

ASSOCIATION FOR INDUSTRIAL ARCHAEOLOGY
ANNUAL CONFERENCE 2017

TOUR NOTES

SOUTH EAST MIDLANDS

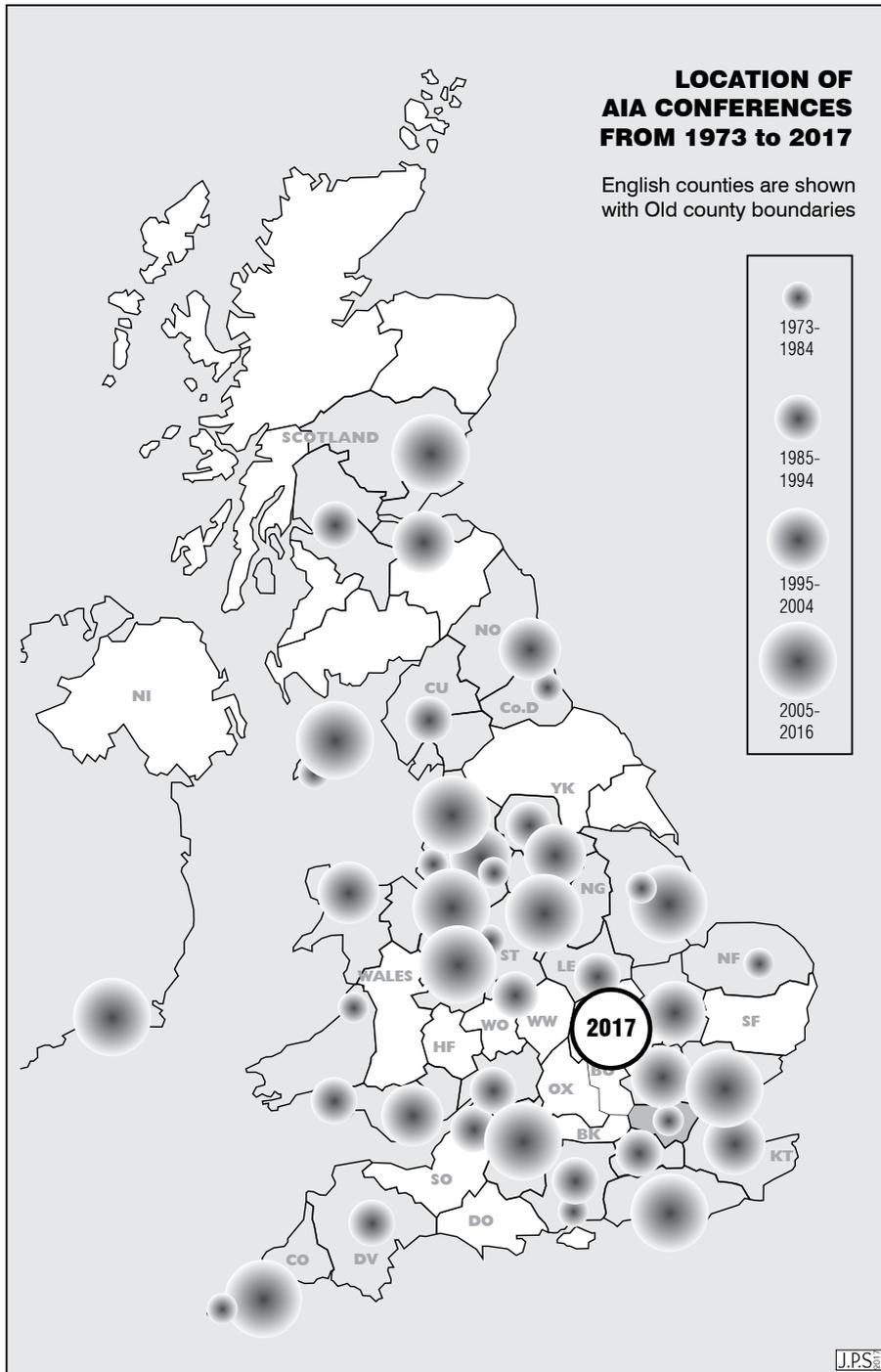


Council for
British Archaeology
South Midlands



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INTRODUCTION TO THE SOUTH EAST MIDLANDS



Welcome to the South East Midlands, an area not previously visited by an AIA annual conference (see map on inside front cover). Our visits take in sites in Northamptonshire, Bedfordshire and Milton Keynes, not an area renowned for its great industrial enterprises. It was dominated by the great estates of prominent landowners, which hindered industrial development and left many of the villages unaltered and as attractive as those of the Cotswolds. Nevertheless, there was plenty of manufacturing going on in the past – textiles, leather goods and lace, for example – and widespread extraction of ironstone in the 19th and 20th centuries which has left considerable traces.

There are no major hills in the area and so many small airfields were constructed here, as we shall see during the conference. Nevertheless, one of England's best known transport corridors, the Watford Gap, is not far from our base at Moulton College. This shallow depression between two low hills in Northamptonshire was first exploited as a transport route by the Romans. In

a width of 400m, the A5 road, a branch of the Grand Union Canal, the M1 motorway and the West Coast Main Line Railway now traverse this gap in parallel. Once past this, you are either in the North or the South, as shown by the sign in the Watford Gap Service Station – the first motorway service station in England. Many of our talks and visits take in this considerable transport heritage.

In the 1960s, the South moved north as a further generation of new towns were constructed to meet the need of overspill from a rapidly expanding London. Bletchley had begun to take both people and businesses from bombed-out areas of London in the 1950s, but the government eventually decided on a completely new town to the north of this, designated in 1967 as Milton Keynes.

References in these notes to GIHN numbers for the Northamptonshire tours relate to site numbers in '*A Guide to the Industrial Heritage of Northamptonshire*', distributed recently to all AIA members.

Coaches for all tours will depart from the car park at the Main Centre. Please be prompt, as many of the tours are on a tight schedule. Remember to bring appropriate clothing and footwear with you. Maps showing the coach routes that we will be taking can be found in the centre pages of this booklet.

The 2017 conference has been organised by David Ingham and Nick Crank of CBA South Midlands, Peter Perkins of the Northamptonshire Industrial Archaeology Group, and Marilyn Palmer. We hope that you find the tours enjoyable as well as educational.

These notes were compiled by David Ingham, with contributions from all members of the conference organising team. We are grateful to John Stengelhofen for the layout, design and the maps.

cover photograph: the North entrance to Blisworth Tunnel; see page 26

CARPETBAGGER SECRET WARFARE MUSEUM, HARRINGTON**Site conditions**

The museum is primarily housed in one single-storey building, accessed from the coach along a rough track and across grass. Toilet facilities are available. The blast walls of the Thor missile launch pads are accessed by walking c.0.5 miles along a concrete road and across a ploughed field, on level ground. The coach will leave Moulton at 1:30pm, returning about 6:00pm.

The museum buildings are some of the few remainders of Harrington Airfield, which was the first WWII airfield to be built by US Army engineers for the RAF, handed over on 6 November 1943. It had three runways (one of 6,000 feet and two of 4,200 feet), and was used as an operational training unit for nearby Desborough airfield who were flying Wellington bombers.

The airfield was handed back to the Americans in early 1944. By 27 May, four squadrons of USAAF black-painted B-24 Liberators were based at Harrington, all drastically modified to drop agents into occupied Europe at night, as well as supplies to resistance groups. 1,744 successful sorties were undertaken during 1944, dropping 415 agents and more than 31,000 packages of supplies behind enemy lines. In

all, 208 crew and 18 aircraft were lost in action.

In September 1944, 60 Liberators were stripped down and flew 800,000 gallons of fuel to airfields in France and Belgium to aid the advancing allied armies. In the closing months of the war, Mosquitos flew from Harrington at high altitude, picking up weak radio signals from agents inside Germany. In addition, adapted A-26 Invaders dropped agents into Germany. All USAAF aircraft and personnel left Harrington within two months of the end of WWII, and the airfield was used by the RAF for storing vehicles.

Harrington airfield was re-activated in 1959, becoming a joint USAAF/RAF firing site for Thor intercontinental ballistic missiles. These liquid-fuelled



Inside the museum at Harrington

missiles were 65 feet long and 8 feet in diameter, with a range of 1,700 miles. Three were placed on above-ground launching pads and could be deployed by crews that manned the site constantly – they were raised ready for firing during the Cuban missile crisis of 1962. In August 1963, the missiles were removed and the airfield returned to farmland. Most of the runways had already been removed. In September 1987, 50 US ex-servicemen returned for dedication of a memorial to those of their colleagues who had died during the war.

A short coach ride from the museum to a drop-off point will enable us to walk to the sites of the three missile launch pads. The concrete infrastructure is clearly identifiable – a concrete base on which the missile was stored horizontally, the rail seating bolts which allowed the protective housing to be rolled away, and a series of bolts which held the base on which the missile could be raised to a vertical position. The base was flanked by concrete-lined pits which held the propellant tanks, oxygen on one side and fuel on the other, as well as pumping gear. There are also massive L-shaped blast walls which protected ancillary vehicles and various other conduits, trenches and pits.

