here and the town centre. A ventilated roof marks the site of a former electricity generating station, while opposite is a factory with a central tower of ironstone and a complex of brick factories with round headed windows to the rear. This may well be the original factory of J T Stockburn, stay manufacturer, who developed the estate off Victoria Street.

D16 **Lower Street.** Crown Brewery is still an impressive 4 storey building of 6 bays, bearing the monogram J E or John Elworthy, 1885. The kiln at the rear has an elaborate cowl and a slated roof, while a loading door and adjacent water tanks back on to Tanners Lane. The brewery ceased operation in 1930 but the buildings have survived.

D17 **Ebenezer Place** contains a narrow 4 storey brick shoe factory once belonging to Meadows and Bryan. A plaque depicting shoe and leather tools also bears the date of 1873 and the motto ‘Nisi Dominus Frustra’, recalling the firm’s original premises in a converted chapel.
The industrial landscape of Leicestershire is largely a 19th century creation resulting from prosperous small scale manufacturing. W.G. Hoskins of the Department of English Local History at Leicester University, preferred other landscapes to that of the county in which he worked. He wrote: 'The Leicestershire industrial landscape nowhere attains the grandeur of the North or the dramatic and demented ugliness of the Potteries or the Black Country. It is profoundly dull, as one might expect from industries making such prosaic things as vests and pants, boots and shoes, biscuits and bricks'. Despite this, there is much of interest. Industry has been based on the one hand on the agricultural activities in the county and on the other on a remarkable variety of mineral resources. Watermills rather than windmills were used for grinding corn although examples of the latter do survive at Kibworth Harcourt (SP 689944:E1), Arnesby (SP 614925:E2), Morcott (931001:G10) and Shepshed (462180:E3). Malting and brewing were widespread in the county during the 19th century, and the firm of Symington’s established food processing industries in Market Harborough, including their pea flour and coffee mill of 1881 (SP 736869:E4). Woolcombing and worsted spinning, based on local sheep, provided the basis for the extensive hosiery industry which dominated the 19th century scene. Knitting frames were placed first in domestic houses often with added windows as at Lower Bond Street, Hinckley (SP 425941:E1) and in addition, Shepshed (482197:E6). Purpose built houses incorporating workshops are less common than in Nottinghamshire, since the Leicestershire industry adopted wide frames at an early date which were placed in separate workshops; examples survive at Bushloe End in Wigston and Ratby (511060: E7). The powered phase of the industry dates from the 1870s, when many of the factories still to be seen in Hinckley, Loughborough and Leicester were built and the towns expanded dramatically. In the south of the county, many of the hosiery workshops were taken over by the boot and shoe industry.

The extraction of coal has left its mark on the landscape of west Leicestershire. The coalfield also provided clay for the extensive brick and tile industry which stretches north in Derbyshire. Slate has been quarried in Charnwood Forest.
The Soar Valley, lying between the Pre-Cambrian rocks of Charnwood Forest to the west and the Jurassic ridge to the east, has always been an important route; it was followed by the first of the county’s turnpike roads, the Harborough to Loughborough Turnpike of 1726, now the A6. The river itself was made navigable first to Loughborough in 1777 and then to Leicester in 1784. A canal to link Leicester with the Grand Junction, begun in 1793, was completed only in 1814 but then put the county on an important north-south waterway route, still extensively used by pleasure craft. Canal extensions were constructed to Market Harborough, Oakham and, with less success, the west Leicestershire coalfield. The river navigation sections of the system present an interesting example of the modifications necessary to retain watermills. The granite quarries at Mountsorrel made extensive use of the navigation, while limestone was quarried at Barrow. The valley also became one of the major centres of the hosiery industry.

The coming of the railways, first with the Leicester and Swannington of 1832 and then the Midland Counties of 1840, inaugurated a fierce period of conflict between water and rail-borne transport, with the canal companies desperately cutting rates in order to compete. The quarries transferred at least some of their products to the railways in the 1860s, but the accessibility of rail transport at least enabled the valley’s industries to diversify, particularly into engineering; the skills acquired in building powered knitting frames were transferred to more general engineering by the late 19th century, particularly Brush Electrical Engineering works in Loughborough and many firms in Leicester. The combination of hosiery, providing work for women, and engineering, contributed to the full employment experienced in the late 19th century which is reflected in the quality of much of its housing and public buildings.

F1 Foxton Locks (SP 690892-692898) provide access to the short canal, built 1810-1814, which linked the Leicestershire and Northamptonshire Union with the Grand Junction Canal at Norton, thus providing a through route to London. A staircase of two groups of five locks with a passing pound in between, side ponds
were constructed to minimise the water loss from the summit section. Financial constraints meant that the locks were built narrow, creating a bottleneck between two broad canals, and in the late 19th century the canal carriers, Fellows, Morton and Clayton, pressed for improvements at Foxton. In 1900 a boat lift was constructed, working on the inclined plane principle: both caissons could accommodate two narrow boats and counterbalanced each other, friction being overcome by a steam engine. The Watford flight at the other end of the link was not, however, improved and the Foxton lift worked only until 1911. The Foxton Inclined Plane Trust have cleared the site and plan to restore the lift to working order, adding further interest to an attractive site.

F2 Wigston Magna, an important industrial village and the basis of W G Hoskin's The Midland Peasant. As early as 1801 more than 50% of the population were engaged in trade and industry, largely framework knitting: there were over 500 frames in 1845. Much has been demolished, but workshops with typical long windows survive off Bulls Head Street (SP 605986) and Moat Street. In Bushloe End at SP 603987 are two complete workshops, but access is impossible at present. The workshops in Spa Lane (SP 609989) were taken over by footwear manufacturers in the late 19th century when hosiery finally became a factory-based industry.

F3 South Wigston. W G Hoskins in The Making of the English Landscape: Leicestershire wrote in 1957: 'The sight of South Wigston on a 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'. The township is the creation of a speculative builder, Orson Wright, who in seven years from 1883 erected 600 identical brick cottages interspersed with factories. Situated beside a busy railway junction, he built a brick works and factories for the manufacture of hosiery, boots and shoes, elastic web, biscuits and iron castings. At SP 586985 on Saffron Road, the Eagle Works of 1895 is a mainly single storey shoe works with two octagonal towers on the frontage. Canal St running parallel to the closed Leicester to Rugby railway (SP 590983) has a range of factories and leads to the Union Canal and Crow Mills, a former water mill on the river Sence.

F4-5 Aylestone. Here the Soar is crossed by both road and the Great Central railway. The 16th century packhorse bridge (566009) and causeway was probably built to facilitate the growing coal trade between the north west of the county and Leicester (F4). The Soar itself is canalised here and King's Lock (567007) was named after a lock keeper who retired in 1871 after 50 years there (F5).

F6 Cossington Mill (596239) is a Domesday site variously used for fulling, paper making and corn grinding until 1928. The undershot wheel has been removed from its external house and the water courses infilled. The mill is now a restaurant standing beside a lock on the river navigation.

F7-8 Mountsorrel is dominated by the quarries (577148) producing the pink granodiorite which can be seen in many of its buildings, including the church. During the 19th century these quarries produced huge quantities of dressed paving sets and kerb stones, together with granite chippings for road use (F7). These were transported first by water and later by rail; the elegant brick bridge of 1860 spanning the Soar carried the railway from the quarries to the Midland at Barrow on Soar (579153:F8). The remains of two tipplers can be seen just north of this bridge on the west bank of the river, marking the terminus of the previous rail link to the navigation.

F9 Quorn, too, contains many houses of local granite, particularly those in Station Road which date from c1800 and are also roofed with local Swithland slate. It was a busy hosiery centre but from the mid 19th century the elastic web factory of Wrights was employing nearly 400 people. It is an attractive brick building with round headed cast iron windows and a 96 ft chimney with an ornamental top (562165).

F10-16 Loughborough has long been an important textile centre, its medieval worsted combing industry later supplying thread for framework knitters both in the town and surrounding villages. Lace was also made here in the early 19th century, notably by John Heathcote who transferred his factory to Tiverton in Devon at the time of the Luddite riots. The canalisation of the Soar to the town in 1777 brought cheaper coal supplies. Much evidence has been destroyed
THE SOAR VALLEY

in recent years, but two large mills can still be seen: Cartwright and Warners, now Towles on Queens Road beside the canal (542201:F10), originated in the 1790s and its founder patented an unshrinkable mixture of wool and cotton fibres and I and R Morley's hosiery factory of 1889 on Nottingham Road (543202:F11).

Loughborough's first railway station of 1840 was the scene of Thomas Cook's first excursion, a temperance railway trip from Leicester which is commemorated by the plaque on the present 1872 station on the opposite side of the Nottingham Road from the original building (546204:F12). The trust now preserving the Great Central Railway has its headquarters in the former station at 543193:F13. The town's excellent communications promoted the growth of other industry, notably the bell foundry of John Taylor in Freehold Street (542197:F14) whose entire operations moved here in 1884; Brush Electrical Engineering (544206:F15) was based in 1889 on the former locomotive works of Henry Hughes by the Midland Railway station and Herbert Morris, crane manufacturers who erected works alongside the Leicester Navigation in 1897 at Empress Road (546195:F16).

F17-18 Cotes (554206). Here a 15th century bridge and causeway carries the Nottingham road over the Soar (F17). The nearby Lower Mill (F18) now converted to a pub, used water power for animal feed production until 1973.

F19-20 Hathern. A framework knitting village dependent on Loughborough for thread supplies; workshops survive at The Green and Green Hill (503223:F19). To the east alongside the railway at 515242 are the Hathern Station Brick and Terracotta Company's works (F20). These were established in 1878 and continue to make the terracotta and faience tiles which were a distinctive feature of cinemas and other public buildings of the 1920s and 30s.

F21 Zouch. (508234). A bridging point over the Soar since the Middle Ages, the village lies between the river and a new cut made for the Soar Navigation. The gaunt Zouch mill, the last of several buildings on an important water power site, once ground both corn and gyspum for plaster.

