Issue 49: October 2016

# Newsletter

*Winter on the Lickey Bank by John Mason*

## WORCESTERSHIRE INDUSTRIAL ARCHAEOLOGY & LOCAL HISTORY SOCIETY

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## NOTICES

**DATE CHANGES** - Please note that the dates for the October and November talks have changed from those printed in the previous Newsletter, to:

- **14th OCTOBER**
- **18th NOVEMBER**

**AUTUMN DINNER** will be held at the Worcester Golf and Country Club, Boughton Park, Bransford Road, Worcester WR2 4EZ, 6:30 for 7pm. The three course meal with tea/coffee and mints afterwards will cost £17. Please contact Christine 01905 354679

# MEMBERSHIP NEWS

We extend a warm welcome to the following new members -

Janet Bishop
Janet Clifford
Mike and Sheila Crumpton
Rosemarie Evison
Noel Phillimore
Mo Trow
Keith Williams
Jeffrey Worth

It is with great sadness that we have to tell you that four members of our society sadly passed away. three in April.

Max Sinclair was a founder member of WIA&LHS and was very pleased to become one of our patrons. An obituary is included in this newsletter.

Wilf RIdgewell had served on the committee in his more active years.

Mike Niccolls, together with his wife Linda, was a regular attendee at both winter meeting and summer visits.

Former member Jim Taylor, who had also served on the committee, passed away in July.

We send our sincere condolences to their families and friends.

*Sue McCurdy*

# CREDITS

Thank you to Michael McCurdy and Roger Tapping for chasing and selecting content for this newsletter, and John Mason for permission to reproduce his painting on the cover

# WINTER PROGRAMME DATES 2016/17

**16 SEPTEMBER 2016 - JOHN MASON**
Jet Flight part 2, from 1945 onwards. John is a long time member and artist who illustrated our journal for many years.

**14th OCTOBER 2016 - PAMELA HURLE**
Stanbrook Abbey.
Mrs Hurle is a local historian and has spoken to us previously on Malvern Women of Note and Stephen Ballard of Colwall.

**18th NOVEMBER 2016 – JO ROCHE**
Abberley Hall and clock-tower.
Jo led a summer visit to the school and clock-tower in 2014.

**9th DECEMBER 2016 – MIKE JACKSON**
Wizard Prangs - the Ups and Downs of Military Flying in World War II.
Mike is a member of our society; a former BBC and ITV programme maker and author of the motorway sites guide.
Mulled wine, mince pies and stollen will be served on that evening.

**6th JANUARY 2017 – PETER GOGGS**
Worcester Trams and Liberalism.
The title is rather enigmatic, but you will be interested.

**17th FEBRUARY 2017 – MALCOLM ATKIN**
The Home Guard in World War I.
Malcolm is a military historian and you may remember him as the County Archaeology Officer, until his retirement in 2009.

**17th MARCH 2017 – AGM**
Followed by a talk given by Caragh Merrick on her visit to the 100th anniversary of the Battle of the Somme.

**28th APRIL 2017 – NEIL WEDGBURY**
Underground Austin.
A surprising lecture on what went on under the Austin works in World War II.

**All meetings are held in the lecture theatre, RGS Worcester and will start at 7.30pm. Any queries please telephone Christine Silvester on 01905 354679**

# ROBERT MAXWELL SINCLAIR (1930-2016)

**A tribute to Max who died on 18th April 2016**

'Max' was born in July 1930, the family living on Ombersley Road, Worcester and at the outbreak of WW2, was at the age to be a very inquisitive little boy. He had an enormous local playground to enjoy at this time and recalled adventures at the Perdiswell Airfield and, significantly for later years, the alterations to the canal bridge at Hawford. It was here that he used to watch the Italian Prisoners of War reinforcing the bridge so that the road from the north could carry heavy lorries engaged in the war effort.

Max was educated at Worcester Royal Grammar School, and after serving his National Service in the Royal Engineers, he worked in the engineering industry.

In the 1950s Max was invited to a meeting of the Worcester Society of Model Engineers, who were building a new model railway track at Diglis with steam locomotives and it was while he was with them that he was invited to help with the restoration of the Ffestiniog Railway in Wales. He was developing a passion to do what he could to save redundant narrow gauge steam engines. It offended him to see something beautiful smashed up. In total he restored 13 narrow gauge engines, the first one coming from a hop farm at Leigh Sinton. From this point it was only a short step away to saving abandoned narrow

Max Sinclair *(Telegraph)*

gauge railways.

Meantime he was holding down a job a Sales Director at Rubery Owen, Had married Jocelyn, the daughter of Joseph Southall, the Managing Director of the engineering firm, Hardy and Padmore and raised a family of six children and to finish off, built a new family home at Broadheath.

Max was a man who liked challenges, however his were very large ones.

A friend had suggested that the family should try a boating holiday. So, despite him travelling all over the world on business, the family purchased an old general trade narrowboat called Vesta which they renovated and converted for holiday use. This of course prompted a new love, which was to maintain and restore the nation's canal network.