The tour will return through **Desborough** on the way back, driving past some of the town's industrial buildings (cf. pp 28-29 of *A Guide to the Industrial Heritage of Northamptonshire*). These include two shoe factories (GIHN 98 is derelict, but Cheaney's (GIHN 99) is still in use), a former corset factory (GIHN 100) and the former Desborough & Rothwell Station (GIHN 102)



The museum buildings at Harrington



Concrete blast walls at Thor missile launch site

NORTHAMPTON: BOOTS & BEER

Site conditions

The walking tour of the Boot & Shoe Quarter will be entirely on paved surfaces, covering slight inclines. The guided visit to Phipps Brewery will involve going up and down stairs to get around the building. Toilet facilities are available at the brewery; it will also be possible to sample the beers. The coach will leave Moulton at 1:30pm, returning about 6:00pm; the coach will also take you from the Boot & Shoe Quarter to Phipps Brewery.

The Industrial Heritage of Northampton's Boot & Shoe Quarter: c.1:45 – 3:45pm

We travel into the area just north of Northampton's town centre, now a Conservation Area called the Boot & Shoe Quarter, where a guided walk will look at some of the numerous former boot, shoe and leather factories.

Boots and shoes were originally manufactured in Northampton by hand: cut leather pieces were issued from warehouses located in what is now the town centre to be made into shoes by

workers in their own homes or workshops, before being sent back to the warehouse for packing and distribution. The first stitching machines were introduced in 1857, signalling the start of mechanisation, and manufacturing increasingly took place in factories over the next 30 years.

In 1851, some 5,400 people were employed in shoe manufacturing in Northampton. By 1901 this had increased to more than 16,000. As more people moved into Northampton to work in the expanding industry, so



Former Cowper Works, Shakespeare Road. © Peter Perkins



Former Grove Works, Clare Street.

© Peter Perkins



Former Waukerz factory, Overstone Road

©Peter Perkins

areas outside the town centre were developed, and the Boot & Shoe Quarter was one of the main areas for expansion between the late 1860s and the 1890s. This gave rise to the typical streetscape of boot & shoe factories, usually three storeys high, often on street corners, interspersed amongst the terraced housing. In addition, there were leather factories where skins were processed and finished (tanning was usually carried out adjacent to the River Nene) as well as factories producing shoe components, wooden lasts, shoe machinery and cardboard shoe boxes.

Most of the shoe industry has now disappeared from the Boot & Shoe Quarter, although the tour will include one factory that is still making shoes. Unlike the town centre, however, where the early shoe factories/warehouses have almost completely disappeared, over 100

Phipps Brewery, Northampton (GIHN 247): c. 4:00 – 5:45pm

We'll move on to visit the premises of Phipps-NBC, a name which was synonymous with brewing in Northampton from 1817 until the 1970s. Pickering Phipps began brewing in Towcester, Northamptonshire in 1801, and in 1817 opened a second brewery in Bridge Street, Northampton. The company P Phipps & Co grew to become the largest brewery in the Midlands by the end

factory buildings that were once used by the shoe and leather industries still remain, converted into other industrial use or apartments. The tour will look at a range of former shoe and leather factories, identifying the features relevant to their use and the companies that used them. Details of the buildings can also be found in your copy of A Guide to the industrial Heritage of Northampton's Boot & Shoe Quarter (GIHB&SQ). Depending on speed of progress, we will look at buildings in the Central, Western and Northern areas of the Boot & Shoe Quarter as indicated on pp24-25 of GIHB&SQ.

If you become separated from your designated party, make sure you make your way to the meeting point at the junction of Overstone Road and St Michaels Road by 3:45pm, whence we shall proceed by coach to Phipps Brewery.

of the 19th century, subsequently taking over a number of local breweries including Ratliffe & Jeffery of Northampton in 1899, Hipwell and Co. of Olney in 1920, Mannings of Northampton in 1926, and Campbell Praed of Wellingborough in 1953. In 1957, Phipps merged with the Northampton Brewery Company to become Phipps-NBC.

SUNDAY 27TH AUGUST

Phipps-NBC was taken over in 1960 by Watney Mann (of 'Watneys Red Barrel' infamy), and by the 1970s the Phipps and NBC names had all but disappeared. In the early 1970s, both the Phipps and the NBC breweries in Bridge Street were demolished, to be replaced by the modern Carlsberg Brewery.

The present building was originally Ratliffe & Jeffery's Albion Steam Brewery, built in 1883 to replace smaller premises where Thomas Ratliffe started brewing in 1862. Brewing ceased here a few years after Phipps & Co took over Ratliffe & Jeffery in 1899. The buildings were in other industrial use throughout most of the 20th century, notably by James Bros who produced lemonade here after WWI. In recent years, Teasdale Leathers occupied the buildings facing Kingswell Street, until they were returned to brewing in 2014 by brothers Alaric and Quentin Neville. The brothers had acquired the name Phipps NBC from Scottish & Newcastle

and launched 'Phipps IPA' in 2006 from a brewery in Oakham, but wanted to brew it themselves, and found the ideal premises in the old Ratliffe and Jeffery brewery – a building which Phipps themselves had closed down 100 years ago!

Today, what was the four-storey brewhouse remains, together with single-storey and three-storey ranges fronting Kingswell Street which were originally used for beer storage, cooperage and a loading bay. The old brewery loading bay has been turned into a new brewing hall, and the cellars hold brick arched conditioning tunnels, in addition to the 'Kings Well', an underground aquifer which supplied the old brewery with water for brewing. The building fronting Kingswell Street is now the Albion Brewery Bar, open most days, while a casino stands on the site of the former brewery warehouse which faced south onto Commercial Street, immediately west of the old brewhouse.



left: Phipps brewery, Kingswell Street

right: Rushden heritage railway

RUSHDEN TO IRCHESTER: TRANSPORT AND IRONSTONE QUARRYING

Site conditions

Rushden Transport Museum is housed within the former railway station. There are several rooms to explore, plus various rolling stock on the tracks outside. Access to the Narrow Gauge Railway Museum at Irchester Country Park is along a surfaced path on level ground, roughly 0.5 miles from the parking area. The country park also has several miles of surfaced and unsurfaced paths through the former quarry workings; a map will be provided on the day and we will follow part of the newly opened Ironstone Heritage Trail which finishes at a spectacular viewpoint over the face which was worked by a dragline. so that you can choose your own route, although at the start of the visit we will be given access to the base of the quarry face as a group. Surfed paths have gradients of no more than 1:12, but some unsurfaced paths through the hill-and-dale landscape are steeper, and include some uneven wooden steps. The ground is likely to be muddy in places on the unsurfaced paths, certainly in wet weather.

Toilet facilities are available at both venues; there is also a bar at the Transport Museum, and refreshment facilities at the Country Park. The coach will leave Moulton at 1:30pm, returning about 6pm.

Rushden Transport Museum (GIHN 350): c. 4.15 – 5.15pm

The Midland Railway (MR) opened its Leicester to Hitchin line through Kettering, Wellingborough and Bedford in 1857 (the Bedford to St Pancras route was not completed until 1868). However, the towns of Higham Ferrers

and Rushden had no connection with the railway, the nearest stations being at Irthlingborough and Irchester. As the boot & shoe industry expanded in both towns during the latter half of the 19th century, so the need for a railway link became pressing. In 1890, a line was authorised from the MR at Irchester





Rushden Station platform and rolling stock

Junction, south of Wellingborough, to Rushden, Higham Ferrers and on to Raunds to join up with the MR's Kettering to Huntingdon line. However, only the first 3½ miles of single track line was constructed, with stations at Rushden and at Higham Ferrers. The line opened in September 1893 to goods traffic and to passenger traffic in May 1894. The line was never a commercial success, but regular services were in place until 1959, with holiday trains to Blackpool and Great Yarmouth continuing until 1964. Goods services ceased in 1969, when the track was lifted and the station and goods shed at Higham Ferrers were demolished, though Rushden station and goods shed remained in British Railways ownership until it was sold to the local council in 1976.

Rushden Historical Transport Society obtained a lease on Rushden station building in 1984 and eventually purchased it in 1996. Today it operates as a museum and a clubhouse, as well as being a centre for real ales. The goods shed has recently been

acquired by the RHTS although it is now separated from the station by a road which was built through the goods yard in 2005. The heritage railway is operated by The Rushden, Higham and Wellingborough Railway (RHWR) and presently has ½ mile of track. It uses both steam and diesel locomotives, operating passenger trains at some events throughout the year; the first one ran from Rushden Station on 13th June 2009, 50 years to the day from when the last regular passenger service ceased. Plans for the future will see the total length of railway extended to a mile, establishing a halt in Higham Ferrers and linking the towns again for the first time since the railway was closed. The Transport Museum covers the growth of Rushden within the development of the road and rail networks, and the impact of this on the local population. (The Transport Museum is closed for emergency repairs at the time of writing, but it is expected to be open by the end of August.)