F22 Sutton Bonington. A framework knitting centre with 110 frames in 1844, a good example of a 17th century domestic frame shop survives at 1 Soar Lane (503256). Dated 1661, it is a timber-framed house with brick infill and has rows of long windows on both ground and first floors. The latter are clearly a later insert.

F23 Kegworth was another hosiery centre, although little survives except a two storey workshop behind the Britannia Inn (488265) which has a complete run of windows on all four sides at both floor levels. Hand operated frames were used here as late as the 1950s.

F24-25 Red Hill (494309). Here the river Soar joins the Trent; just west of the confluence canal boats (and the horses which drew them) were worked across the Trent by ropes into the Erewash Canal (F24). The Midland Railway crosses the Trent on a Butterley Company bridge, having emerged from the castellated portals of the Red Hill Tunnel (F25). The tracks were doubled c1898.

F8 Railway Bridge, Mountsorrel
G  RURAL EAST LEICESTERSHIRE

East Leicestershire sits astride the Jurassic ridge which continues northwest from Northamptonshire into Lincolnshire. It has long been noted for pastoral farming: Daniel Defoe in 1724 remarked that 'the largest sheep and horses are found here, and hence it comes to pass, too, that they are in consequence a vast magazine of wool for the rest of the nation'. Worsted combing, however, tended to be an urban craft practised in the towns of the Soar valley: the rural east concentrated on processing other animal products, notably the manufacture of pork pies in Melton Mowbray, corn milling, malting and brewing. The canal extension from the Soar to Oakham, opened gradually between 1791 and 1803, provided an outlet and enabled coal to reach the region. The economy was, however, transformed in the mid 19th century by the rediscovery of iron ore during railway construction. The ironstone was quarried, resulting in the general lowering of the landscape, with fields below the level of the roads and farm buildings isolated on mounds. This can be seen well in the area around Pilton and Wing (9102). An extensive railway network was created, whose traces can still be seen, and iron furnaces were built at Asfordby in 1876; these closed in 1962 but the area is destined for future development once the Vale of Belvoir coalfield is under way.

G1-4 Oakham, the former county town of Rutland, was an agricultural centre with brewing and malting industries until the coal supply via the Oakham canal enabled the development of some small factories, mainly producing boots and shoes. The canal was bought by the Midland Railway in 1846 and much of its bed was used for the track of the Syston to Peterborough railway opened to the town in 1848. Isolated lengths of canal still remain in water. The station (857090; G1) is built of red brick in the Italianate style; a provender mill (859099; G2) was built in 1902 by the Midland Railway and by 1911 was supplying feed to 4100 railway horses. It still supplied 2200 horses in 1947 and was the last of four such mills to close in 1954, surviving as a seed store. Barraclough Hall on the premises of Oakham School was formerly the terminus warehouse (862092; G3) of the Oakham Canal and canal workers' houses survive nearby. The Rutland County Museum (863085; G4) is housed in the former equestrian exercise hall of the Rutland Fencibles and has a good collection of agricultural implements and tools and farm carts and wagons. It is open Tuesday to Saturday 10-5 (closed Friday) and Sunday 2-5.

G5 Rutland Water. Leaving Oakham to the east along the A606, the road is diverted around Europe's largest man-made lake. This was begun in 1971 and the 3100 acre reservoir in the valley of the River Gwash now holds 27300 million gallons of
water, some pumped via pipelines from the Nene at Wansford and the Welland at Tinwell. The former church at Normanton on the south shore, nearly surrounded by water, houses a museum of water supply opened in 1985 by the Anglian Water Authority. (932063).

G6 Tickencote Water Mill (989094). This three storey corn-mill on the River Gwash was built in the 1830s and stopped work a century later. The undershot wheel remains in situ and there is a fine wooden lucam.

G7-8 Ketton was the centre of an extensive quarrying industry in the 18th century, its fine limestone being widely used for building until it was worked out: the village is now dominated by the cement works opened in 1928. A prosperous community Ketton had two breweries, a maltings, gasworks and lime burning industries served by the Midland Railway from Syston to Peterborough and later by the LNWR from Rugby. By the railway at 984041, the Midland Hotel (G7), now a private house, fronts the former maltings with a surviving kiln; here too, is the retort house of the gas works of 1863 and railway offices, all of local stone. Sidings serving lime-kilns have now been lifted. Nearby at 981042 is the three storey Georgian corn mill (G8) on the River Chater which ground corn until 1856 and was later used to pump water for the village.

G9 South Luffenham is a small settlement possessing examples of three types of corn mill. The water mill (945027) on the River Chater also served as the Railway Hotel. The wheel and machinery are still in situ, although a steam engine was added. This mill was worked in conjunction with the tower windmill at 947026, which has a datestone of 1832 and went out of use in the 1890s. This was replaced by a steam corn-mill (947027) with a four storey central tower built alongside the railway in 1892. It contained a roller plant by Robinsons of Rochdale capable of producing 8 sacks per hour and went out of use in 1927.

G10 Morcott (931001). A tower windmill which worked from 1875 with 4 sails driving 3 pairs of stones. It had ceased to operate by 1921 and was partially demolished but was rebuilt in 1968.

G11 Wakerley, actually in Northants. The calcining kilns at SP 947996 have probably never been used. They were built in 1915 beside the LNWR Market Harborough to Peterborough line by means of which ironstone was conveyed from local workings; these closed in 1921. The kilns are of unusual shape, having circular concrete bases topped by brick towers with arches set in the sides. Marks in the brickwork suggest that there was a platform at this level on to which the ironstone was raked before loading into wagons below. Only two of the four kilns were completed.

G12 Harringworth Viaduct (SP9197) straddles the Welland Valley. It was built by the Midland in 1877-9, has 82 arches and is over ¾ mile long.

G13 Seaton Station (SP 909979) is a good example of LNWR architecture, now privately owned and restored. The ironwork of the footbridge is particularly attractive.

G14 Manton Station (884039) is an elaborate brick structure built, it is said, to placate the inhabitants of Uppingham who were disappointed at being so far from a railway; they finally got one in 1894 with a branch line from Seaton.

G15 John O'Gaunt Viaduct, Twyford (741092) is an attractive 14 arch structure on the GNR Market Harborough to Melton line opened in 1878.

G16 Langham Brewery (845110) is the home of Ruddles' beer. The brewery was established in 1858 but the buildings have been much altered.

G17 Whissendine Windmill (824142) is a six storey tower mill built of ironstone with an ogee cap. It was probably built in the 1830s and worked until 1922: it then became derelict but was re-capped in 1962. It still contains four pairs of stones, three overdriven and one underdriven, together with a roller mill and dressing machinery.

G18 Wymondham Windmill (850192) is a five storey ironstone tower mill, built c 1813 and used under wind originally with six patent sails driving three pairs of stones until 1922, after which an external oil engine was used. This mill is now being restored.
G19 Market Overton Wharf (881161) on the Oakham Canal was a private one owned by the Bennetts. The attractive gatehouse leads to a yard enclosed by buildings used to store corn and coal: one also functioned as a maltings. It was built after the opening of the canal in 1803 and survives in use as a riding school.

G20 Rutland Railway Museum, Cottesmore (886136) is situated in the former sidings where narrow gauge ironstone lines joined standard gauge track. Both types of rolling stock are preserved and the museum is open at weekends from 10.30 am to dusk.
Leicester has a wide range of industries which has evolved from its function as a market town on the north-south route along the Soar Valley. Wool and worsted combing, spinning and hand wrought hosiery were major domestic industries. There was no water powered phase in textiles and the mid 19th century steam driven spinning mills and hosiery factories were fuelled by coal,
brought first by water from 1794 and from 1832 by rail.

Foundries and machinists produced the new knitting machines and engineering remains a major employer. Women could operate the powered machines, freeing men to work in engineering and boot and shoe manufacture. Elastic sided boots and stays created the elastic web industry and rubber technology is still exploited here by Dunlop. An interchange of factories between hosiery and shoe manufacture has ensured the survival of many 19th century buildings but little of the domestic phase.

The population increased over tenfold from 1801 to 1891 when it was about 175000; land was available for building, in contrast to Nottingham. Public utilities developed following a critical sanitary report by Chadwick in 1842 which prompted the laying of sewers to drain the low lying town by 1862 and the opening of the first storage reservoir for water in the following year. Gas lighting began in 1821 and public electricity supply in 1894.

The following trail will show the visitor a variety of sites within half a mile from the city centre; there are other sites worthy of visit further out. To the east off Humberstone Road, on Vulcan Road (D000060: H1) are the foundry

**H1-9. and engineering works** built by Gimsons in 1878 beside the railway; the firm are still in occupation and the buildings are largely unaltered, although some cottages have been demolished. Beside the former Midland line in Sussex Street (S96047: H2) and Samuel Street (S96045: H3) are several railway warehouses and at the latter the 1875 hydraulic power station survives.

Further east, the suburb of **North Evington** begun in 1887 on a 212 acre greenfield site by Arthur Wakerley was, by 1914, providing employment for 5170 in 28 factories. The centre of the factory and housing development was at Askby Street (S06048: H4) and some of the larger factories line St Saviours Road (S06045: H5).

South along the London Road the **Midland Station** (S94041: H6) has fine terracotta work; this building of 1892 replaced the original of 1840. Off the A50 Welford Road at 593019 (H7) the **CWS Wheatsheaf works** were begun in 1891 and became the largest footwear factory in the world, employing 2200, many of whom lived in the surrounding terraces. Nearby on the A426 Aylestone Road is the **John Doran Gas Museum**, opened in 1977 by EMGB in the former offices of the second town gas plant opened in 1876; some stylish workers' housing adjoins (582024: H8).

On the north side off Abbey Lane at 589066 (H9), is the **Museum of Technology** housed in an 1891 sewage pumping station. It contains displays of hosiery machines and other local products as well as four Gimson Woolf compound beam engines and is open Monday to Thursday and Saturday 10 to 5.30, and Sunday 2 to 5.30; for steam day information phone 0533 61330.

The following trail begins at West Bridge on the A46/47 exit from the town to the West.