In the early 1960s along with the notorious David Hutchings, who later restored the Stratford Canals and the River Avon, they were working on the Stourbridge Canal when he had the first of several brushes with "Authority" and an official, who was there to tell them to stop work, became accidently covered in mud.

Meantime, when his company in the Black Country folded, Max took up the challenge of running the fledgling Black Country Museum at Dudley and after that running the windmill at Avoncroft Museum, a task he undertook for 15 years.

In 1970 he attended night school classes with the founder of our society, Bill Gwilliam, and, together with a few others formally formed the Society in 1971. He served on our Committee in the early years and later, along with Henry Sandon, was invited to become a Patron of the Society.

During his time with David Hutchings he had become very interested in saving the Droitwich Barge and Junction canals, which were on his doorstep, perhaps with recollections of his boyhood days, and in 1973 after a public meeting supporting the restoration he became a founder member and President of The Droitwich Canals Trust. It took him more than 40 years to achieve his goal, the restoration of the two canals, overcoming obstacles both physical and bureaucratic. Most of the early work was done by volunteers and on one weekend a thousand volunteers turned up. Max spent many hours at the National Waterways Museum in Gloucester, researching the history of the Droitwich Canals and James Brindley, the engineer responsible for the construction of the canal. He became the 'go to' authority on all navigable waterways in this area.

In 2004, the Heritage Lottery Fund awarded £4.6 million to a consortium, which included the Droitwich Canal Trust to push for full restoration. Max remembered that summer's day in 2011 when his dream came true and the two canals were finally declared open.

Those years of dedication won him an Angel award from English Heritage in 2012, recognition for those who have striven to protect their local landmarks from ruin. In 2013 he was awarded "The Lifetime Achievement Award" from the Transport Trust, for his work on the preservation of narrow gauge engines and railways. The award being

presented by Prince Michael of Kent.

Max's health had now deteriorated and mobility was difficult but his mind was still very active. Through the medium of modern communications he became involved in a web site called Worcester Vista. Have a look at this site and you will see many more articles and photographs about Max's many activities. This was a man with an enormous drive and enthusiasm who refused to be beaten. We were fortunate to know him.

*Roger Tapping*

## FRANK BROWN

Earlier this year another stalwart figure from the early days of our Society sadly passed away having made the grand age of 90+.

Frank joined the Society in 1975 and perhaps due to the nature of his work, was swiftly elected to the position of Treasurer. Frank had worked for the H M Customs and Excise for many years, latterly dealing with VAT.

I recall that his early records were meticulously hand-written on sheets of foolscap paper and the individual receipts and payment slips were actually kept in a shoe box! He diarised everything, nothing was thrown away. He gave me a full set of his vehicle licence disks to display in the AA Office at Avoncroft.

Frank kept a record of early speakers and visits dating back to 1972 when the Society was founded. He loved to go out on visits when he was no longer able to drive and this was a great pleasure for him especially when he was able to join Mike Wall who researched the history of churches all over the country.

Frank was a very likeable man and although his visits to Society meetings dwindled with advancing years he remained a very solid member.

We will miss him.

*Roger Tapping*

## COMMITTEE MOVES

Hugh Field was elected Chairman at the AGM, swapping roles with John Beale who is now Vice Chairman, having completed his maximum 3 year term. We say thanks to Peter Wheatley who has stepped down from the committee after years of dedication.

All other roles stay as they were, as detailed on the back page.

# 47th REGIONAL IA CONFERENCE FOR SOUTH WALES & WEST OF ENGLAND

**April 16th 2016**

The Conference this year was held at a very good venue, Rednock School in Dursley, just a short ride down the M5 for our Society members.

Parking was excellent and registration went without a hitch as we entered this very impressive building, for a well-received drink of coffee.

The format that the Gloucestershire Industrial Archaeology Society (GIAS) had opted for reverted to previous conferences, whereby a representative of several societies gave a talk on their particular local subject of interest, three to complete the morning session and a further three for the afternoon. Following the talks there was an opportunity to go on one of the visits arranged to a place of local interest.

1. The restoration of the Cotswold canals – Ken Burgin (Cotswold Canal Trust)

As you might expect I was very interested to hear how this major project was progressing and we had a very full and detailed talk with slides about the restoration in the Stroud and Brinscombe areas. There have been many problems on

2016 Regional Conference, Dursley

the way but in general terms the work has gone well and several lengths are now in water. The next phase is the vital one, between Stroud and Saul which will include tunnels under both the A38 and M5. The result of a bid made for lottery funding is expected shortly.

2. Cast Iron lamp Posts in Clifton – Maggie Shapland (BIAS)

Maggie gave a lovely talk on how her battle with Bristol City Council, who wanted to replace the traditional cast-iron lamp-posts in the suburb of Clifton with modern designs, became an obsession and a crusade. She illustrated the many different styles that existed, manufacture details and a few accidents that happened. Her efforts have resulted now in a good relationship with the City Council's lighting department.