Irchester Country Park (GIHN 157): c. 2.00 – 4.15pm

Unrestored ironstone quarry

Iron ore was smelted in Northamptonshire in Roman, Saxon and medieval times, but the practice died out in the 15th century. Ironstone was only 'rediscovered' in the middle of the 19th century when railway construction started. Many of the early ironstone quarries began adjacent to the LNWR's Blisworth to Peterborough line which was opened in 1845, using the railway to transport iron ore to blast furnaces either in Northamptonshire or further afield. Ironstone quarrying became a significant industry in the county, particularly in the northern half, through until 1980 when the large integrated iron and steel works at Corby was closed.

Irchester Country Park is a largely unrestored ironstone quarry, immediately south of the route of the former Blisworth to Peterborough railway. Although most of what is visible dates from the 1930s, there is evidence that the land was worked for iron ore in this area as early as 1884, when a narrow gauge tramway ran south from the Blisworth to

Peterborough line at Little Irchester, to quarries near Wollaston. Independent operator James Pain obtained limestone from here in 1905/6 and ironstone from 1911, laying standard gauge tramway and using steam shovels to remove the overburden. The company became known as Irchester Ironstone Co from 1922. In 1924, coinciding with the opening of the Wembley exhibition, the company, now a subsidiary of Cargo Fleet Iron Co (later the South Durham Steel & Iron Co), began quarrying what became known as Wembley Pit on land sandwiched between the railway and Gypsy Lane, working eastwards towards the village of Irchester. They had to remove overburden up to 30m deep, using a large Ruston steam stripping shovel to get at the 10m thick ironstone bed. This overburden was tipped onto worked-out areas, leaving the 'hill-and-dale' landscape that was typical of ironstone quarries countywide. The iron ore was loaded into standard gauge wagons and taken down to the railway at Little Irchester for transshipment to blast furnaces on Teesside.

Iron ore extraction ceased at Wembley Pit in 1941, as the quarry was getting



Hill-and-dale landscape

Ironstone quarry face



too close to the village of Irchester and the iron ore bed was getting too deep. Lodge Pit had already been opened south of Gypsy Lane in 1938, and iron ore was transported from here by tramway which passed beneath Gypsy Lane and through into Wembley Pit, where it was calcined in large clamps (mixed with coal and burnt to remove volatile components) before being taken down to the railway at Little Irchester. By 1969, quarrying ceased at Lodge Pit and domestic refuse was tipped here until 1985, after which the land was restored to agricultural use. Since Wembley Pit had been quarried prior to 1951, however, there was no compulsion to fill or restore it. In common with other early 20th-century ironstones quarries, the hill-and-dale landscape had been planted with conifers. British Steel, who then owned the site, handed it over to Northamptonshire County Council in 1971, who opened it up as Irchester Country Park.

Although some changes have been made to install new roads, and there are additional buildings and facilities, most of the old quarry remains undisturbed.

10 The final working face remains on the eastern edge of the quarry, with the

conifer-covered hill-and-dale formations behind it. In many places it is possible to make out the route of the tramways that linked Lodge Quarry to a head-shunt where trains reversed down to the calcine clamps, then down to the railway line at Little Irchester. There are even the remains of calcine clamps where samples of calcined ore can still be found.

Heritage Lottery Funding has recently been obtained to restore the quarry face, removing undergrowth that has built up over the past 40 years, and to install interpretation panels at key sites in the park. An Ironstone Heritage Trail has been created to inform visitors about quarrying at the park and the uses to which the ironstone was put. It opened in July 2017, with information panels at key points

Irchester Narrow Gauge Railway Museum

Some years ago, a small group of enthusiasts created the Irchester Narrow Gauge Railway Trust and began to restore a number of metre-gauge industrial locomotives that had been used in the ironstone quarries in the Wellingborough area. Beginning in the



former goods shed at Irchester station, they moved into Irchester Country Park in 1987, building a museum and a length of demonstration track. Rolling stock includes three 0-6-0 metre gauge saddle-tank Pecket locos from Wellingborough ironstone quarries, *Cambrai*, an 0-6-0 pannier tank with

Inside the narrow gauge museum, with the locomotive 'Cambrai'

outside Stephenson valve gear built by Corpet Louvet in France, and a number of diesel locos. The museum also contains displays relating to ironstone quarrying, including a life-size diorama of a quarry.



Exhibits outside the museum

BEDFORDSHIRE: TRANSPORT AND MILLING

Site conditions

There are six hangars to view at the Shuttleworth Collection, which are accessed through the visitor reception. There is also an adjacent Engineering Workshop, and historic vehicles and planes may be in operation at the time outside. The whole site is on level ground, with most of the displays indoors. The toilet facilities are available.

Jordans Mill is a compact site on level ground, although there are stairs to navigate between the mill's four floors. We will primarily be indoors on hard surfaces, though you may wish to explore the newly created mill garden and flower meadow. There are toilet facilities, a shop with an extensive range of Jordans and other local products, and a café where we will have lunch upon our arrival.

The coach will leave Moulton at 9:00am, returning about 6pm; the coach will also take you at 1:15pm from the Shuttleworth Collection to Jordans Mill.

Cardington Sheds

Our journey to the Shuttleworth Collection will take us past the Cardington Sheds. The Short Brothers bought land here and constructed a 700-foot-long airship hangar (No. 1 Shed) in 1915, also building the eponymous Shortstown housing

estate nearby. The site was nationalised in 1919, becoming the Royal Airship Works. No. 1 shed was extended to 812 feet long in 1924–26, ready for the

Iron Age ditch, with Cardington Sheds in the background; the airship hangars, 157 ft (47m) high, are widely visible to the SE of Bedford

© Albion Archaeology



R101 airship, and the No. 2 Shed was transported here in 1928 from its former home at RNAS Pulham in Norfolk.

The site became a storage station after work stopped on airships following the R101's crash in 1930, before being used from 1936 to construct barrage balloons. The sheds have had a wide range of uses since they ceased to be part of RAF Cardington in the late 1940s, including spending 20 years as the Home Office's Fire Research Station from 1971, which saw multi-storey

steel, concrete and wooden buildings constructed and destructively tested within Shed 2.

Both sheds have been used as film studios, with Shed 2 currently leased to Warner Bros. Shed 1 has recently undergone an extensive programme of restoration at the insistence of English Heritage, completed in 2015, and is once again being used for the construction of airships – the Airlander 10, currently the world's largest working aircraft, was launched here in 2016.

**Shuttleworth Collection:
c. 10:15am – 1:15pm**

Nathaniel Clayton and Joseph Shuttleworth opened an iron and steel foundry in Lincoln in 1842. They launched their first portable steam engine in 1845, and their first traction

engine in 1858, in addition to which they also produced a wide range of agricultural equipment that was exported widely. The wealth created by the company enabled Joseph Shuttleworth to buy Old Warden Park, and agricultural machines form part of the current Shuttleworth Collection.

The Collection was started by Richard Ormonde Shuttleworth, a passionate racer and pilot, and has been open to the public since 1963. Based at Old Warden aerodrome, the Collection includes vintage aircraft, a range of veteran and vintage cars, classic motorcycles, tractors, vintage buses (which are often used to



left & above left: Exhibits in the Shuttleworth hangars



give free rides to visitors), and a working chaff cutter. As many of these as possible are kept in working order, including a 1909 Blériot XI, the world's oldest air-worthy aircraft.

The Engineering Workshop at Shuttleworth is used to repair the Collection's exhibits, keeping as much of the engineering work 'in house' as possible. The work is carried out by a team of eight engineers, supported by more than 30 volunteers. The workshop currently houses a Supermarine Spitfire under restoration.

There are six hangars to view that house the Collection's exhibits, all of which are themed. Hangars 1 and 2 cover WWI and WWII; Hangar 3 relates to the history of Clayton & Shuttleworth;

Hangar 4 is on the theme of 'leading edge', with machines relating to racing and also the work of the Special Operations Executive; Hangar 5 looks at the pioneers of transport; and Hangar 6 includes privately owned aircraft and scale models. Some of the hangars also have displays on the walls, with historic photographs and newspaper reports.



Photographic displays in the Shuttleworth hangars: above: a XXXXXXX flying boat below: XXXXXX being towed by a car when still in used during WWI



Jordans Mill: c. 1.30 – 4:45pm

Milling was first recorded at this site on the River Ivel in the Domesday survey. There are documentary references to it in the following centuries, but after Henry VIII dissolved nearby Warden Abbey and took the mill into Crown ownership, leasing it to Henry Lawson of Bykelleswade (Biggleswade) in 1557, little is known about milling here until a 1781 survey of the Holme Estate produced a detailed plan of the mill and its associated buildings.