**H10 West Bridge.** The river formed the boundary of the old town and the present westbound bridge was erected in 1891. Proceed north along the towpath along the west bank; on the left are some remains of the original terminus of the Leicester and Swannington Railway and in the canal edge the initials 'U N' marking the 1886 boundary between the Leicester Navigation and the Union Canal.

**H11 Friars Mill.** The ibex on the belfry tower is the trade mark of Donisthorpe's wool and worsted spinners. Their four storey pedimented brick mill is listed and dates from the early years of the 19th century; there are engine houses at either end.

**H12 Soar Lane Bridge** was erected in 1876 by the Midland to give access to their goods yard. Through the bridge are rails and abutments belonging to a vertical lift bridge, built by Stephenson to allow rail access to the smaller goods yard on the east bank, where the goods shed remains. The bridge has been removed and rebuilt by Dorothy Restoration Engineers near the Museum of Technology.

**H13 North Mill,** the five storey former corn mill lost its water rights in 1876 and its inlet and canal basin have been built over. On the opposite bank are derelict dyehouses of a former worsted mill, which have characteristic louvred roofs. Proceed to North lock and turn left.

**H14 St Leonard's Mill.** This fine four storey pedimented block was erected in 1867 for wool spinning, later changing to hosiery manufacture.
H15 Sanvey Gate. A timber storage shed with arced facade which was erected in 1915.

H16 Junior Street. A three storey hosiery factory built in 1915, its fine proportions now marred by later buildings lining the new ring road.

H17 Darker Street. An earlier hosiery factory of 1852 with the master’s house fronting rear workshops.

H18 Butt Close Lane. The listed wooden warehouse is most unusual; it was constructed about 1830 for seasoning timbers on end. The corner four storey brick block was built in 1877 as a shoe factory.

H19 Mansfield Street. This corner building was erected before 1844 to produce sewing cotton; the small engine house to the rear was added in 1851.

H20 Mansfield Street. The four storey gabled block is a hosiery factory dating from 1899; it blocked off Langton Street behind, where earlier shoe works remain.

H21 Wheat Street. This area was originally developed around 1800, Wharf Street giving access to the new canal basin. The earliest of the tall forbidding blocks facing across the narrow street was erected in 1871 for hosiery. Behind in Grafton Street, the contrasting domestic style of the earlier Sparkenhoe Works may be seen.

H22-Wimbledon Street/Southampton Street. The tall five storey St George’s Mill (H22) was erected for Faire Bros, shoe mercers, in 1887, later added to and rebuilt after a fire; their elegant four storey Italianate warehouse (H23) has a marble plinth and decorative buff terra-cotta and was opened in 1897. Clothing manufacturers built the corner blocks on Southampton Street, the earliest in 1866 (H24).

H25 Colton Street. This decorative four storey building of buff brick was built in 1877 as a shoe factory. The medallions by the door depict Mercury and Minerva.

H26 York Street. A series of multistorey brick shoe works, the corner block dating from 1863. The 13 bay block with blind arcing is dated 1888 and was built for a wholesale confectioner.

H27 Belvoir Street. One of several leather warehouses in this area. Adelaide Buildings were erected in 1887; they are four storeyed and have lavish terracotta decoration. The ground floor shops are original, reflecting the change in status of the street which had been mostly industrial.

H28-30 Newarke Street. On the north side of Welford Place five storey frontages of 1882 hide earlier hosiery factories behind (H28). Enfield Buildings of 1879 are of similar style to the wool warehouses of 1863 in Chancery Street to the rear (H29). On the opposite corner are some early 19th century domestic style hosiery factories (H30).

H31 Oxford Street. The five storey gabled frontage hides earlier buildings begun in 1864 by Morleys who licenced the William Cotton flat bed knitting machines. The turreted corner block was erected in the 1910s for footwear manufacture.

H32-4 Mill Lane. Fairfax Works (H32), a 25 bay three storey block which was erected piecemeal from 1840 for worsted spinning. Mill Lane led to Swan’s corn mill which lost its water in 1880 when its leat formed part of the new one mile cut excavated to West Bridge for flood prevention. Several acres of land were reclaimed and new roads built along its banks. Mill Lane Bridge (H33) is dated 1890 and was made by Gimson’s. Over the bridge in the former Bede Meadows were goods yards of the Great Central, opened in 1898. The brick power house, warehouse and office block remain (H34). Continue north along the Western Boulevard to The Newarke bridge of 1898. On the left is the unequal span bowstring lattice girder bridge of the GCR over both the road and the old river channel. Go into Castle Gardens, the site of Castle Mill, another casualty of the flood prevention measures.

H35 West Bridge Mill, a fine five storey former worsted spinning mill built in c1848 which is now producing hosiery; its engine house and 165 ft stack have been demolished.
DERBYSHIRE

Derbyshire is a county rich in natural resources but, with no coast or major rivers, their exploitation was hindered by lack of transport. The terrain made canal-building difficult, and it was not until the railway era that industry expanded dramatically. For example, in 1851 there were 9000 people in the county engaged in mining; by 1901 there were 45000. The relatively slow growth of industry has, however, left a rich field for the industrial archaeologist.

Coal in Derbyshire has been mined in the south of the county, on the Leicestershire border, and on the east of the county where it abuts Nottinghamshire. Closely associated with the coal is an iron industry using first charcoal and then coke as a fuel: only examples of coke-fired furnaces survive, at Morley Park and Moira. Lead mining has enjoyed an even longer history, the Derbyshire area being worked by the Romans. The mines made extensive use of waterpower and drainage soughs, but the most striking remains are the less typical steam pumping engine houses at Maple Mine. Limestone too, has been exploited over a long period, as has millstone grit: the unfinished millstones along the Derbyshire 'Edges' are a familiar sight.

Framework knitting developed in Derbyshire in the 17th century as a by-employment of agriculture. This prompted the growth of a silk throwing industry, the machinery for the first water-powered factory in Britain being constructed in Derby by George Sorocold in the first two decades of the 18th century. Jedediah Strutt engaged in the Derby silk industry, and together with Sir Richard Arkwright, initiated a whole series of water-powered cotton-spinning mills in the county, which in turn prompted the further growth of the hosiery industry. The textile industry declined in the second half of the 19th century, faced with competition from larger and more efficient factories in Lancashire, but many Derbyshire mills remain in largely their original form.

The Trent and Mersey Canal passes along Derbyshire's southern border and the Erewash along its eastern one; the branch from this to Cromford enabled both coal and cotton to penetrate into the heart of Derbyshire. The Derby Canal linked the county town to the Erewash and Trent and Mersey Canals. 77 miles of horse-drawn waggonway provided a link between the canals and the collieries, ironworks and quarries, The Cromford and High Peak Railway, opened in 1831, gave access to the North West via the Peak Forest Canal at Whaley Bridge. Railways came early to the county, Derby being linked to both Nottingham and Birmingham in 1839. Lines proliferated in the coalfield later in the century, but the Midland Railway, which eventually penetrated to Manchester in 1867, opened up the centre of the county with its rich limestone deposits.

Only two regions have been considered here, the South Derbyshire and Leicestershire Coalfield and the Wye and Derwent Valleys, together with the city of Derby.

(All grid references are SK.)
The River Derwent and its major tributary, the River Wye, pass through some of Derbyshire's most attractive scenery but have also supported a considerable variety of industry. It was to these valleys that lead mining companies drove their soughs to unwater lead mines to the west, notably Cromford Sough begun in 1673 to drain the mines of Wirksworth, and Magpie Sough, built as late as 1873. Their arched entrances still discharge millions of gallons of water a day into the rivers.

The Derwent was described by Defoe as 'that fury of a river' and was a source of power rather than a navigation route, although it was made navigable to Derby by 1720. Corn and fulling mills made use of its power from the Middle Ages onwards and both Strutt and Arkwright utilised it to power cotton-spinning mills, the first of which was established by Arkwright at Cromford in 1771. The distance of the region from centres of population made it difficult to obtain labour, and so complete cotton spinning communities were established at Cromford, Belper, Milford and Darley Abbey: only Milford has been substantially altered, although several early mills at Belper were demolished in the 1960s. Elsewhere, isolated mills like Litton and Cressbrook made use of pauper apprentice labour, often from London.

Good transport routes along the valley were not easily achieved. Turnpike roads did not extend along its length until the early 19th century, and many important routes, like the Salt Ways from Cheshire, crossed it with considerable difficulty, using packhorse bridges like Leadmill Bridge at Hathersage. George
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Stephenson’s railway from Derby to Leeds of 1840 clung to the valley as far as Ambergate, piercing the Chevin Hill at Milford rather than following the floor of the valley where it might have disrupted the water supplies to the mills. From Ambergate, the Manchester, Buxton, Matlock and Midland Junction Railway had followed the valley as far as Rowsley by 1849. As the Midland Railway, the line was extended to Manchester in 1867 along the Wye Valley, creating a pattern of viaducts and tunnels which, although now disused, survive as a tribute to the persistence of Victorian engineers.

K1 Millers Dale. The Midland Railway’s line to Manchester crossed the valley of the Wye on two high viaducts, an arched iron one of 1863 and the later steel one of 1903 (139732). The Mountain Rescue Post is in the former station buildings. This has five platforms and was the junction for Buxton: it closed in 1967. The railway, now the Monsal Trail, also carried considerable limestone traffic and east of the station are four derelict kilns built in 1878. To the west are two kilns cut into the rock face built in 1880, the reinforced concrete buttresses were added in the 1920s and the kilns worked until 1944. They have been restored and interpreted by Derbyshire County Museums Service.

K2 Litton Mill. The first of several early cotton-spinning sites to be seen in the Wye and Derwent Valleys, this dates from 1782 but the present mill buildings are late 19th century. (161730). Such isolated sites made extensive use of pauper apprentices, often from the London workhouses. The tale of Robert Bilincoc’s sufferings at Litton, published in 1828, is undoubtedly a highly coloured version of the treatment they received. The mill still produces textiles, and the turbine installation can be seen at the west end.