3. Watkins George and the Pontypool Aqueduct – Malcolm Johnson and Lionel Milsom (OHIHS)

This combined talk told the story about a notable engineer, Watkin George and his works in South Wales in the latter part of the 18thC. In particular his contribution to the development of early iron bridges and the discovery of a possible aqueduct across the Afon Llwyd river at Pontypool.

4. Scout Motors of Salisbury – Jim Watkinson (SWIAS)

Jim gave the story relating to his recently written a book about the small Salisbury firm, Scout Motors, which was founded in 1902. They built cars and commercial vehicles from about 1909 to 1921. It is believed that only two of the vehicles survive to this day, one of which can be seen at the Salisbury and South Wiltshire Museum.

5. Listers of Dursley – David Evans and Frank Colls (GIAS)

Another 'double header' detailing the history and development of a small engineering company, founded in 1867, which developed into one of the UKs major producers of small diesel engines. The factory closed in May 2014, very suddenly and members of GSIA rescued many valuable archive documents from the skip. The talk focussed on the history and development of the products (they were the equivalent now of JCB) and the second part dealt with the applications of the products and the ongoing work the Society are doing in conjunction with Gloucestershire Archives.

A nostalgic talk for me as I went there in the 1970s on a diesel engine maintenance course.

6. West Country Stone Quarries – Dr Peter Stanier (DIAS)

The speaker compared the working practices at a number of stone quarries in the West Country, as recorded by a late Victorian geologist and compared those findings with activities at many of the same quarries today. The subject of the talk has been recorded in the speaker's new book 'South West Stone Quarries'.

**Visits**

At the end of a very well received conference we teamed up to head off to our chosen visit, in our case the Sharpness Old Dock (1927). This proved to be a very interesting trip where we went initially to the old dock, which is at the end of the Sharpness Canal. A truly fascinating site and one which I am sure we can include on a WIA&LHS visit some time.

From here as we were all keen to go further we went a short distance downstream to the new docks where we could get very close to the mighty River Severn to see how the modern vessels enter the docks. Our guide was Ray Wilson whose knowledge of the area is immense.

*Roger Tapping*

# WINTER PROGRAMME 2015/16

Following the AGM on 11th March, we heard a fascinating talk on Stourbridge Glass by Charles Hajdamach. Then on 15th April Mr. Julian Hunt delivered an execellent talk on 'William Shenstone, the Leasowes and Hagley Park'. William Shenstone was an essayist, poet and gardener and designed the Leasowes at Halesowen and Hagley Park.

It would be very helpful if, at each future meeting, a member volunteers to write a short summary for the next newsletter. This will benefit of members who are not able to attend, and give us a formal record of the Society's activities.

Thanks are due, once again to Christine Silvester for yet another wonderful programme, and the RGS Worcester for hosting us.

By the time you read this newsletter, John Mason will have delivered the second of his talks on the history of jet flight. Part one was given in February 2016. John has written an article covering the material from both talks, this appears later in this newsletter

*John Beale*

# SUMMER PROGRAMME 2016 REPORTS

### Spring Dinner—Friday 6th May

Worcester Golf & Country Club

This event has become so popular that several members were disappointed and so we are now running a repeat event this Autumn—maybe this will become a regular feature. Once again the Golf Club was a stunning venue and the food was excellent. The otherwise happy event was tinged with sadness with the news of the death of our President Max Sinclair, and active long standing members Wilf Ridgewell and Mike Niccolls. Roger Tapping and our Patron Henry Sandon, made speeches to remember and pay tribute to them. Thanks are due to Christine Silvester for the superb organisation. *John Beale*

### The Thames, Kemble to Oxford

Friday 20th May

A popular guide, who had led previous coach rambles for our society, Brian Draper once again held court to take us along the Thames from its supposed source near Kemble to Oxford. As is his custom, he regaled us with numerous amusing anecdotes.

Cotswold Airport, originally known as RAF Kemble was our first stop, for coffee and cake. This was the closest practical stop for refreshments, to the spring which is widely held to be the source of the Thames. Most of our party were glad to get into the large, pleasant coffee shop. Others braved the biting wind, which whipped across the airfield, to view the aircraft on show.

There is a nearer watering hole, The Thames Head, but sadly it did not open early enough to be a viable option. That would have offered a walk of about half a mile, to the spot which claims to be the source. But as Brian pointed, out much of the beginning of the route the river takes is actually dry for much of the year. So there would have been nothing to see, other than a stone monument placed by the Thames conservators to mark the source of the river and a nearby basin of stones to mark the actual spring.

An information board outside the pub, give "evidence" of the claim and a photo of the statue of Old Father Thames, now removed to a less isolated spot to lessen the chance of vandalism.

We continued our drive with Brian pointing out the routes to other places which lay claim to be the true source, notably Seven Springs near Cheltenham. This is actually the source of the river Churn, a tributary of the Thames.