The Jordan family's involvement dates back to their purchase of Holme Mills in 1893, a time when there were more about 400 flour mills in Bedfordshire. The mill, which William E Jordan had previously leased since 1883, had fallen into disrepair, but a major fire the following year provided the opportunity for it to be fully rebuilt. There was

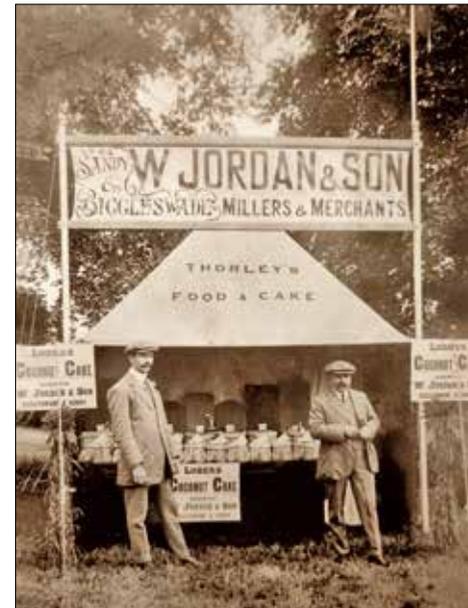


Jordan's Mill in 1895 © Jordan's Charity

another fire in 1899, in which year the mill's two overshot waterwheels were replaced by a 25hp Gilbert and Gilkes turbine (still in operation), and a Carter Roller System was installed by Turners of Ipswich, making the mill one of the most advanced of its time and a leading flour producer across the region.

Improvements to the mill in the 20th century include the installation of an Allen diesel engine in 1938, to replace the old Tangye gas engine, and giving the mill a flat roof in 1959 to allow the installation of augers, enabling the grain to be transported mechanically to the top floor.

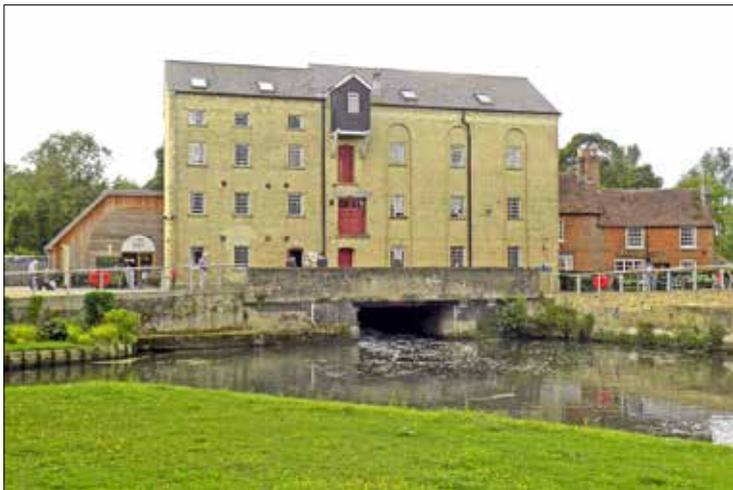
After a period of abandonment in the 1940s, the flour mill was restarted and there was a diversification into feed milling. The Jordan family was at the forefront of the granola movement in the 1970s, however, launching Jordans



above: W Jordan & Son stall at the Sandy Show right: 1920s Jordan's delivery lorry

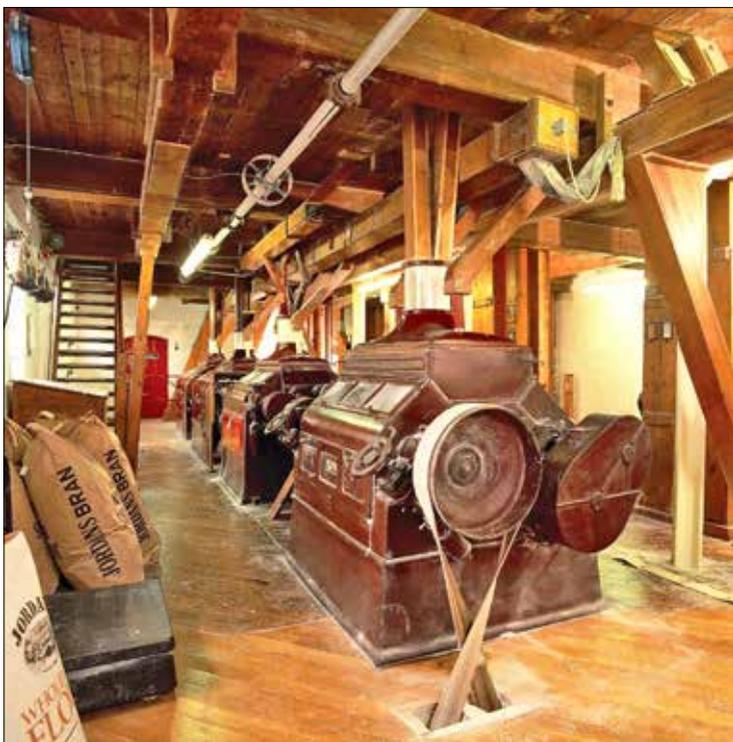
© all photos: Jordans Charity





Original Crunchy G in 1973, and they started to move away from milling flour and animal feed to producing breakfast cereals and cereal bars. The success of the business meant that Jordans opened a new factory in 2000 in

Biggleswade, with the old mill closing in 2005. Rather than abandoning it, however, the family decided to convert the mill into a heritage centre and build an adjacent Riverside Café, which opened in 2013.



BEDFORDSHIRE: TRAINS, PLANES AND AUTOMOBILES

Site conditions

At Page's Park in Leighton Buzzard, a short walk takes us from the car park, through the visitor reception, to the platform from which our train will depart. There will be an AIA carriage. We will have 25 minutes at the other end to explore the Stonehenge Works, all of which is accessible on level, hard surfaces, and is primarily outdoors. We will be able to view the engine shed on our return. Toilets and facilities to purchase refreshments are available at both ends, but both are more limited at the Stonehenge Works.

There are six hangars to view at the Shuttleworth Collection, which are accessed through the visitor reception. There is also an adjacent Engineering Workshop, and historic vehicles and planes may be in operation at the time outside. The whole site is on level ground, with most of the displays indoors. There are toilet facilities and a café.

The coach will leave Moulton at 9:00am, returning about 6pm; the coach will also take you at 12:30pm from Leighton Buzzard to the Shuttleworth Collection, stopping at a pub on the way for lunch.