K3 Cressbrook Mill. (173727). A site attractive both in its setting and its buildings, the mill pool was blasted out of the limestone gorge behind the mills. A cotton mill was first built here by Richard Arkwright in 1779 but the present four-storey Palladian structure, topped by a cupola, was built by William Newton in 1815. The single storey buildings are later. 200-300 pauper apprentices were housed in the building to the rear of the mill, with its Gothic end facing the river.

K4 Monsal Dale Viaduct (183716), a five arched stone structure 300 feet long, was denounced by John Ruskin for despoiling the picturesque beauty of the dale.

K5 Magpie Mine (173682). Lead mining on this site continued over a period of 300 years, but most of the present remains date from the second half of the 19th century. In 1839 John Taylor, the Cornish engineer, became the manager and brought with him both Cornish men and methods. He erected a 40” pumping engine, but this proved unable to cope with water which increased as the mine was sunk deeper. In 1868, a Sheffield businessman, John Fairbairn, moved a 70” engine from Calver Sough Mine to Magpie and built the engine house which still survives. The mine operated for several lengthy periods until 1966, and many of the late additions to the surface buildings still remain, including the 1913 winding drum. The site is now a scheduled AM and in the care of the PDMHS, who open it to the public at weekends.

K6 Magpie Sough. (179696). This represents a further attempt to drain the veins of the Sheldon area, since the annual coal costs at Magpie Mine were £2000 in 1872. It was begun in 1873 and took eight years to complete at a cost of £35000. This was the last of the major soughs to be built in Derbyshire, and still discharges 10 million gallons per day into the Wye.

K7 Caudwell’s Mill (256657) is an early water-powered site on the River Wye; the present four-storey gritstone structure dates from 1874. At this time, two breast wheels drove eight pairs of stones for flour and three for proven-der; these were replaced by roller mills in 1885 and 1914, and, since the water-wheels proved inadequate, turbines were installed in 1887 and 1896. The mill continued in commercial operation until 1978 and is now maintained by a Trust. It is one of the few working water-powered roller mills in Britain: to visit telephone Matlock 734374.

K8 Rowsley Station (258660) was the original terminus of the Manchester, Buxton, Matlock
and Midland Junction Railway because of opposition from the Dukes of Devonshire and Rutland, who refused permission for the line to cross their estates at Chatsworth and Haddon. The 1849 station was designed by Sir Joseph Paxton of Crystal Palace fame and is a gritstone building with arched windows and a broad-eaved roof supported on elaborate brackets. This survives in a contractors yard, being replaced in 1863 when the line was finally extended to Buxton and then to Manchester in 1867 along the Wye Valley.

K9 Bamford Mill (205834). The original spinning and doubling mill dated from 1780 but, like so many cotton mills, was destroyed by fire in 1791 and replaced by the existing 13 bay mill. Power was supplied by a breast wheel, supplemented by a beam engine: both were replaced, the former by turbines and the latter by a tandem-compound horizontal engine by Musgrave of Bolton in 1907. The mill continued in operation as a cotton mill until 1965 and is now occupied by Carbolite Ltd, who preserve the engine.

K10 Millstone Edge (248800). To the north of A625, there are many unfinished millstones in small quarries on the western side of the Edge. Immediately south of the road is a small quarry containing part-finished mushroom-type and flat millstones. A footpath south follows the track of a railway built in 1903 to carry stone for the construction of the dams in the Upper Derwent Valley. This is lined with hundreds of abandoned small millstones, probably grindstones, quarried in the nearby Bole Hill Quarries.

K11 Calver Mill (247745). An austere stone cotton mill, seven storeys high with a central pediment and staircase turrets at the rear. It was built 1803-4 to replace a mill of 1778 erected on a former corn mill site under an Arkwright licence. The company was financed from Leicester and continued to supply thread to the Leicester hosiery industry until cotton spinning ceased production in 1923. The wheelhouse contained two 22' waterwheels each developing 80 hp.

K12 Matlock Bath (294581). The former pavilion of this spa town houses the Peak District Mining Museum. Among other exhibits is the Wills Founder water pressure engine of 1819, found in a 400' deep shaft near Winster. It is open daily 11-4. Associated with the Museum is Temple
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Mine, where old lead and fluorspar workings have been reopened as an underground mining experience.

K13-16 Cromford, a lead mining village which was transformed in the 1770s by Richard Arkwright, who utilised the Bonsall Brook and Cromford Sough to power his water-frames. The first mill, of which only the lower storeys remain, dates from 1771 (K13). The iron aqueduct, dated 1821, replaced an earlier wooden launder taking water to a large overshot wheel. Further buildings were added in the late 18th century. The mill complex (298569) is now in the care of the Arkwright Society, and is frequently open: telephone Wirksworth 4297. The village (K14) contains many examples of contemporary housing, particularly North Street (294567) where the long windows in the top storeys are through workshops where weaving was carried out.

Masson Mill (K15), a little further up the valley (294573), was begun in 1783 and illustrates the trend to more ornate industrial architecture, with its central pediment, venetian windows and cupola. It is still owned by the English Sewing Cotton Company.

Cromford Station house (K16) was built c1860 in French chateau style (303574).

K17-19. Cromford Canal. The tail race of the mill complex was one of the feeders of the Cromford Canal, engineered by William Jessop and opened in 1773; this provided a route to the River Trent via the Erewash canal. By this means, coal reached the terminus at 300570 where small warehouses remain (K17). South along the towpath is the Leawood Pumping Station (315557) which raised water from the Derwent (K18). The Watt single acting beam engine, built at the Milton Ironworks in Eiisearc, dates from 1849 and is still operated by the Cromford Canal Society. At 316556 the canal crosses the Derwent by the stone Wigwell Aqueduct (K19).

K20-21 Cromford and High Peak Railway. Returning north along the towpath and passing on the opposite side the transhipment depot of the Cromford and High Peak Railway, cross the bridge to the incline foot (K20) at 313560. The workshops here house an interpretative centre including a section of the original fish belly rail on stone sleepers. The CPHR is an interesting combination of inclines operated by stationary engines and sections worked by both horse and locomotive. It extended for 33 miles to the Peak Forest Canal at Whaley Bridge. It was completed in 1831 and final closure of the last sections occurred as late as 1967. The track bed has been utilised as the High Peak Trail. By following this past the catch pit for runaways off the Sheep Pasture incline to Black Rocks and then up the Middleton Incline, the preserved engine house at Middleton Top can be visited on Sundays (276552). The engine consists of a pair of single cylinder rotative beam engines driving a common crank shaft, built in 1829 by the Butterley Co and now operated on compressed air (K21).

K22 Meabrook Sough (326554). An arched outlet bearing the initials FH (for Francis Hurt) marks the tail of the sough begun in 1792 to unwater the Wirksworth Lead Mines. The sough was 100' lower than Cromford Sough and disrupted the flow of water from this to Arkwright's Mills, the result being a protracted legal dispute which Arkwright lost. It still discharges 17 million gallons a day, and supplied Heanor and Ilkeston with drinking water.

K23-24. Wirksworth was an important centre for the lead mining industry. Six or seven soughs run under the town, which is surrounded by the disturbed ground of old lead mines. The church contains an ancient stone depicting a lead miner wearing his hat and carrying his pick and kibble. The Moot Hall of 1814 (287542) replaces earlier ones; it was the meeting place of the Barmote Court and houses the standard reference dish for measuring lead ore, made in 1512 and presented by Henry VIII (K23).

Arkwright introduced the cotton spinning industry to the town in the 1780s. The Speedwell and Haarlem Mills lie close together in the valley in the Ecclesbourne (K24): Haarlem Mill, brick on stone footings, is thought to be the original Arkwright construction (284526). Quarrying was also important locally, and the National Stone Centre is being established near here.

K25 National Tramway Museum, Crich (345551). This is sited in a former limestone quarry, developed in 1840 by George Stephenson to supply limestone via a railway to kilns at Amber-
gate on the North Midland Railway. Since 1962 it has been the home of the Tramway Museum, which regularly operates trams on a line built in the quarry and incorporating an exhibit on lead dressing maintained by the PDHMS. A reconstructed townscape around the tram terminus includes the facade of Derby Assembly Rooms and some interesting street furniture. The museum is open daily (except Fridays) from May to September and at weekends and bank holidays at other times.

K26 Heage Windmill (366508). A sandstone tower mill c1850 with six sails and ogee cap. The exterior was restored by Deryshire County Council 1972-74 and is open by arrangement.

K27 Morley Park Ironworks (380492). A pair of stone-built cold-blast coke furnaces erected by Francis Hurt in 1780 and 1818. The older furnace was probably the first of its type in Derbyshire. They ceased to operate about 1875, were preserved by Stanton Ironworks and are now in the care of Derbyshire Archaeological Society.

K28-30 Belper. The old village depended on agriculture and the manufacture of nails until Jedediah Strutt in 1773 realised the potential of the Derwent for cotton spinning. The first mill was constructed in 1776 and a further seven mills followed in the next forty years. Some succumbed to the usual hazard of fire and the North Mill of 1804, which still stands (346481), was built to withstand fire, with iron framing and brick arched floor supports rather than timber beams (K28). It was the fourth of its type to be constructed and the second oldest fireproof mill surviving. The impressive weir across the Derwent was rebuilt in 1796 and diverted water to a massive 23' breast wheel, the housing for which can still be seen in the North Mill. The archway across the road was erected in 1795 to link the original North Mill to West Mill and was later equipped with gunports to withstand possible Luddite attack. The old mill is now dominated by the vast brick edifice of East Mill, built in 1912. A mill community was established close to the mills. Long Row (K29) consists of two terraces, North Row built 1792-3 of gritstone and South Row somewhat later and built in brick. Halfway up the street crosses the stone lined railway cutting of 1840 (348478), whose construction involved the demolition of some of the houses. Adjoining Long Row are William, George and Joseph Streets named after three of Jedediah's sons. The houses are built in blocks of four in a generous garden and known as The Clusters; they were allocated to the foremen. In Joseph Street, a nailers shop may still be
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seen. On the main A6 (346473) is the three-storey hosiery works of Ward, Brettle and Ward, the present classical building dating from 1834-5 (K30). The firm was established in Belper in 1802 and in 1829 operated 400 frames for silk hose and gloves and 2500 for cotton hosiery.