Our route took us through the Cotswold Water Park, with over 140 lakes, formed from spent gravel pits. Water sports, fishing and wildlife provide popular recreation activities. The park covers an area of more than 40 square miles, so it was some time before we reached the Saxon town of Cricklade the next place where the Thames could actually be seen. A friend of ours grew up in the town, her house was regularly flooded when the very small stream

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**The monument at the official source of the Thames**

***(Richard75 at English Wikipedia*** CC-BY-SA-3.0 ***)***

burst its banks.

From Cricklade we headed for Lechlade, via St John's Lock, the furthest upstream lock on the river. Outside the lock house stands the aforementioned statue of Old Father Thames.

On to the town of Abingdon, 6 miles from Oxford, and a welcome chance to stretch our legs and find some lunch. Known as Abingdon-on-Thames, it sits in a flat valley on the West Bank of the river which here is joined by the small river Ock, originating in the Vale of White Horse.

After lunch we headed for Oxford and a quick spin round the city centre, taking in as many of the colleges as we could see from the coach. The Thames here is known as the Isis, but they are one and the same.

Then back home through the Cotswolds.

*Michael and Sue McCurdy*

### Abberley Hall and clock tower

1st June 2016

Blazing June it was as we huddled outside the front entrance dressed in our thickest, warmest cagoules, hats and gloves.

Jo was our guide for this Italianate style

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hall and began by giving us a brief overview in the more pleasant surroundings of the reception hall.

The site once housed a medieval manor dating back to the time of William the Conqueror.

The poet William Walsh owned the property in the seventeenth century and was a friend of Dryden and Pope.

As is usual with large properties hard times resulted in the Hall being sold and changes were made according to fashion and fortune.

The present building was commissioned in 1837 by the Birmingham banker James Moilliet. The architect Samuel Whitfield Daukes was given the task of creating an Italianate style building.

In the nineteenth century John Joseph Jones inherited the estate and left his mark everywhere. At this time the tower was also reduced in size as a result of a fire.

Jo has great enthusiasm for conserving and restoring this building and is keen that its history is kept alive. The ground floor rooms have been given most attention and remain as they were decorated in the style of 1916 when it became a school. The ceilings were particularly attractive with gold decoration.

The splendid drawing room reflects gracious living and blends with its present day use.

The rich wood and books of the library give this room a very lush warm feeling. Now used as the headmaster's study, we are grateful to him for allowing us to troop through it and peer at the shelves trying to spot any books we may have in common.

There are two refectory rooms and students' progress from dining in one to the other. The incongruity of modern day dining equipment jars with the Victorian and Edwardian interiors. But nonetheless the original features remain intact.

At the foot of the staircase is a heated drying or warming cupboard. A much favoured spot on such a cold day, however, it's a bit of a conundrum. Jo says there are no pipes and no visible source of power for the heating. Do any of our engineers have an explanation? Jo would love to hear from you.

For those interested in art and particularly portraits there are numerous examples on the staircase.

The double aspect bedroom was thought to give a cold atmosphere although I would have been pleased to have it. In order to accommodate the bed a window was filled in which can be

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observed from the outside.

Bracing ourselves we set off to the clock tower. The wind rushing through the trees made quite an eerie sound. Not only is it a clock tower it could be said that when it was built it was also a very tall jukebox.

James Piers St Aubyn was responsible for the building and is claimed to be visible from six counties. The carillon offered 42 tunes, unfortunately the 21 bells were sold off in 1939 and now only the quarters and hours strike.

Maybe it was just my perception but like the Tardis it appeared larger on the inside than out. Everyone was game to

climb the 166 stairs to the top which was easily done as each floor provided a resting stage.

I have no great talents, sporting prowess or great academic achievements. I rather think I was meant to sit and stitch a fine seam and here I found my rightful place. A stone fireplace, beautiful stained glass windows, en suite facilities and a magnificent view. Only the coffee machine was missing.

Now, I have a nick name for WIA & LHS and it's the Oily Rag Club. I particularly look out for one and here I wasn't disappointed. Not one but two oily rags tucked into the clock mechanism. It was built by JB Joyce of Whitchurch who maintain it still.

We weren't prepared for the onslaught of the wind as we stepped out onto the parapet and I'm sure hats and scarves were whipped away to the Clent hills. The views are tremendous and on a bright day the contrasts between hills and valleys must be outstanding.

It is said the tower is the setting for the children's book The clock tower ghost by Gene Kemp.

Being so cold we rapidly made our way to the cars and headed for the Witley Court Tearooms. Never has a 4X4 been on my wish list apart from this one occasion. A mile of unmade road was akin to driving on a dry river bed.

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However the tea and cake were excellent and well worth it.

*Abberley Hall and Tower are both grade II* listed buildings.

Tip; arrive in good time to allow a good period to look around the landscaped gardens.

Jo Roche will be a speaker at a winter meeting.

*Eileen Porteous*

**Salwarpe Walkabout**

Friday 17th June 2016

After a few late cancellations we gathered a group of about 37 members and friends to take part in this gentle stroll around the hamlet of Salwarpe, located on the Droitwich Barge Canal and just south of Droitwich.