Leighton Buzzard Light Railway: c. 10:15am – 12:30pm

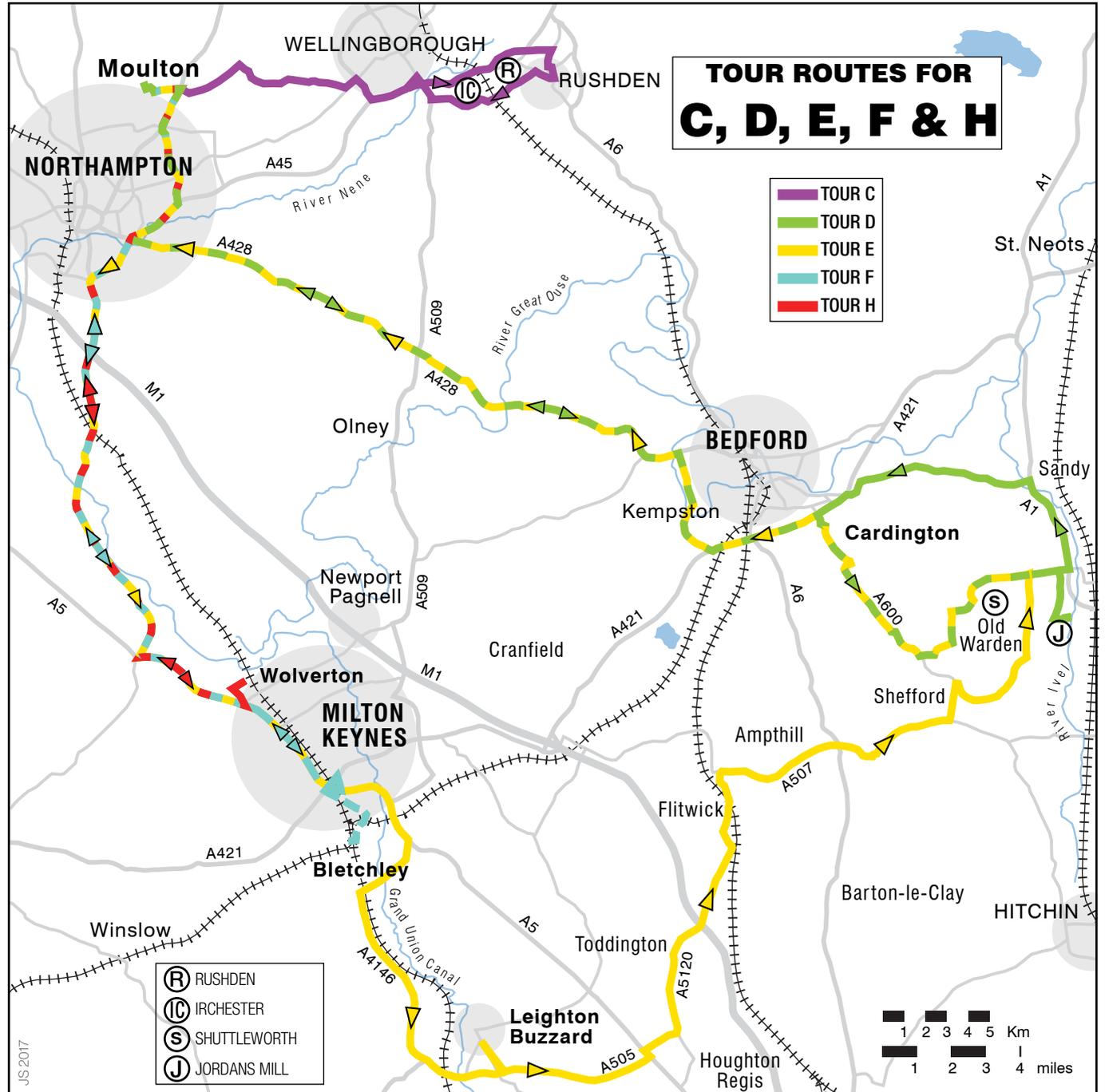
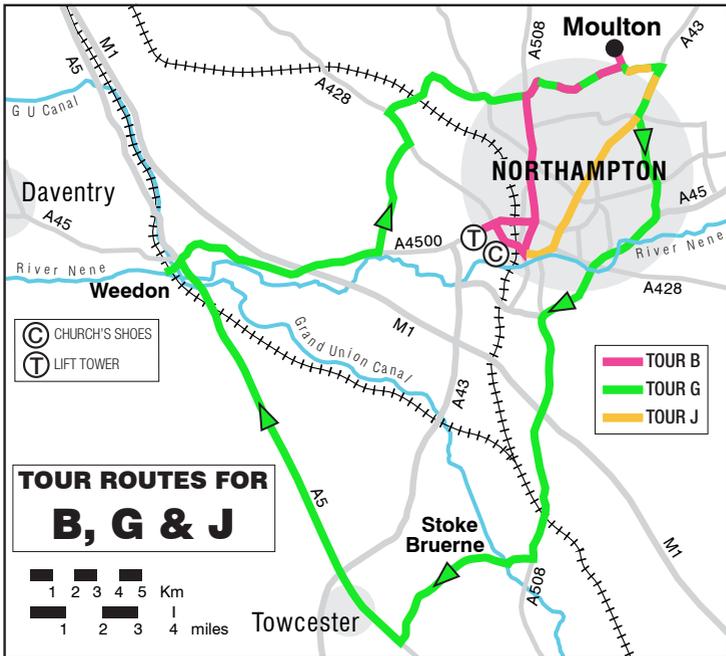
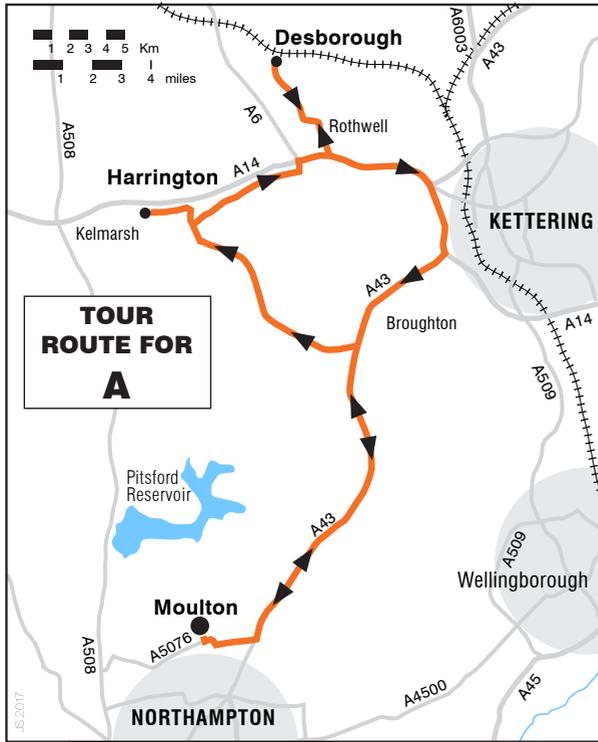
Sand has been quarried from the area around Leighton Buzzard since the early 19th century, assisted in 1848 by the coming of the Leighton Buzzard to Dunstable branch line. Exploitation of the Greensand Ridge to the north of the

town was uneconomic, however, until regulations were changed during WWI to allow sand to be transported by road, enabling a link between new quarries to the north of the town and the Billington Road sidings on the Dunstable branch. This caused considerable damage to the roads.

Coaches and engine on the heritage railway

continued on page 20 >





Once the war was over, the quarry owners were told that they would be responsible for repairing any future damage to the roads, which led quickly to the formation of the Leighton Buzzard Light Railway Ltd (LBLR). Joseph Arnold & Sons Ltd and George Garside (Sand) Ltd, the two main quarry operators in the area, built a line from the Billington Road sidings to Double Arches, near Heath & Reach, which was in service by the end of 1919. It was built to 2 foot gauge and was just over 3½ miles long, with a network of quarry branches and sidings as well. The original steam locomotives lasted less than 2 years and were replaced in 1921 by ex-WDLR armoured "Simplex" petrol locomotives built in Bedford, making it possibly the first railway in Britain to convert entirely to internal-combustion traction.

The peak period for traffic on the LBLR was in the late 1940s and early 1950s, when 20 train loads of sand were regularly dispatched each day. This level steadily declined through road competition and the rationalisation of the main-line railway system, with commercial operations ceasing completely in 1981.

In 1967, a group of railway enthusiasts received permission to run passenger trains on the LBLR: this marked the start of the Leighton Buzzard Narrow Gauge Railway Society, with steam-powered regular services ever since June 1968. The LBLR has over 120 wagons in its collection, covering the wide range of industries that once used narrow-gauge railways as an integral part of their operations.

Train journey

The LBLR's line runs for 3 miles between Page's Park and Stonehenge Works. Double Arches lies beyond the 20 Stonehenge Works and its processing plant is still fed by nearby quarries, but



Former stables at the Stonehenge Works

all transport is now by road.

Leaving Page's Park station (at 10:30am), the line climbs sharply between the park and a former sand quarry, now a housing estate. It then passes modern housing and industry before reaching the married quarters for RAF Stanbridge at the top of the climb away from Page's Park. Known originally as Q Central, this signals base was opened shortly before WWII, and was responsible for the development and deployment of RADAR. It provided vital support for the D-Day landings, and also handled the communications traffic for Bletchley Park. Most of the base closed in the 1990s and has been redeveloped as housing, with the base fully closing in 2013.

After the Stanbridge Road level crossing, we then descend the 1:25 (4%) gradient of Marley's Bank, named after the tileworks which once stood alongside the line and was supplied with sand by its trains. Next is the Hockliffe



The engine shed

Road level crossing (A4012) and Swing-Swang Bridge, which crosses Clipstone Brook, after which we begin a long climb towards Vandyke Road level crossing, and the scenery starts acquire a more rural aspect.

The line takes a sharp curve after the Vandyke Road crossing and runs parallel with the road. A sand train is permanently installed here on the track of the last surviving sand quarry branch. As the line climbs to its highest point, the wind turbine at Double Arches sand quarry comes into view: this was claimed to be Britain's largest onshore example when it was built, standing 136m tall and generating enough power to supply 1,300 houses.

Stonehenge Works station is named after the brickworks that used to stand alongside the railway, before being replaced by the modern tile factory. The 1918 former stables block still exists, which once sheltered the horses kept for work in the quarries, but now houses the Leighton Buzzard Railway's main workshops. The Works is the base of

the locomotives and rolling stock not involved in the passenger service, and some items are on public display in the yard. There is also a small exhibition building that tells the story of the Motor Rail & Tram Car Company, which started production of its Simplex petrol locomotives in 1916, and became the major supplier to the Leighton Buzzard sand quarrying industry. An ex-RAF passenger coach contains a display on the role of narrow-gauge railways in supplying the battlefield trenches.

Upon returning to Page's Park (leaving Stonehenge Works at 11:20am), we will have a guided view of the engine shed, which contains most of the society's steam locomotives as well as a photographic display of the line and its construction.

Shuttleworth Collection: c. 1:30 – 4:45pm

See Tour D for details of our visit to the Shuttleworth Collection. We will also pass the Cardington Sheds on our way back to Moulton.



Tinkering with the engine

MILTON KEYNES: COMPUTING & CODEBREAKING

Site conditions

The visit will be primarily indoors, with most of the displays on the ground floor. The coach will leave Moulton at 9:00pm, returning about 6:00pm; the National Museum of Computing (TNMoC) is housed within Bletchley Park, so we will be on the same site all day. We are due to arrive at TNMoC at 10am, where we will be given a guided tour; guided tours are also available at Bletchley Park at regular intervals throughout the day (these cannot be booked in advance). Toilet facilities are available at both places. Lunch is not included as part of this visit, but refreshments can be purchased at your convenience at one of three cafés on site.