K31 Dale Abbey (438398). The Cat and Fiddle post mill of 1788 or earlier, had a stone round house added in 1844. Open by appointment, tel: Ilkeston 301585.

K32-33 Darley Abbey. A third well-preserved early cotton spinning community on the Derwent, the mills here were first developed by Walter Evans in 1783. The earliest surviving mill dates from 1789-92, a five-storey brick structure with arched windows (K32), and is known as Boar’s Head Mill after the crest on the Evans family’s coat of arms. By 1830, the work force numbered 500 and several three-storey terraces of red brick remain (K23), together with the two-storey school of 1826 (352385).
L Derby.

Following recent rebuilding programmes there is little in the City to interest the industrial archaeologist. One associates Derby with railway engineering and Rolls Royce, the former established in 1839 and the latter in 1908. However Derby can claim several pioneering industrial activities. The first water powered factory was established here in 1702 and Benjamin Outram erected the first cast iron canal aqueduct in 1795, which has recently been scrapped. Lead ores were smelted in the town from 1781 and a shot tower of 1808 was demolished in 1931. An extensive silk hosiery industry developed; Jedediah Strutt devised his Derby Rib machine in 1758 and erected his first fireproof mill in the town in 1793. By the 1850s Derby employed around 6000 in the silk industry, but thereafter the industry declined, silk processing moving to Cheshire, and the Derby mills changed to narrow fabric and tape weaving.

Transport developed to service the textile, ironworking and engineering trades. The Derby canal, opened in 1796, linked the town with the Erewash canal at Sandiacre and with the Trent and Mersey at Swarkestone; a branch went to Little Eaton whence a tramroad connected to collieries at Denby. The canal was finally abandoned in 1964 and few traces remain. Three railways came to Derby in 1839/40, the Midland Counties (to Nottingham and Leicester), the Birmingham and Derby Junction (to Birmingham via Burton) and the North Midland (to Leeds via Ambergate and Chesterfield). The three companies amalgamated in 1844 under the aegis of George Hudson to form the Midland Railway: the original tri-junct station has recently been destroyed. Two other railways were opened, the North Staffordshire to Crewe in 1848 and the Great Northern to Nottingham in 1878, making Derby one of the key railway centres in Britain.

Of numerous ironworking and engineering firms probably the best known is Handside & Co who in 1848 took over an established foundry opened in 1818 which finally closed in the 1930s. Examples of their work are widespread and include the Barton Swing Aqueduct, Manchester Central Station and some 450 bridges on the London Brighton and South Coast Railway.

The limited sites of interest in Derby include the following:

L1 Silk Mill Museum (356364). George Sorocold designed and installed the machinery for the first three storey water powered mill on this site in 1702 for Thomas Cotchett, who had imported Dutch silk spinning machines. The mill was added to in 1717 by Sorocold for Thomas Lombe who utilised Italian-style machines for spinning, winding and doubling and by 1732-300 workers were employed. The mills became derelict and were destroyed by fire; in 1910 the present mill was erected on the 18th century foundation arches and now houses the Industrial Museum. This contains displays of local industries, including a large collection of Rolls Royce products. Robert Bakewell's gates of 1722 have been re-erected on their original site. Opening hours Tues to Sat 10 - 5.

L2 Rykneld Mills, Bridge Street (348365). Two austere brick mills of five and seven storeys of fire proof construction with small paneled cast iron windows were originally silk mills. They date from the 1820s and turned to tape manufacture.

L3 Crown Derby China Works, Osmaston Road (358351). A china works was established in 1756 and the Company bought the Chelsea and Bow Works in London, moving them to Derby by 1784. The company moved to the present site in 1878, which is the former Union Workhouse building of the 1830s. Open Mon to Fri 9 - 12 and 2 - 4.

L4 Friargate Bridge (347364). Erected by Handsides in 1878, the ornate bridge carried the Great Northern Railway from Nottingham into Friargate station. The same railway crossed the Derwent by a bowstring wrought iron bridge (352372).

L5 Midland Railway Works and Housing (363356). Works were established in 1841 adjacent to the station and housing erected. By 1888 Osmaston Hall estate, one mile to the south, had been bought for new carriage and wagon works, which still survive, together with recently restored housing in Midland Terrace and an early engine round house.
L6 Rolls Royce, Nightingale Road (363335). The company opened new car works here in 1908. They were attracted to Derby by cheap labour and land, the established engineering works and iron foundries and good communications to Birmingham and Sheffield for raw materials. The single storey buildings were used for car manufacture until 1945, then switching to aero engines.
and for brick manufacture in the 18th. The fireclays of South Derbyshire proved suitable for sanitary pottery and salt-glazed drainpipes, which grew into an extensive industry with the town improvements introduced in the middle of the 19th century. Ironstone too, is found in the Coal Measures and was smelted in several charcoal furnaces in the 17th and 18th centuries, although attempts to smelt it in the large coke furnace at Moira in the early 19th century proved largely unsuccessful. The region also contains several inliers of Carboniferous limestone, that at Breedon being exploited as early as the 13th century. There were extensive limeworkings and kilns at Ticknall, Cloud Hill and Barrow Hill by the late 18th century, which were connected by tramways to the Ashby and Charnwood Forest canals. The development of an adequate transport network has played a vital part in the exploitation of the natural resources of this region.

**M1 Melbourne** is an interesting small town dominated by a massive Norman church and the Hall, home of the Lambs; William Lamb, second Viscount Melbourne, became Prime Minister under Victoria and the Australian city was named after him. The gardens of the Hall contain a magnificent wrought iron arbour, the masterpiece of the Derby smith, Robert Bakewell. The town was an outpost of the Derby silk industry: Thomas Haines in 1812 introduced warp knitting and adapted the frame to work on the jacquard principle, thus producing figured knitted goods including elastic velvet. By 1850 the firm employed over 1000 hands and produced 126000 gloves annually. Several 19th century hosiery mills survive, including Haines' Castle Mills of 1857 (389252) with a modern frontage.

A charcoal blast furnace operated nearby from the mid 17th century until the 1770s; it was excavated 1957-63 before submersion under Staunton Harold Reservoir.

**M2 Swarkestone Bridge** (389285) is a three-quarter mile causeway built 1190-1205: the bridge itself is 18th century, 414' span with five round-headed arches. Near the bridge on the north side is the terminus of the Derby Canal link.
M3-5 Ticknall was an important pottery centre in the 17th century, with one potworks surviving until the late 19th century (348228). Later, clay was used for bricks by the Calke Abbey estate and a good complex of Scotch Kiln, drying shed and horse-operated crushing rollers survives at 359243 (M3). The estate also possessed extensive lime workings, together with a large number of kilns; these are currently being surveyed by LIHS for the National Trust, now owners of Calke Abbey (M4). A tramway was built c1800 by Benjamin Outram to convey limestone to the Ashby Canal. Sections of this are well preserved, including a tunnel and a bridge at 356240 which carried the line over the road (M5).

M6. Woodville was a hamlet known in the early 19th century as Wooden Box, from the half-barrel provided to shelter the turnpike toll collector. It developed in the second half of the century because of extensive earthenware factories, of which there were nine in 1857. The largest was Thompson Brothers of Hartshorne Pottery, founded in 1818, which manufactured Rockingham and yellow ware, together with ironstone earthenware. Rawdon Pottery was founded in 1820s, later concentrating, along with most of the other Woodville potteries, on sanitary ware; its bottle oven (314192) is one of the few bottle ovens surviving and has been listed.

M7-9 Swadlincote was the centre of the South Derbyshire clay industry, together with Church Gresley. Particularly important were Woodwards, founded by John Hunt in 1790, which concentrate on fireclay goods for the Sheffield steel industry. As Thomas Wragg’s firm continues to make sanitary pottery. In the village itself, much redevelopment has taken place, but the Sharpe Bros pottery survives off West Street at 298195 (M7) and contains a rendered bottle kiln and a section of another. The Burton-on-Trent Co-op building, opposite this, has a fine terra cotta front, a clay product much utilised in the area. To the south of the village, T G Green’s (305188) contains four kilns and the two storey buildings characteristic of the pottery industry in this area, with windows set in recessed arcades extending up both storeys (M8). Not far from this, and really in Woodville, is John Knowles, now Dyson Refractories (312184), which was established in 1849 to manufacture firebricks and drainpipes, although the date on these buildings is 1884. Those fronting the road have fine blue brick stringcourses and lintels, albeit covered with the grey mud splashes which characterise the area; four small and one large beehive kilns survived, but are disused (M9).

Further south along the Moira Road can be seen the lunar landscape of open cast coal and clayworkings, the sad grey hills contrasting sharply with the white spoil heaps of the china clay area of Cornwall.

M10-12 Moira takes its name from one of the titles of the Rawdon-Hastings family who exploited the area for coal and iron in the early 19th century. A Newcomen engine house can be seen at 312150, which was one of the first coal pits in the area; the internal wooden beams for supporting the cylinder and rocking beam survive, one dated 1805 (M10). Adjacent is Ironstone Spinney, from which ironstone was smelted in the splendid furnace (314152) built 1804-1806 and recently restored by the local District Council. The bridge by means of which the furnace was charged spanned the Ashby Canal and houses were constructed under its arches (M11). The adjacent engine house was demolished in 1971, but a battery of seven lime kilns is undergoing restoration (313151). (M12).

M13-14 Measham had been a coal mining village from at least the 16th century, but owed its growth to Joseph Wilkes (1732-1805), an entrepreneur with interests in mining, brickmaking and textiles: he went into partnership with the Peels of Tamworth and opened a cotton mill on the site now occupied by the Car Auctions. He promoted the Ashby Canal and built two splendid warehouses where the turnpike road crossed the canal (334121) (M13). These carry his characteristic stamp of blind arched recesses and are built of ‘Gobs’, the double sized bricks he made to get round the brick tax of 1784. Many houses built of these survive in the village and his brickworks were at 337121, off Bosworth Road, where the drying sheds have been converted to houses with garages below (M14).