We met at the village hall which has a good carpark and toilet facilities and divided into two groups to be led by myself and Mike H, but before the walk proper we all went into the adjacent church of St Michael's where Lorna Cameron was to give us a guided visit.

The church is of Norman origin and was enlarged in the 14thC and further modernised in the 19thC. Of particular interest are some floor tiles which show the family crests of the Beauchamp, Swynford and D'Abitot families. The present tower replaced the earlier Norman one and dates from the 14th/15th C. Following Lorna's excellent description of the church our two groups headed off in opposite directions.

Our first port of call was found by walk-

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ing the canal towpath east for about 800 metres to the 'Brindley Spill Weir'. This was built at the construction of the canal in 1767 to provide flood relief to the canal and to ensure that any surplus water was directed into the River Salwarpe for use by the adjacent Salwarpe Mill. The weir is unusual in that it is roughly 45m long and has some early stonework in the retaining walls.

We now walked back towards Salwarpe, pausing by a disused swing bridge. This bridge would have allowed direct access between the adjacent Salwarpe Court and the mill. It is rumoured that these bridges were some of the first to use roller bearings.

A swift about turn directed us the newly planted Coney Meadow Reed Bed, which was constructed in 2008 and planted with some 100,000 reeds as a condition of the planning approval for the restoration of the canal. A large section of this reed bed was destroyed by fire in late 2015, the fire believed to be an act of vandalism.

Walking west now towards the River Severn we passed Salwarpe Court, not easily visible at this time of the year but it is a Tudor framed manor house dating from 12th C. It was the birthplace of Richard Beauchamp, 13th Earl of Warwick and was given as a gift to Catherine of Aragon on her marriage to Prince Arthur. The Court was later the family seat of Sir John Talbot, and his family who were keen supporters of Charles 1st and 2nd. The Court had three large barns associated with it but these are now converted to private dwellings.

We continued along the towpath passing in the cutting and under the very large road bridge until we came to a footpath leading off to the right. From there we followed Mill Lane and crossed a bridge over the R Salwarpe before entering a field with a footpath leading to the woods. A short way into the woods we followed the R Salwarpe until a footbridge was encountered and at this spot the remains of the mill were just visible. Due to recent heavy rain the river was murky and meant that the remains in the river bed could not be seen.

The final leg of our walk meant that we had to climb the 48 steps up from the mill back to the churchyard and so back to our cars. It was then a very short

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drive to Churchfield's tea shop for a welcome cuppa and a superb ice cream.

My thanks go to Mike H for his help, Lorna for her guided tour of the Church and Nikki from the Hall Committee who opened up for our visit and of course all our walkers.

*Roger Tapping*

### Hard Hat Tour of Croome Court

Wednesday 29th June 2016

Another English summer afternoon. As we walked down the track in the driving rain I was sorely tempted to give up and return to the warmth of the Nissen hut café we had just left. But we persevered and were grateful for towels provided to dry us off as we entered the ground floor of Croome Court.

Our guide took us to the first floor, (*which at the time was*) not usually open to visitors. There are many rooms, presumable bedrooms, all empty. Some rooms well proportioned with appropriate windows. Other rooms seemingly squeezed in between floors with low ceilings. Some large rooms had sills below floor level! We soon learned that for this 'Capability' Brown designed house the external look of the thing was most important. The interior, said to have been designed by Robert Adam, had to conform to the exterior look and so we find some floors bisecting window frames, window sills at floor level and false ceilings.

Almost all the Adam decorative features have gone. I'd heard that some 'Croome' furniture is stored at Kelmarsh House in Northamptonshire. Maybe some of this is bedroom furniture which might enhance these very bare rooms.

At the top of stairway is a very large painting of a race horse and trainer previously hung in the saloon. Another large room houses an enormous bath installed about 20 years ago, unfortunately without an overflow facility! – so, of course, the bath overfilled and the overflow caused a great deal of damage. Also at the top level is a skylight below which we shuffled around a railed walkway to further empty rooms.

The second half of the tour took us to the Red wing, built also in the 1750's by Brown. Here we had to don natty yellow hard hats. The Red wing seems to have been deliberately neglected by a previous owner resulting in severe damage to the roof, walls and entire interior. The roof and walls have now been made safe. Here were housed the kitchens, offices and servants quarters. To the casual visitor it looks a complete mess. But it can been seen that it was in no way a skimped building – all the rooms are spacious with high ceilings

We ended our visit in the basement café and once outside – wonderful, the rain had stopped and we trudged back up the hill to the car park.

*Owen Porteous*

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**Abberley Village Walkabout**

Tuesday 12th July 2016

Between showers our guides, Katherine and Sue, began our tour from The Manor Arms pub, where members enjoyed a coffee or tea to get everyone in the mood for the short Geological expedition around the village. Different building stones were pointed out with their suitability for long term existence. Probably the worst material being used was the Silurian mudstone, due to its porosity and subject to frost damage. The local sandstone also had poor weathering qualities.