The National Museum of Computing and Bletchley Park:

c. 10:00am – 5:00pm

The National Museum of Computing

Constructed in September 1944, Block H at Bletchley Park, now home to The National Museum of Computing (TNMoC), was the first purpose-built computer centre in the world, housing the Colossus computers that were used to decipher top-secret Lorenz/Tunny messages between Hitler and his generals. The original purpose of the building was kept secret for decades, but today it houses the world's largest collection of functional historic computers. Although TNMoC is housed within Bletchley Park, it operates as a separate charity and is entirely reliant on funding from donors and visitors.

The museum presents the development of computing from the ultra-secret pioneering efforts of the 1940s, through the large systems and mainframes of the 1950s, '60s and '70s, to the rise of personal computing in the 1980s and beyond. On display in the museum are many famous early machines, including a functioning Colossus Mark 2 that was rebuilt between 1993 and 2008 by a



The museum building

© Dan Gardner

team of volunteers led by Tony Sale, and the world's oldest working digital computer (the Harwell Dekatron / WITCH). The museum also contains a range of mechanical and electro-mechanical punched card machines, exhibiting how computation was achieved prior to the digital computer.

Other machines on display include computers from the 1960s, such as the Marconi Transistorised Automatic Computer (T.A.C.), Elliott 803 and 905, and an ICL 2966 mainframe from the 1980s. There are also a wide range of analogue computers, a hands-on retro-computing gallery, and several restoration projects such as the PDP-8 and the PDP-11-based air traffic control

system from London Terminal Control Centre at West Drayton. Further exhibits include mechanical and electronic calculators, a history of slide rules, a pair of Cray super computers, and a personal computing gallery with hands-on machines. A suite with BBC Micro personal computers is used to encourage programming among visitors, and there is a hands-on display of video game consoles from different eras. The most recent gallery, opened in 2009, focuses on the Internet and is sponsored by the National Physical Laboratory, where packet switching was first developed.

Our tour will last around 2 hours and will cover the full museum collection from Colossus onwards, with a chance to see computers being maintained and repaired behind the scenes. Much of what is on display actually works, and our guides will demonstrate how some

of the computers are operated.

Bletchley Park

The Mansion at Bletchley Park was built by Herbert Samuel Leon, a London financier, who bought the land there in 1883 and developed sixty acres of it into a country estate. Following the death of Sir Herbert and his wife, the Park fell into the hands of property developer Captain Hubert Faulkner in 1938, who intended to demolish the buildings and sell the land for housing. With the threat of impending war, however, the Government Code and Cypher School, then based in London, needed a safe home for its intelligence work unhindered by enemy air attacks. Bletchley Park lay at a junction of major road, rail and teleprinter connections to all parts of the country, and was therefore purchased by the Government.



Tony Sale and the Colossus Mark 2

© Nigel Tout



Commanded by Alastair Denniston, the Park was given the cover name 'Station X', as the tenth site acquired by MI6 for its wartime operations. The codebreakers arrived in August 1939, masquerading as 'Captain Ridley's Shooting Party'. The Enigma decryption teams worked in Huts 3, 4, 6 and 8; the huts operated in pairs and, for security reasons, were known only by their numbers. The codebreakers concentrating on the Army and Air Force cyphers were based in Hut 6, supported by a team in Hut 3 who turned the deciphered messages into intelligence reports. Hut 8's team decoded messages from the German Navy, with Hut 4 the associated naval intelligence hut. Their raw material came from the 'Y' Stations, a network of wireless intercept stations around Britain and overseas which listened to enemy radio messages and sent them to Bletchley Park. Up to 10,000 personnel were employed at Bletchley during the war.

a variety of training schools, for teachers, Post Office workers, air traffic control system engineers, and members of GCHQ. Bletchley Park was finally decommissioned in 1987. Plans were once again made in 1991 to demolish the buildings for a housing development, but the Bletchley Archaeological and Historical Society brought together former codebreakers for a farewell meeting before the site was destroyed, at which it was instead agreed that they would try to save the site for posterity. The Bletchley Park Trust was formed on 13 February 1992, and the Park was opened to its first visitors in 1993. In 1998, the Trust began fresh negotiations with the landowners to acquire a substantial part of the site in order to preserve and enhance it, and was granted an initial 250-year lease in June 1999 for the core historic areas of the site.

An £8 million restoration project was completed in 2014, which transformed the formerly derelict wartime code-breaking building, Block C, into a visitor

centre, and also restored the derelict Codebreaking Huts 3 and 6.

The areas at Bletchley that are open to the public are:

- Block C: a visitor centre, with an introductory exhibition to the Park and the Codebreakers' activities;
- Block B: a museum, with exhibits including the only fully operational Bombe rebuild (the electro-mechanical device used to mechanise the process of breaking Enigma), the world's largest and most comprehensive public display of Enigma machines, and an Alan Turing gallery;
- Codebreaking Huts 3 and 6: these have been restored to recreate the atmosphere from when the Codebreakers used them to decrypt messages sent by the German Army and Air Force;
- Hut 8: an exhibition outlining the different methods that the Codebreakers

used. Hut 8's contents also include Alan Turing's office, recreated to how it would have looked in WWII, and an exhibition explaining the use of pigeons during the war;

- Hut 11: use of the Bombe machines;
- Hut 12: a display of documents and artefacts recovered during the restoration works at Bletchley Park, including wartime notes stuffed into the roof cracks of Hut 6, a 'time capsule' left inside a door in Hut 11A, and the only known example of used Banbury sheets, a system devised by Alan Turing to help find the daily-changing Enigma settings.

The Mansion: this houses a number of temporary and permanent exhibitions, including Alastair Denniston office, the library, and wartime garages complete with WWII vehicles.



Bletchley Park's Science and Innovation Centre

WEST NORTHAMPTONSHIRE: CANALS AND MUNITIONS

Site conditions

The boat trip will depart from the Boat Inn at 10:00am and will last for roughly 1.5 hours. Half of it is within the Blisworth Tunnel, so bring a torch.

The Canal Museum is spread over three floors; access is by stairs only. The Boat Inn (where we will have lunch), Canal Museum, lock and road bridge are all within a short walk of each other on level hard surfaces.

Access around the Weedon Depot is along hard surfaces, mostly on level ground but with a moderate slope to get down to the lower level. Access will be possible to a few of the buildings' upper floors, which are only accessible by stairs. The visit will begin with a talk by a local volunteer who will guide us around the site, after which we will be free to explore.

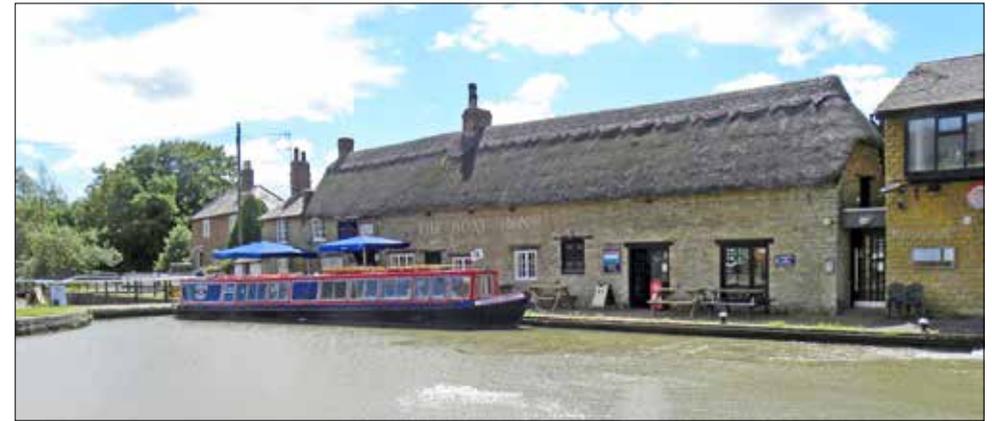
Toilet facilities are available at both venues, though those at Weedon are limited. Refreshments can be purchased in the first-floor bookshop at Weedon. The coach will leave Moulton at 9:00am; it will then leave Stoke Bruerne at about 1:30pm, returning to Moulton about 6pm.

Blisworth Tunnel and Stoke Bruerne Canal Museum:
c. 9:45am – 1:30pm

Blisworth tunnel

The Grand Junction Canal Company received its Act of Parliament in 1793 to build a canal linking London with

the Oxford Canal at Braunston, near Daventry, thus providing a more direct route between London and Birmingham. William Jessop, and his Resident Engineer James Barnes, completed the northern section between Braunston and Blisworth by 1796, and



the southern section between Uxbridge and Stoke Bruerne (bottom lock) by 1800.

Between Stoke Bruerne and Blisworth was a ridge which had necessitated digging a tunnel. Work started in 1794, but problems with underground water required extensive draining, so that digging did not properly recommence until 1802. In the meantime, a tramway was constructed over the hill (GIHN 27 & 377) by Benjamin Outram to enable goods to be transshipped from Stoke Bruerne to Blisworth and *vice versa*. Such was the volume of traffic that it was dual track: excavations in 1969 on top of the hill revealed four rows of stone blocks showing that it was a twin-track plateway system, with a gauge estimated to be about 50 inches. The course of much of this tramway can still be identified on the eastern side of the canal.