M15-16 Snarestone (348101). The small ornate pumping station stands near the present head of navigation of the Ashby Canal. The station,
which was opened in 1891, contains parts of
two small beam engines by Bever and Dorling
of Dewsbury which pumped water from a shaft
originally sunk for coal and supplied Hinckley,
some 14 miles away (M15). Nearby at 342094
is the 250 yard Snaresstone canal tunnel which
was built on the cut and cover principle (M16).

M17 Shackerstone (378065). The Shackerstone
Railway Society and the Market Bosworth Light
Railway have their HQ at the station built in
1873 for Earl Howe of Gopsall Hall on the
Ashby and Nuneaton line of the LNWR and
MR. A small museum and collection of locos
and rolling stock may be seen and steam services
are run over four miles of track to Shenton,
from which the Bosworth Battlefield Centre at
403001 may be reached.

M18 Odstone (379078). A unique survival of a
four-storey rural water mill with both stones
and roller mill equipment all intact as left in
1970 by the last member of the Timms family
which had run the mill since 1734. The mill
was re-equipped around 1900 by Turners of
Ipswich and in 1902 the overshot wheel was
replaced by a turbine. The mill had its own
railway siding on the Coalville branch of the
Ashby and Nuneaton joint railway.

M19-21 Coalville. The town is built on coal. The
Whitwick colliery opened in 1827 and Snibston
No 1 pit was sunk by the Stephensons in 1832,
from which the new Leicester and Swannington
Railway took coal down to Leicester. Snibston
No 2 pit (420144) is to become an industrial
museum for Leicestershire; the coal field being
worked out (M19). The Railway Hotel by the
level crossing served as the station from 1822 to
1849 when the MR built a new one (M20). On
Belvoir Road at 424137 are Pioneer Mills, built
in 1878, a three storey 16 bay block for elastic
web manufacture; it is now used for shoe manu-
facture (M21). Sadly many of the industries
established to support the mining, which included
wagon works, brickworks, foundry, saw mills
and steam corn mill, have now closed and few
traces remain.

M22-24 Swannington has a long history of coal
mining, but really expanded with the develop-
ment of the Newcomen pumping engine. A
haystack boiler from Calcuta Colliery (413173)
was excavated in 1969 and is now at Leicester-
shire Museum of Technology (M22). The
pumping engine house of Calcuta Colliery
(421169) was built in c 1872 and stands near
the foot of the Swannington Incline of the
Leicester and Swannington Railway (M23), down
which coal was lowered for the engines after
1892 when local pits closed. Opened in 1833,
coil was originally hauled up the incline by a
stationary steam engine, now in the National
Railway Museum at York. The incline closed
in 1947 when the steam pumps at Calcutta
were replaced by electric ones, and it is now
being restored by a local Trust. Further down
the disused railway is the Keeper’s house of the
Bagworth Incline (446091), bow-fronted like a
toll house and probably the earliest railway
building in the Midlands (M24). It is sadly
ruinous.

M25 Ashby-de-la-Zouch is an old market town,
dominated by the 14th century castle of the
Hastings family which was slighted after the
Civil War. It became a Spa in the early 19th
century, the Ivanhoe Baths (named after Scott’s
novel, which was located here) utilising salt
water from Bath Pit in Moira. The splendid
station of 1849 is an elaborate classical building
of stone, now restored and in private hands
(356163). The track in front of the station is
that of the Burton and Ashby Light Railway,
opened by the MR in 1906 to operate double
deck trams from Ashby to Burton via
Swadlincote with connections to Church and
Castle Gresley. It operated both along the
highway and on sections of reserved track, and
closed in 1927.

M26-27 Breedon stands below a lofty inlier of carboni-
terous limestone, quarried away almost to the
ancient church on top of it. Early kilns have
been destroyed, but the remains of a Hoffman
Kiln (M26) can be seen in the quarry yard
(407231). Cloud Hill and Barrow Hill to the
south have also been quarried for limestone and
had kilns in the late 18th century. These were
connected by a tramway to a small branch of the
Charnwood Forest Canal, which joined the
main line at 427187: the junction house is now
ruinous (M27).
Nottinhamshire

N3 Frame Shops, Ruddington

Knitter's Shops Preservation Trust (N2) own rock-cut caves (N2). The Ruddington Framework
for Nottingham Castle and includes some of the
watermill, dovecot, milling and brewery
buildings. Bews house Year (5909G) once held
mansion which is open to the public on the last Sunday of each
month. Beamhouse Yard (5909G) once held
station which is open to the public on the last Sunday of each
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month. Beamhouse Yard (5909G) once held

Wollaton Park (591382) is open 10.00 am - 7.00
pm on weekdays during the summer and Sunday

Industrial Museum (N1) at

Interests. The Industrial Museum (N1) at
Wollaton Park provides a number of
museums of

powder, spinning mills and Levant, once an
immediate Weapons and Spinning Centre,now a

town of particular interest - Nottingham Island
study. The Trent Valley and the Castleder, these

Because of the large size of the country, it has

Q8 Maltings, Longwith
The River Trent has been a vital artery of communication for the landlocked East Midlands. It was made navigable to Wilden Ferry, near Shardlow, by the 17th century and, for small boats, to Burton by the 18th. The opening of the Trent and Mersey Canal in 1777 enhanced its value as an east-west transport route. Many industries developed along its banks, particularly agricultural processing such as brewing, malting, corn milling, together with warehousing for the transhipment of goods to road or canal. The major industry during the 19th century in the west of the region was lace-making, which has developed out of the hosiery industry. Originally hand-powered and centred in Nottingham, the need for land for expansion and the search for cheaper labour encouraged manufacturers to move westwards into the villages of Long Eaton, Beeston, Sandiacre and Draycott, which rapidly became large industrial centres. Characteristic of the last quarter of the 19th century are the tenement lace factories, financed by lace manufacturers like E T Hooley. These enabled the traditionally small lace firms to rent space and share power and other overheads resulting in the expansion of the industry and an unrivalled period of prosperity for the East Midlands, expressed in both the high quality of much of the housing and in showpieces such as the Nottingham Lace Market.

P1 Shardlow developed as the transhipment point between Wilden Ferry, the real head of the Trent navigation, and the Trent and Mersey Canal. The horse-drawn ferry was replaced in 1759 by the Cavendish Bridge, itself destroyed by floods in 1947. Numerous warehouses were built in the last quarter of the 18th century, many with semicircular cast-iron framed windows, and industries such as rope-making, corn milling, brewing and malting developed. Of particular interest is the Clock Warehouse, so called because of the clock set in its pediment (442303). A central shipping hole bestrides an arm of the canal. The warehouse is now a museum and restaurant, where an informative trail to the whole inland port can be obtained and the surviving cranes, cast iron mileposts, warehouses and other buildings examined.

P2-3 Draycott possesses two large mill complexes. Victoria Mills (P2) off Victoria Road (446333)
surviving chimney has a cast-iron cap. The steam-powered traction engines are still on display. The midland railway station was the scene of the 1898 railway strike which brought the railways to a standstill for several weeks. The strike caused widespread disruption and hardship for the workers who were involved. The strike was eventually settled with a compromise, but not before many people had been affected by the economic hardship it caused.

A few buildings from the period remain, including the Midland Railway Station, which is now a museum dedicated to the history of the railway. The station is a fine example of Victorian architecture, with its tall towers and ornate facades. It is a popular destination for visitors who are interested in the history of transport and engineering. The station is also home to a museum exhibit which tells the story of the railway line and its development over the years.

In summary, this area is a fascinating place to visit for anyone interested in the history of engineering and transport. The surviving buildings and exhibits provide a glimpse into the past and offer a glimpse of the world as it was a century ago.
The area of the Nottingham coalfield considered in this section is that centred on the valleys of the Rivers Leen and Erewash and extending northwards to Mansfield. Coal had been mined here as early as the 13th century, but the industry expanded rapidly during the 16th century as a growing population, together with scarcity of timber, stimulated the domestic market for coal. The most striking evidence for the profits made in coal mining, during this period is the extravagant Wollaton Hall, built in the 1580s for Sir Francis Willoughby. Not long afterwards, the Willoughby’s agent, Huntingdon Beaumont, built what is thought to be the first wagonway along which horses hauled coal to Wollaton Lane End. Later developments in transport were also important in enabling coal to be moved out of the region, notably the Erewash Canal down the western side of the valley. Opened in 1779, not long after the Soar Navigation, it enabled Nottinghamshire Coal to find a market a long way to the south as well as east and west along the Trent. The Erewash Canal was later supplemented by the Cromford Canal in 1794, the Nottingham Canal in 1796 and the short Nutbrook Canal in the same year. Many wagonways were built from the pits to the canals, while the Mansfield and Pinxton Railway, opened in 1819, took coal to Pinxton wharf on an arm of the Cromford Canal and to the rapidly expanding industrial town of Mansfield. Locomotive railways have followed both the Leen and Erewash valleys, the Midland in 1848 and the Great Northern in 1879, together with numerous mineral lines. The coal seams in the Leen Valley were deeper than those of the Erewash and so exploited later, making maximum use of rail transport. The Midland Railway Centre, Ripley (402520) preserves and runs both Midland and LMS stock in the old Butterley Station and is open at weekends (Q1). Near this at 415517 is the empty engine house and headstocks enclosed in a round brick tower belonging to the Brittain Colliery. Contrasting types of colliery settlements can also be seen on the coalfield, from the monotonous terraces of Pleasbyhill (507641), Forest Town (563620) and Newstead (5253) to planned villages like Rainworth (5958), New Annesley (5153), New Clipstone (5863) and Biddsworth (5956) (Q2). The Rivers Leen, Maun, Meden and Poulter also generated power for an early textile industry, particularly in the late 18th century after Richard Arkwright had introduced powered cotton spinning into Nottingham and the Derwent Valley; the established framework knitting industry provided a market for the thread. Ready access to coal enabled water power to be first supplemented and then replaced by steam power. The growth of towns such as Mansfield and Nottingham created problems of both sewage disposal and water supply; a solution to the latter was found by sinking boreholes to the Bunter Sandstone, an excellent aquifer, which has resulted in a good series of late 19th century steam-powered pumping stations.