We visited the remains of St Michaels, the medieval church of Abberley, which has foundations believed to date back to the Anglo Saxon period. This building is constructed largely of the local sandstone, which like Silurian mudstone has the same poor weathering record, this resulted resulting in the gradual decline of the buildings structure. Interestingly, the height of the surrounding burial ground (due to the burials) was raised well above the original ground level causing creating the appearance of the church having sunk. By the 19th century the old church was in a state of total disrepair, resulting in the new church, St Michaels being constructed in 1856. Unfortunately, the same local sandstone was used and the depreciation since its construction can be seen.

Our visit to St Michaels was interesting in that we had an informative talk on the different types of stone used in the decoration within the structure. A short distance away from the church lay the remains of the quarry, where most of the stone, used in the construction of these churches, was obtained. Within the burial ground, tombs constructed from a selection of materials were discussed. The increasing wealth of the sur-

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rounding area was reflected by the increasing use of the more expensive monumental stone being used. It is interesting to note the size of this church which suggests that, at the time of construction, a much larger population resided within the parish. Our walk around the village raised the possibility for a further visit. Why did such a village prosper and what other interesting items lie hidden?

Abberley sits on the edge of the Wyre Forest coalfield: Mining has been carried out since the medieval period from fairly shallow workings, where coal reached the surface. Quarrying of the local sandstone was an economic factor although its quality (already discussed) was, in some cases at best, dubious. Aymestry limestone was quarried at the southern side of Abberley as the great scar on Abberley hill testifies. An interesting publication by Mr. Nils Wilkes (Wilkes; www.geo-village.eu) explores the subject of Lime Kilns in the area; the production of lime as a fertilizer and building material was an extremely valuable resource. Link this with local coal deposits and you begin to see a different aspect of Abberley and its surrounding area, particularly from population and mineral wealth. It is also interesting to note that in the 1950's there was a move afoot to explore the possibility of Open Cast mining for coal around Abberley, but this did not materialise.

The expedition ended as we had begun in the Manor Arms pub. Our thanks goes to our guide who gave such a good short insight to Abberley and perhaps wetted our appetite to explore the area further in the future, particularly around Abberley Hill.

*Steve Southwick*

**Stroud Mills Visit**

Saturday 23 July 2016

The Stroud valleys had been a huge woollen cloth producing area in the C18th and C19th. This was due to the Cotswold Sheep with their excellent fleece and an abundance of water power from the steep sided valleys streams and rivers. The introduction of the canals and later the railways augmented these natural resources. We headed up the Chalford valley to our first mill to meet our guide and host for the day, Ian Mackintosh, of the Stroudwater Textile Trust.

**St. Mary's Mill.**

We walked down across one of the very few manned level crossings on the railway, then over the canal to the mill. The mill site is one of the oldest in the area going back to medieval times. On our left was the impressive Owners House and to our right an L shape made from two large Mill buildings. The first was the older and smaller mill alongside the canal with a tall boiler chimney at the end next to a small half demolished building. This had housed the boiler for the steam engine in the new bigger mill. In front of this was a small hollow in the ground where the water leat could be seen flowing in under the building. The new mill built in 1820 was four storeys

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high with the museum on the ground floor, the upper floors of which are now used by new businesses.

Entering the mill we saw the large 1844 Breast-shot waterwheel with its gearing & shafts for getting the power to the upper floors. Alongside this in the floor was a trapdoor where we could see the rushing water from the leat. In the next room was the restored Tangye Steam engine which is today run by electricity as the boiler to provide the steam no longer exists. There was also a fulling machine built by James Ferrabee at his Phoenix Foundry in Stroud.

When the market for the woolen material collapsed this mill began to make wooden walking sticks and several holes were knocked in the walls for cables from the Tangye engine to power saws and other equipment in the mill yard. It was explained that the yard had been much smaller and lower before the steam engine arrived, with part of the yard being the mill pond for storing water for the mill. The ashes from the fires under the boiler were just thrown out into the yard and had gradually built up and filled in the mill pond. We were asked to look closely at the earlier mill building as we left as what appeared to a be a three story building was in fact four, with the tops of windows and a door just visible above the yard surface. Ian Mackintosh had pictures of the mill site from about 1830 showing the surrounding hillsides covered in small fields