By 1805, Blisworth tunnel was complete, measuring 2,815 metres long and wide enough for two narrow boats to pass. It had seven vertical shafts: five directly above the line of the tunnel and two offset, connected to the tunnel by adits. The tunnel was lined with bricks forming a horseshoe shape 5.5 metres high and 5 metres wide, with a saucer-shaped invert at the bottom of the arch. There

was no towpath, and in the early days boats were 'legged' through the tunnel, horses being led over the hill along the line of the earlier tramway (cf. GIHN 26). After 1871, steam tugs were used to haul boats through.

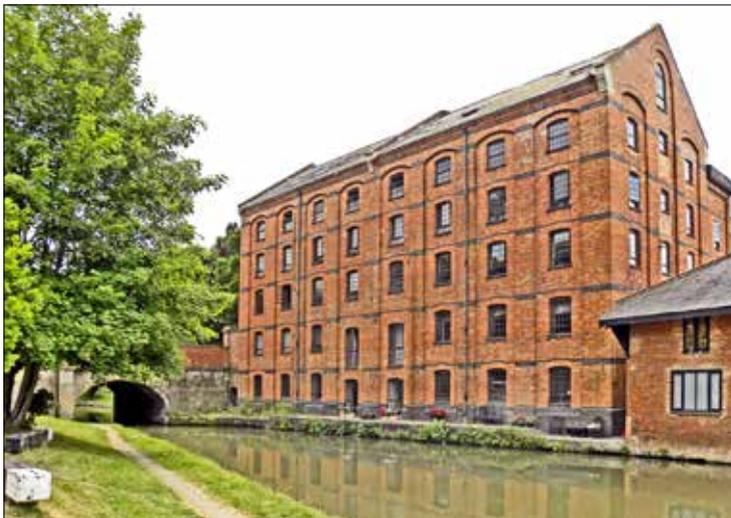
In 1980, the tunnel was found to be in a dangerous condition and was closed for repair. The central section, over a half mile long, was replaced by segmental concrete blocks: these are similar to those later used in the Channel Tunnel, and examples can be seen adjacent to both entrances. The tunnel reopened to traffic in 1984.

Boat trip

The journey through the tunnel takes about 20 minutes. In several places, water issues from culverts in the walls and there are large build-ups of calcite. The concrete segments can be seen in the centre part of the tunnel. In other parts, the original brickwork has different sizes of brick and styles of bonding, and there are many areas of repair.

Adjacent to the tunnel portals are buildings which may have originally been used as stabling for horses, but are more likely to have been stores for when tugs piloted boats through the tunnel. Here, examples are also displayed of the concrete segments used to reinforce

opposite, top:
The Boat Inn and
'Indian Chief'





left: Stoke Bruerne Canal Museum

right: Front elevation of a former warehouse



the central section of the tunnel in the 1980s.

In the 19th century, there were wharves in the cutting between the northern tunnel portal and the village of Blisworth for the transshipment of local minerals. One was the terminus of a tramway from Blisworth Stoneworks (GIHN 20), another the terminus of a tramway from an early (1852) ironstone quarry. No visible signs of these remain.

Adjacent to the overbridge carrying the Northampton to Towcester Turnpike over the canal is a steam-operated flour mill built for Joseph Westley & Sons, dating from 1879 (GIHN 21). It is a large brick-built structure of five storeys, with eight bays alongside the canal and eight across the northern gable ends. The steam engine was housed in the two-storey building across the three northern bays on the west side of the mill. This later became a bonded pepper and spice warehouse, before conversion to apartments in 1990.

Canal Museum (GIHN 378)

28 The museum is located on the eastern side of the canal in a three-storey,

stone-built, steam-operated corn mill dating from soon after 1845. It opened in 1963, and houses part of the Canal & River Trust's museum collection. Its galleries cover two floors, and include a re-creation of a boat-builder's workshop, displays of traditional clothing and boaters' painted crafts and belongings, historical signs, working models of historic boats, and models of the short-lived inclined lift at nearby Foxton and the Claverton Pumping Station. There are also films of life on the canals.

Stoke Bruerne locks (GIHN 380)

The canal passes through the centre of Stoke Bruerne. A flight of seven locks lowers the canal by 17m, from the level at which it runs through Blisworth Tunnel down to the level at which the River Tove crosses it, 1.2km south of the village. The locks on this flight are all 14 feet wide and capable of taking two narrowboats side by side. To speed up traffic, duplicate wide locks were added in 1835 on the eastern side of the existing locks. However, in 1851, the original locks at the top and bottom of the flight were used to make side

ponds, while the other duplicate locks were filled in. These side ponds went out of use in WWII but still remain. The bottom lock is the site of the southern end of the 1800 tramway where goods were transhipped between tramway wagons and canal boats. From 1963, the unused top (western) lock was used to house a boat-weighing apparatus originally from the Glamorganshire Canal; this was relocated to the National Waterfront Museum in Swansea in 2013.

Skewed road bridge (GIHN 379)

In the centre of Stoke Bruerne, the road bridge over the canal is made up of two skewed brick arches. The western arch is the original, the other being built when the duplicate lock was inserted in 1835.

WEEDON MILITARY DEPOT (GIHN 417): c. 2:00 – 5:00pm.

The Royal Ordnance Depot was built between 1804 and 1816 to provide the first inland store and distribution point for small arms, ordnance and other equipment. It was constructed at a time when the threat of a French invasion was strong – existing ordnance depots were all in the south-east of England, and thus vulnerable to invasion.

Weedon was chosen as the location because it was centrally located in the country, on the Old Stratford to Dunchurch Turnpike (the modern A5) and on the brand new Grand Junction Canal which linked London to Birmingham. The depot originally contained several areas:

- canal basin on the Grand Junction Canal with branch canal some ¾ mile long (still extant but branch canal truncated);
- walled compound containing eight large warehouses for storing small arms and other military equipment on either side of the branch canal, with gatehouses at either end (still extant);
- magazine compound for storing gunpowder in earth-filled blast houses (demolished c. 2000);
- military barracks to house a troop of horse artillery (demolished c. 1955);
- block of houses for the depot's principal officers (demolished 1970s)

Buildings were added to the main walled compound as the depot was adapted to changing requirements, but most of these have now been removed. The



Royal Army Ordnance Corps moved out of Weedon Depot in 1965, and following a period of use by the Ministry of Supply, the walled compound passed into private hands in the 1980s. Plans for its reuse included a shopping centre and a fire engine museum, but today, under

the name Royal Ordnance Depot, a private company offers the warehouses as industrial units to let.

top: View west from the East Lodge



The East Lodge



Rear elevation of a former warehouse

The site today

The ordnance canal basin still exists on the Grand Union Canal, now used by a boat hire company, but there is no longer a link to the branch canal through the main compound. The main walled compound has a gatehouse across the truncated branch canal, complete with portcullis. Inside the compound only the eight original two-storey warehouses remain, four on each side of the branch canal; those on the east side of the canal have an additional basement level exposed on the downhill

side away from the canal. At the far end of the main compound a second gatehouse remains, which separated the main compound from the magazine compound (now demolished).

Some of the buildings are let to retail businesses and are therefore open to the public, but the warehouses and other buildings are mostly let to private businesses or individuals, though it may still be possible to access some. Information about exactly which buildings are accessible will be provided on the day.

below: carriage from the 1941 Royal Train (see Tour H) © Philip Marsh



MILTON KEYNES: RAILWAYS AND THE ORIGINS OF MILTON KEYNES

Site conditions

The visit to Wolverton will be a guided walking tour. The precise route will be determined by site conditions at the time, but it will be on hard surfaces with no significant inclines.

The exhibits at Milton Keynes Museum are mostly indoors, but they are housed in several buildings across the site, connected by hard-surfaced paths. We will be free to explore the museum at our leisure.

Toilet facilities are available at the museum. Lunch will be at the museum's tea-room, from which refreshments can also be purchased later in the afternoon. The coach will leave Moulton at 9:00pm, returning about 5pm; the coach will also take you at 12:00pm from the Wolverton Works to the MK Museum.

**Wolverton Railway Works:
c. 10:00am – 12:00pm**

The Wolverton Works opened in 1838, at the midpoint of Robert Stephenson's 112 mile London and Birmingham Railway. Wolverton itself was an industrial 'New Town', constructed along with neighbouring New Bradwell to house the Works' employees. Initially a depot for the repair and maintenance of the L & B's locomotive stock, the Works went on to manufacture locomotives, latterly under the supervision of James

McConnell of LNWR. After McConnell's resignation, the Works lost locomotive manufacturing to Crewe. It retained its maintenance function, however, and grew to become the largest carriage works in the UK, employing 5,000 people, and has built and housed the Royal Train since 1869.