Q3 Strelley (514418). An interesting series of bell-pits for coal survive, probably dating from the 17th century. They can be found in the fields either side of the road leading to Strelley village, adjacent to the Broad Oak public house. Each consists of a circular mound of about 30’ across with a central depression marking the site of the shaft driven to the coal at a depth of less than 40’ below the surface.
practiced in the East Midlands until Parliament
field system of farming which was extensively
abolished in 1795. The mineral industry was
important until the 19th century. The coalfields
were discovered in 1686, and the first
mines were sunk in the 18th century. The
industry reached its peak in the 19th century,
when over 10 million tons of coal were produced
annually. The industry declined in the 20th
century, and most of the mines have been
closed.

The coalfields are located in the counties of
Nottinghamshire, Derbyshire, and Leicestershire.
The largest coalfield is the Nottinghamshire
coalfield, which extends across the counties of
Nottinghamshire, Derbyshire, and Leicestershire.

The coalfields are best known for their black
coal, which is rich in seams of bituminous coal.
The coal is extracted by underground mining,
which involves the use of shafts and tunnels to
reach the seams of coal. The coal is then
transported to the surface by means of a
network of railroads and roads.

The coalfields are important economically,
providing employment for many workers in the
local area. The coal is used for power generation,
industrial purposes, and as a fuel for domestic
heating.

The coalfields are also important for their
historical significance. The coal industry played
a significant role in the industrial revolution,
providing the energy needed to power the
industrialized economy of the time.

The coalfields are also of interest to
geologists, as they provide a record of the
geological history of the area. The coal seams
are often interbedded with layers of sandstone,
which provide information about the paleo-
environment of the area.

The coalfields are also of interest to
environmentalists, as they have been
transformed by mining activity. The mining
operations have left behind a legacy of
environmental problems, including
contamination of surface water and
subsurface water, soil erosion, and
vegetation disturbance.

The coalfields are also of interest to
historians, as they provide insights into the
history of the industrialized economy of the
area. The coal industry was a major employer
and contributor to the local economy, and its
decline has had a significant impact on the
local area.

The coalfields are also of interest to
geographers, as they provide a
record of the economic and
social development of the
area. The coal industry was a
significant contributor to the
region's economy, and its
decay has had a significant
impact on the local area.

The coalfields are also of interest to
tourists, as they provide a
record of the industrialized
heritage of the area. The coal
industry was a major employer
and contributor to the local
economy, and its decline has had
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local area.

The coalfields are also of interest to
archaeologists, as they provide
insights into the history of the
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The coalfields are also of interest to
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enclosure in the 18th century. The land is still farmed in strips although these have been amalgamated into blocks, and the village is a conservation area and under protection as an example of a long vanished way of life.

Q13 Papplewick Pump (583521). An ornate building of 1885 designed by Nottingham Corporation engineer Ogle Tarbott, it contains two single cylinder rotary engines by James Watt and Co., among the last to be built by that firm. The Engineer was Thomas Hawksley. The supporting pillars are lavishly ornamented with delicate metal work and the stained glass windows feature water motifs; it is a monument to Victorian municipal architecture. A Preservation Trust maintains and operates the engines and are restoring the grounds a twin cylinder colliery winder from nearby Linby, which was built by Robeys of Lincoln in 1922. For open days, tel: 0602 632938 or 631409.

Q14 Papplewick Cotton Mills. The tiny River Leen powered a surprising number of industrial enterprises during the 18th century, including the cotton mills built by Robinsons in the parishes of Linby, Papplewick and Bestwood. Originating in Scotland, the family founded first a bleach works and then six cotton mills, mainly in the 1780s. Moor Pond Wood (545070) contains many earthworks remaining from the ponds, dams and sluices which directed water to the mills. Problems with water supply, particularly because of a dispute with Lord Byron of Newstead Abbey, caused the Robinsons to apply to Boulton and Watt shortly after the latter had patented rotative motion, and the first of these engines to power a cotton mill was installed, probably in Middle Mill, in 1786.

The former Castle Mill (545510) has an ornamental facade, probably because it faces Newstead Abbey, and the quatrefoil motif is repeated on outbuildings at Grange Farm, the site of Grange or Old Mill (547502). The Robinsons employed both pauper and free children and workers' housing survives at 549514, known as Grange Cottages. The mills ceased operation in the first half of the 19th century.

Q15 Bestwood Colliery. The Leen valley coalfield was developed in the 1870s and an engine house and headstocks are preserved as part of the Leen valley Country Park (557475). The vertical twin cylinder winding engine is believed to have been purchased secondhand from Wales. Ironmaking began here in 1874 with first two and then four blast furnaces but ceased in the 1920s. Terraced housing bearing the crest of the Bestwood Coal and Iron Company and the date 1876 may be seen close to the colliery (553477).

Q16 Forge Mill, Bestwood (554477). A water-powered site of some antiquity, it was used first for iron-working and then for cotton spinning by the Robinsons. The present stone mill was built in 1787 and became a bone mill during the 19th century with a direct connection to the railway.

Q17 Bestwood Park Pumping Station (554883). Thomas Hawksley's first work for Nottingham Corporation, this elaborate Italian Gothic building was erected in 1873. The two Cornish engines were dismantled in the late 1960s.

Q18 Calverton. The birthplace of the framework knitting industry, it was here that William Lee developed the knitting frame in 1589. A hand frame is preserved in a small museum open by appointment (Tel: 0602 652886). The surviving buildings are 19th century in date, characterised by ground floor workshops unlike the topshops more common to the west of Nottingham. Windles Square built in 1834 (621491) consists of two rows of knitters' cottages from an original complex of three. All have ground floor workshops with large windows and the square was restored with the aid of the Nottinghamshire Buildings Preservation Trust. At 609493 are similar cottages with the date 1857 in brick on the gable. A frame-shop in the village (611492) represents the later phase of the industry. In 1844 with a population of 1350, 400 frames were operated in the village, about 30 frames per hundred of the population; this was typical of the over-dependence on one industry which contributed to the poverty of framework knitters in the 19th century.
MANSFIELD

Mansfield, on the River Maun, provides an interesting example of how the water from one small river was used over and over again to power spinning mills. The thread was supplied to an extensive local hosiery industry and the town expanded rapidly in the first half of the 19th century. The Mansfield and Pinxton Railway was opened in 1819 from Pinxton Wharf on the Cromford Canal to the Portland Wharf in the town and its coal traffic enabled the mills to supplement water with steam power. A five-arched stone viaduct from this line survives near Kings Mills (S19698) and has the date and monogram M & P 1817 on a keystone (R1).

The town itself is dominated by the high arches of another stone railway viaduct which cuts off the church from the market place, built for the Midland Railway in 1875 (R2). There were four separate railway lines into Mansfield during the 19th century, but it is now one of the largest towns in England to have no station, the new Alfreton and Mansfield Parkway station being about eight miles distant from the town. At 5245598 is Hermitage Mill, a large cotton mill dating in part from the end of the 18th century. The older stone section has round-headed windows, and the brick extension has a crane and loading bay. There is a large pond at the rear (R3).

Other interesting sites in Mansfield can be seen following this short trail:

R4 Field Mill, off the Nottingham Road, was one of the earliest mills in the town, dating from the 1780s. The building was demolished in 1925 but an extensive mill pond and arched sluices under the old mill building mark its site.

R5 Victoria Street. A three storey stone mill twenty four bays long, powered by steam and representing the later phase of the textile industry when coal was readily available in the town.

R6 Railway Station built by the Midland Railway in 1872. It is of stone in the Italianate style and the Midland Hotel is adjacent.

R7 Midworth Street. A floor maltings originally belonging to Mansfield Breweries, with parts dating from the 18th century. It is a two storey building with five additional bays and two kilns at the rear. It is undergoing conversion to a restaurant.

R8 Mustard Mill, Rock Valley. A water-powered site of the early 19th century which was used for mustard grinding. The firm of Barringer, Wallis and Manners also made metal containers for mustard, an industry which set the pattern for the building's present use by Metal Box Ltd. The imposing main building dates from 1919.

R9 Stanton's Mill, Bath Lane. Mansfield's oldest surviving mill of c 1785, the two storey section of the mill straddles the river. The adjacent three storey mill is unadorned in a fashion typical of the austere structures of the early cotton industry.

R10 Bath Mill. A large four storey stone structure of c1800, it is, like Stanton's Mill, built out across the River Maun. A steam engine was added later, and the mill has semi-circular projections containing staircases that are more usually found in the hosiery and lace factories of the area. The mill produced cotton thread for the lace industry but from the 18th century was operated as a hosiery factory by Goldie, Wade and Goldie. Its future is uncertain.

R11 Town Mills, St Peter's Way and Bridge Street. The Old Mill, now a restaurant, dates from 1827 and was used for cotton spinning. Part of the rear of the building is on stone pillars, allowing water under the mill. Opposite, the austere five
Mansfield, on the River Maun, provides an interesting example of how the water from one small river was used over and over again to power spinning mills. The thread was supplied to an extensive local hosiery industry and the town expanded rapidly in the first half of the 19th century. The Mansfield and Pinxton Railway was opened in 1819 from Pinxton Wharf on the Cromford Canal to the Portland Wharf in the town and its coal traffic enabled the mills to supplement water with steam power. A five-arched stone viaduct from this line survives near Kings Mills (519598) and has the date and monogram M & P 1817 on a keystone (R1). The town itself is dominated by the high arches of another stone railway viaduct which cuts off the church from the market place, built for the Midland Railway in 1875 (R2). There were four separate railway lines into Mansfield during the 19th century, but it is now one of the largest towns in England to have no station, the new Alfreton and Mansfield Parkway station being about eight miles distant from the town. At 524598 is Hermitage Mill, a large cotton mill dating in part from the end of the 18th century. The older stone section has round-headed windows, and the brick extension has a crane and loading bay. There is a large pond at the rear (R3).