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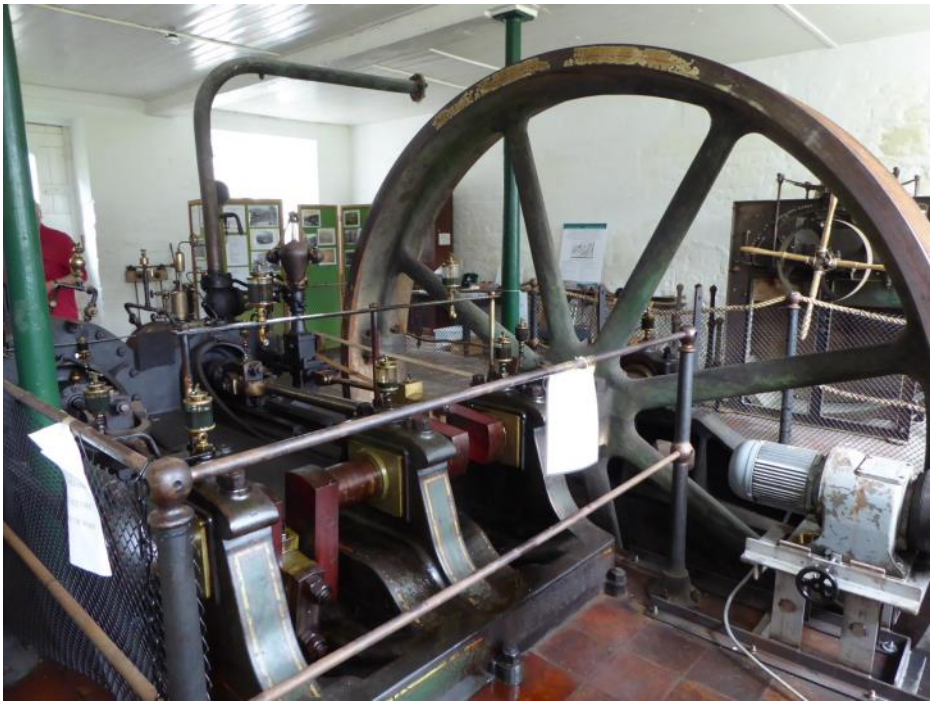
St Mary's Mill



with rows of tenter frames for drying the material. Today the hills are covered in trees with the occasional house.

Making our way back up to the level crossing we had to wait for an HST to come through, which turned out to be an unusual liveried train. The first power car was one of the GWR 'Poppy' ones and the last was in the brand new Green GWR livery.

As the coach took us back down the valley and out to Nailsworth for lunch, Ian pointed out some of the remaining mill buildings. Some derelict but others had re-invented themselves, like the one which produced the first Bakelite made from Irish Milk. Today they range from the production of black plastic bags or artificial snow to modern High Tec measuring devices. In Stroud we passed the site of what had been Thrupp Mill until 1828 when it was converted into the Phoenix Ironworks by John Ferrabee. He made water wheels, cloth making machines, agricultural machinery and Steam engines. By 1855 his son James was running the works and had invented a card feed in 1858 and the fulling machine. The foundry also made the first lawn mower and adjustable spanner.

We passed the Red Mill where cloth was dyed using Cochineal to produce the famous Stroud Scarlet used for Ar-

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my uniforms and Royalty. The firm however moved from there in 1960. Woad & Indigo was used for the blue uniforms of the Navy. Ebley Mill was converted to house Stroud District Council and the Egypt Mill at Nailsworth became an Hotel & Restaurant.

After lunch the group split with one half heading off on the coach to Gigg Mill, while the others walked along the Cycle Trail to the Dunkirk Mill Centre. The walkers started near the Egypt Mill Hotel, passed the Railway Hotel and the remaining Passenger Station Building of the Ex Midland Railway Line which had terminated at a large goods yard in front of the Egypt Mill, now the hotel's car park. The walk was very pleasant as it was straight, flat and under the trees which had all grown since the railway finished. To our left was the leat for the Dunkirk Mill and beyond that could be seen the large mill pond. Arriving beside the Mill we had to follow the steps down under the old railway tunnel to reach it.

*Organiser's Note: There were a number of us who sought out Egypt Mill, less grandiose than these, but nonetheless having a splendid and sensitive restoration (and conversion to a hotel and restaurant) its car park being the former station yard and the Station Hotel building at the opposite end of the millpond.*

Egypt Mill

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**Dunkirk Mill**

This was a made up of several large 5 storey buildings now all converted into flats, apart from the small museum on the ground floor. The local Cotswold wool was carded, spun and then woven into Broad cloth in the local cottages. Broad Cloth was 10 feet wide by 20 yards long. It was then taken to the mill for finishing by fulling and shearing the nap. The 1798 mill had several owners each installing bigger water wheels, steam engines and dye houses. Peter Playne in 1827 added a new block where he brought in the local hand weavers but by 1839 he had begun to install powered looms and built a large wool warehouse beside the road. In 1855 all weaving was by the power looms, spinning was by mules and fulling by the new milling machines.

In the 1800's there were 13 fulling mills in the area working continuously 24 hours a day.

Inside the museum there was a full size pair of wooden fulling hammers and Ian explained about fullers earth and the process of hammering the woven cloth to compact and shrink the cloth. It would then be washed and stretched out to dry on the tenter frames.

In 1855 a large overshot water wheel, 12ft wide by 13ft diameter, was made and installed by James Ferrabee having a mainly cast iron frame with 40 steel buckets. This was turning a mid c.19th teazle raising gig. Lots of teazle heads are fitted into narrow frames across the gig and the length of cloth passes over

these several times to raise the nap of the cloth after fulling. Commercially grown Teazles are still used today as trying to use metal versions only ripped the cloth. The final process was the cutting of the nap to the required length by huge hand shears weighing 42 lbs! The shearers cut across the length of the cloth and later a shearing machine was developed called a Cross Cutter which was demonstrated by Ian.