The Works continued to thrive beyond WWII until the early 1960s, when it was downgraded to a repair facility and its workforce halved in size. The reduced scale of works meant that parts of the

Wolverton Works from the air
© Philip Marsh



site were lost to a supermarket development in the later 20th century, as the carriage maintenance works consolidated its operations in the western end of the site. Further demolition is planned within the next few years, and our walking tour of the complex represents a last chance to see much of what still survives.

The tour, led by staff from Milton Keynes Council's Conservation & Archaeology Team, will focus initially on the award-winning part residential, part commercial conversion of buildings that formerly comprised the eastern and oldest extant part of the Works. These include the Grade II listed former Royal Train Shed (1889), Stephenson's Grade

II* former railway bridge over the Grand Union Canal (1834–5), and the Grade II triangular building of 1845 which originally contained the locomotive-erecting works, plus the later reading rooms. The tour will then move to the residential quarter of the town to examine its growth through the Victorian and Edwardian periods, focussing on the differing approaches to housing design and decoration, public buildings and institutions, and the challenges of managing Buckinghamshire's largest conservation area.

Exhibits relating to the Wolverton Works can also be viewed after lunch in the Milton Keynes Museum's Hall of Transport.



top left: Workers' housing, Wolverton and top right, Former Royal Train Shed before redevelopment
© Milton Keynes Council

left: Connected Earth gallery in Milton Keynes Museum; see over

MILTON KEYNES MUSEUM:
c.12:15 – 4:00pm

Housed in the Grade II listed Stacey Hill farm complex, which dates to the early 19th century and later, the museum began in 1973 as a collection of materials salvaged from farms and factories that were demolished during the construction of Milton Keynes. Originally run solely by volunteers and with very limited opening times, a fire in 1996 served as a catalyst to expand the museum, which reopened in 1998 with new exhibits and additional visitor facilities. Funding for a £7.3 million expansion has recently been approved, which will see two major new galleries: one will tell the story of the Milton Keynes area from prehistory through to the 1800s; the other will cover the city's creation and some of its biggest success stories, including Marshall Amplification, Red Bull Racing and The Open University.

The current displays cover the history of the Milton Keynes area from 1800 onwards, with an eclectic mixture of exhibits. These include printing presses, a working telephone exchange, an Anderson shelter and the world's largest

steam tramcar. Highlights include:

- exhibits relating to home entertainment and leisure during the Victorian and Edwardian periods, with a schoolroom and farmhouse kitchen, and a parade of period shops with original shop fronts and contents salvaged from the locality;
- examples of farm machinery through the ages;
- the Connected Earth gallery – a hands-on collection of the history of communications, with a wide variety of historic telephones and switchboards that are mostly in working order and explain the development of engineering and switching technologies;
- the Print Shop, which contains a range of fully functional mechanical printing presses;
- the Hall of Transport, which houses a range of items from the vicinity including the world's largest steam tramcar, which used to carry hundreds of workers from Stony Stratford to the Wolverton Works each day;
- a wartime garden, complete with Anderson shelter at the bottom.



*The Hall of Transport,
Milton Keynes
Museum*

WEDNESDAY 30TH AUGUST

TOUR **J**

NORTHAMPTON REVISITED: LIFTS AND SHOES
Site conditions

Drop-off points for both sites are directly outside. Both visits will consist of guided tours, though for the lift tower we will be split into two groups, with a talk on the history and functions of the tower occupying half the time. Church's Shoes has old staircases that will need to be navigated. Unsurprisingly, the lift tower has a lift to take us up to the top.

Limited toilet facilities are available at both venues, and they will also be available at the pub where we will have lunch. The coach will leave Moulton slightly later than usual in the morning, at 9:30pm, returning by about 4pm; the coach will also be available to transport people at lunchtime, though those who prefer to walk can do so, as the distance between the two venues via the pub is only c. 1km.

**National Lift Tower, St James, Northampton
(GIHN 312):
c. 10:00am – 12:00pm**

The Abbey Works was established in 1909 by Smith Major and Stevens, lift engineers, in St James, Northampton. It merged with the Express Lift Company in 1930 and was later acquired by the General Electric Company.

In 1983, the Express Lift Co built its lift-testing tower on the Abbey Works site. The tower is 127m (418 feet) high and a landmark in the Northamptonshire countryside, nicknamed the 'Northampton Lighthouse' by Terry Wogan. It was designed by Northampton architect Maurice Walton of architects Stimpson & Walton and constructed by Tileman & Co of London.

Standing on a reinforced concrete raft some 24m in diameter and 3m thick, the tower is 14.6m in diameter at the base, tapering to 8.5m at the top. The structure above ground level weighs 4,000 tonnes. Constructed using a revolutionary continuous slip-casting process, the tower grew at a rate of 7.2m every 24 hours and took 3 weeks to form the shell. Circular in cross-section, the top is pierced to reduce wind resistance. Inside are six lift shafts of varying heights and speeds, one of which is a high-speed shaft with a travel of 100m and a theoretical maximum speed of 10m/s.

The tower had a short working life under Express Lifts,



Northampton Lift Tower, from the Station

who were taken over by OTIS in 1996. The Abbey Works closed and the site was demolished in 1999, except for the lift tower, which had been given a Grade II listing in October 1997. The site was sold to Wilcon Homes for development.

After an uncertain period during which an application to demolish the lift tower was made but rejected, it is now

Church's Shoes, St James Road, Northampton (GIHN 310-311): c. 1:30 – 3:45pm

In 1873, brothers Alfred and William Church set up a small boot & shoe manufacturing unit at 30 Maple Street in Northampton (now demolished). In 1874 they added a larger building in nearby Duke Street (in part of what is now the Boot & Shoe Quarter). At this time, only the 'clicking' (cutting out the upper leather pieces by hand) and 'closing' (stitching the upper leather pieces together using a sewing machine) were carried out on the premises, with the other shoemaking operations carried out in the workers' own houses.

By 1893, all manufacturing operations were being undertaken 'in-house' with

privately owned and has been renovated, renamed the National Lift Tower, and, since 2010, has once again been used to test lifts. As well as being a resource for the lift industry, the building is also available to companies requiring tall vertical spaces, for example those wishing to test working-at-height safety devices.

the aid of machinery, and a large 6-storey factory was constructed in Duke Street. Even so, additional space was needed as production increased over the next 50 years: Church's took over adjacent factories and in some cases terraced housing, as well as factories in other parts of Northampton. Church's moved to the present factory in St James in 1957, and despite the decline of UK shoe manufacturing during the second half of the 20th century, Church's sustained production, currently producing 4,000 pairs of high quality men's Goodyear welted shoes per week and employing some 350 people on the premises. The Church family remained in control until 1999, when the company was acquired by the Italian Prada Group.

Church's Shoes offices, with the factory behind



'Clicking' - leather vamp cut from hide using a clicking knife and brass-bound fireboard pattern

© Church's Shoes

The current factory was constructed just before 1900 and occupied by shoe manufacturer Arthur Stanton & Co. Padmore and Barnes took it over in about 1901, remaining until the 1950s; they produced footwear using a moccasin construction, and their emblem in the form of a Native American can be seen above the main entrance on St James Road.

Today's production process is based on the traditional hand-crafted method of shoemaking, but using a range of machinery that reproduces these hand operations. It involves stitching a leather welt to a lasted shoe upper (a leather upper that has been pulled over a plastic last and tacked to an insole). A leather sole is then stitched to the welt, thus securing it to the shoe bottom. There are more than 250 individual operations that go into manufacturing a welted shoe, most of which were mechanised by the late 19th century.

On our tour of the factory, we will see all aspects of the production process for a Goodyear welted shoe, including:

- Leather room – selecting leather for shoe uppers;
- Clicking – cutting out leather uppers using cutting press or by hand;

- Bottom stock – cutting and preparing leather soles and heels;
- Closing – stitching upper parts together using stitching machines;
- Lasting – pulling the upper over the last or former and stitching it to insole and welt;
- Bottoming or making – preparing the shoe bottom and stitching the leather sole to the welt;
- Finishing – various finishing operation including smoothing and colouring sole edges;
- Shoe Room – cleaning, examining, boxing etc.

Most of the operations have been mechanised, and Church's use a mixture of modern and older machinery. The Victorian founders of the factory would recognise most of the operations that go into producing a shoe today, and some of the machinery operates in exactly the same way as it did in the 1890s.

Church's Shoes recently acquired a former tram/bus depot adjacent to their factory which they plan to adapt to increase shoe production. Built as the Northampton Corporation Tramway Depot in 1904, the building has been expanded on a number of occasions and was used as a bus depot until closure in 2014, with tram tracks still in the floor of the original part of the building. Work is expected to be underway shortly to transform the building into a 21st-century footwear production unit. We may be able to visit the former depot as part of our tour, but it is dependent on progress with the conversion at the time. In any case, photos of the former depot along with a display of the plans for expansion will be available.



clockwise from top left: Milton Keynes Museum; Leighton Buzzard Light Railway; Rushden Transport Museum; Shuttleworth Collection; Shuttleworth Collection; Milton Keynes Museum.