Other interesting sites in Mansfield can be seen following this short trail:

**R4 Field Mill**, off the Nottingham Road, was one of the earliest mills in the town, dating from the 1780s. The building was demolished in 1925 but an extensive mill pond and arched sluices under the old mill building mark its site.

**R5 Victoria Street.** A three storey stone mill twenty-four bays long, powered by steam and representing the later phase of the textile industry when coal was readily available in the town.

**R6 Railway Station** built by the Midland Railway in 1872. It is of stone in the Italianate style and the Midland Hotel is adjacent.

**R7 Midworth Street.** A floor maltings originally belonging to Mansfield Breweries, with parts dating from the 18th century. It is a two storey building with five additional bays and two kilns at the rear. It is undergoing conversion to a restaurant.

**R8 Mustard Mill, Rock Valley.** A water-powered site of the early 19th century which was used for mustard grinding. The firm of Barringer, Wallis and Manners also made metal containers for mustard, an industry which set the pattern for the building's present use by Metal Box Ltd. The imposing main building dates from 1919.

**R9 Stanton's Mill, Bath Lane.** Mansfield's oldest surviving mill of c 1785, the two storey section of the mill straddles the river. The adjacent three storey mill is unadorned in a fashion typical of the austere structures of the early cotton industry.

**R10 Bath Mill.** A large four storey stone structure of c 1800, it is, like Stanton's Mill, built out across the river Maun. A steam engine was added later, and the mill has semi-circular projections containing staircases that are more usually found in the hosiery and lace factories of the area. The mill produced cotton thread for the lace industry but from the 18th century was operated as a hosiery factory by Goldie, Wade and Goldie. Its future is uncertain.

**R11 Town Mills, St Peter's Way and Bridge Street.** The Old Mill, now a restaurant, dates from 1827 and was used for cotton spinning. Part of the rear of the building is on stone pillars, allowing water under the mill. Opposite, the austere five
Q7 Lower Mill, Pleasley Vale

Q10 Cuckney Mill

With polychrome brickwork and a round tower.

Derelict: It was a steam corn mill but is now semi-derelict. It was a three-story red brick mill with a chimney and water-riblet.
S. NOTTINGHAM

Nottingham is a city of Saxon and Danish origin which became an industrial centre from the 18th century onwards. Wool dyeing and cloth making were important during the Middle Ages and many of Nottingham's leading families, like the Plumptres, owed their prosperity to the wool trade. Framework knitting superseded weaving by the end of the 18th century, at which time Nottingham rather than Leicester was the centre of the hosiery industry. Cotton stockings had already been knitted in Nottingham from imported yarn when Hargreaves and Arkwright sought refuge in the city after their cotton spinning inventions of the jenny and the water frame had been greeted with hostility in their native Lancashire. Nothing remains of the horse-powered spinning mill set up by Arkwright in Hockley in 1769. Nottingham rapidly became the leading manufacturing centre for cotton hosiery, an industry which diversified into machine-made lace by the end of the 18th century.

Population in the town increased six-fold in the century between 1750 and 1850, but the area of the town had only increased by a third, largely because the common land round the town remained unenclosed and therefore unavailable for development. Consequently, Nottingham possessed some of the worst slums in Britain, with lace-makers crammed into attics, cellars and courts. Enclosure in 1850 helped relieve the pressure, and created districts such as the Park, largely the creation of the architect T C Hine. Many middle class families vacated the centre of Nottingham for the new suburbs, allowing industrial and commercial development to take place in areas such as the Lace Market.

Nottingham's proximity to the River Trent boosted trade, particularly after the improvement to the Trent between 1766 and 1777. Coalmining to the north-west of the city prompted the opening of the Nottingham Canal in 1793, which connected with the Erewash Canal at Langley Mill, while a more direct cut to the Trent was provided by the Beeston Canal in 1796, which joined the Nottingham Canal at Lenton. Railway development also affected the town at an early date, with the Midland Counties Railway from Derby in 1839 being extended to Loughborough and Rugby in 1840. The Midland built a line to Newark and Lincoln in 1846, resting their original station on the opposite (east) side of Carrington Street.
Building has been recently restored. It is now a major landmark in the town, and the adjacent paper warehouses are also noteworthy.

**19. Viella House.** A fine example of early Victorian architecture, this building dates back to the 1840s. It was originally a warehouse for the Viella family.

**20. Nottingham Canal.** A notable feature of the town, the canal was navigable from 1793. An upper section was abandoned in 1937.

**21. The Lace Market.** The heart of the town's lace industry, the Lace Market was once a major commercial centre, with numerous lace factories and warehouses.

**22. The Market Square.** A large open space with the Market Hall at the centre. The square is surrounded by various buildings, including the Town Hall.

**23. The Midland Railway Station.** Built originally as a goods station in 1848, it was extended in 1919. It played a crucial role in the town's industrial history.

**24. The Victoria Baths.** A historic swimming pool, opened in 1903, it is one of the few remaining examples of its kind.

**25. The Castle.** The town's castle dates back to the 12th century and was once a fortress for the Norman lords.

**26. The Cathedral.** A magnificent example of Gothic architecture, the cathedral was begun in 1249 and completed in 1391. It is one of the finest examples of its kind in England.

**27. The Market Hall.** A significant landmark in the town, the Market Hall was completed in 1861 and is one of the finest in the country.

**28. The Old Silk Mill.** A historic silk mill, it was established in the 17th century and was one of the first in the country.

**29. The Lace Market.** A major centre for the lace industry, the Lace Market was once a major commercial centre, with numerous lace factories and warehouses.

**30. The Market Square.** A large open space with the Market Hall at the centre. The square is surrounded by various buildings, including the Town Hall.

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T. NEWARK

Newark owes its importance as an early settlement to its strategic position as the lowest bridge over the River Trent, held by the Romans as early as 1296. It was also the junction of the old Roman Foss Way and a prehistoric trackway known as the Great North Road. It developed as an extensive coaching trade, but most of its traffic was on the river itself. Grain warehouses were established on the banks and by the middle of the 19th century Newark was one of the most active maltings in the country, with many of the most active maltings still surviving in the town.

T1 Trent Bridge. The earliest bridge on this site dated back to 1135, but the present seven-arched brick structure was erected in 1775. The two level swing bridge was raised in 1810 and widened in 1860 to a span of 179ft.

T2 Castle Bridge. The earliest bridge on this site was built in 1490 and replaced in 1590 as a stone structure. It was raised in 1755, widened in 1855 and replaced in 1865. The present structure is a brick and stone structure.

T3 Castle Iron Works. Built in 1800 for William Nicholson, agricultural engineers, who also provided ironwork for many of the town's buildings. The works were closed in the late 19th century.

T4 NWB Kiln Warehouses. Two three-storey rendered blocks which were built as maltings around 1890, kiln floors survive inside. Returning to the bank of the river. The castle, which now commands the river, was built after the late 18th century and is probably the earliest Civil War building in the town.
survivals of the industry in the town.

**T10 Maltings**, now occupied by Ellis and Everard. Several floor maltings and kilns remain, which have been listed.

**T11 Queen's Road.** Three storey brick maltings with four gables to the street front and twelve bays long.

**T12 Lover's Lane,** a three storey brick maltings with two kilns, now occupied by Curry's

**T13 George Street** is lined with maltings. On the south side is a two storey maltings, six bays long, now a Boys' club, and further along a three storey block with three kilns. On the opposite side is a three and four storey block with five kilns. The adjacent housing suggests a late 19th century date.

**T14 Brewery, Northgate.** The fine Warwick and Richardson Brewery, now John Smith's depot. The brewhouse is dated 1882 on the gable and the front office block 1890. At the rear there are some fine kilns.

**T15 Trent Lane, Peach's (Gough's) Maltsters Ltd,** who were malting until recently. It is built of brick with a slate roof and has five kilns. Formerly, supplies were brought by rail over a bridge across the Trent. Adjacent are the former Baird's maltings of 1904/5, the last to be built in Newark. Now in occupation by Horval Farrar (Boiler Makers), they are red brick with high hipped slate roofs, three kilns across the end and a fourth to the rear. They ceased operation in 1975, having previously malted for Hole's Castle Brewery.
This booklet is published by the Association for Industrial Archaeology in conjunction with the Leicestershire Industrial History Society on the occasion of the AIA Annual Conference at Loughborough in September 1986.

LIHS was formed in 1969, with the aim of encouraging the study and recording of the industrial past of Leicestershire by means of fieldwork and documentary research. Monthly lectures are arranged from October to April on subjects of both local and national interest. During the summer months several field visits are arranged, which include a May weekend away: recent visits have been made to Hampshire, Tyne and Wear and Bolton. The society publishes an annual bulletin, whilst its Research Group is involved in producing other specialist publications. This group is also engaged in field work on industrial remains at Calke Abbey and on tin mining sites in Cornwall. Further information on LIHS and its publications may be obtained from the honorary secretary, whose address is given on page 2.

AIA was established in 1973 to promote the study of Industrial Archaeology and encourage improved standards of recording, research, conservation and publication. It aims to support individuals and groups involved in the study and recording of past industrial activity and in the preservation of industrial monuments; to represent the interests of Industrial Archaeology at national level; to hold conferences and seminars, and to publish the results of research. The Association is a purely voluntary one with no paid officers; it is administered by an elected Council of Management. The AIA publishes the Industrial Archaeology Review which is sent twice yearly to all members, who also receive quarterly issues of the AIA Bulletin. Additional occasional publications include the AIA Education Group's Newsletter and World Industrial History. Further details about membership of AIA may be obtained from the Membership Secretary, Association for Industrial Archaeology, The Wharfage, Ironbridge, Telford, Shropshire TF8 7AW. Telephone 095 245 3522.