We were shown examples of material made locally today although the Merino wool now used was from Spain. A bright yellow cloth for tennis balls and the green for snooker tables around the world. Also made are the Berkley Hunt coats, Bullington Club Jackets and the white cloth for the Pope's robes.

*Organiser's Note: I did these in the alter-*

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*nate order and while waiting for this group to re-appear our knowledgeable guide went to the far end of the mill complex, past the second chimney to the later double pair of waterwheels.*

**Gigg Mill**

Our last visit was to the small historic mill built on the Horsley Brook the 1550's. John Remmington bought the estate in the 1790's and prospered by selling to the East India Company for trade with China. However the mills isolated position meant transport costs were high, so it could not compete with the larger mills in the valley and in the 1860's part of the mill was destroyed by fire.

Here we learnt about the three principles of weaving, shedding, picking and beating. Any fibre longer than two and a half inches can be spun into a thread which can be woven. Sheep wool, rabbit fur, human and horsehair, plant fibres like linen, cotton and the silk from insect cocoons. The warp and weft threads which when woven together form the cloth and moving the weft thread once across the warps is called a pick. An experienced hand weaver could do 40 picks a minute but the development of the flying shuttle increased this to 120 picks a minute. The much smaller bullet shuttle speeded the weaving up again to several hundred a minute and today computer controlled machines work at over a thousand

Gigg Mill

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picks.

To make patterns in cloth different coloured groupings of warp and weft threads can be used. In the 1830's the Dobby system of moving several different frames holding warp threads was developed for hand looms. As more intricate patterns were developing Jacquard improved this by his system of punched cards and pegs controlling which frames moved up and down on the power looms. Although this was developed for the silk industry it could be used for any textile weaving.

This concluded our very interesting and informative day at the Stroud mills.

*Len & Vivian Williamson*

*Organiser's Note: We still had 18 members who were unable to go on this trip, either still on the waiting list or having to relinquish their place due to personal circumstances, thus Ian Mackintosh is willing to consider arranging another date next summer.*

### Berkeley Almshouses

Friday 29th July, 2016

This is a visit which should be made by anyone who is interested in the history of Worcester not simply the Almshouses.

14 members met inside the premises. The gates to the Berkley Almshouses are on the site of the 'Foregate' in the City Wall. A bright, well kept garden and homes give a different impression to that which you get from the outside. The wardens Paul and Lorraine first directed our attention to a Bell made at the foundry of Bill Evans in Gloucester – last rung in an attempt to scare away the many seagulls around the area.

In 1692, the Will of Robert Berkeley Esq. Landowner and sheep farmer of Spetchley, left £6,000 to be laid out by his Trustees for a hospital in or near to Worcester City and to purchase lands for income for their maintenance. The first homes were basic – a pull-down bed, shelf and little else. The hospital was to house and care for twelve poor men and one woman, each over 60 years of age. Each resident received £10 per annum - paid quarterly. The resident chaplain received £20 to say prayers twice a day and to care for the sick. A steward, also resident, received £20 for the care of the hospital and its surroundings.

The site, purchased in 1705, cost £322. No records exist as to the the architect or builder of the Almshouses. In 1899 the Almshouses were said to be deficient, damp and cold. The Almshouses were refurbished in 1963 and again in 1981, each home now consist of a bedsit, a kitchenette, bathroom and toilet. The privies have gone.

The Chapel, no longer consecrated, is available as a community/meeting room. The beautiful old front door is dangerous to open so consequently a new door was made in the south wall that necessitated the removal of an old old kitchen and privies. The altar and pews

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have also gone and the floor retiled.

At the Northern end, is some fine oak panelling, an altar with cross, two anonymous gifts of paten and chalice. A fine stool, of some age, has four roundels on its surface engraved with a flail, a spear, a stepladder, a vinegar sponge and shroud.

Today, Worcester consolidated municipal charity owns Berkeley Court, which comprises 7 flats and Nash & Wyatts has 25 flats. The administration offices are in Berkeley Court. Today residents must be over 60 with a low income and be currently inadequately housed. Central heating is free – historically, people were given coal! Prospective residents are interviewed as to their suitability and very rarely mistakes are made. One that stuck in the memory of our guides was a drug addict who caused much trouble when the wrong people called. Not unusually, he was in debt and sold the flat's contents!

A list of earlier occupants occupations includes familiar local trades, glove cutter, tailor, shoe smith, boat builder, china painter. But one stands out. How did Potts – a graduate BA, Cambridge, aged 25, end up here? I would love to know more about their lives.

There was much to learn and enjoy at this visit. We were made to feel very welcome by Paul and Loraine and were treated to tea and cake!

*Pauline Arksey*

### River Severn Boat Trip

Thursday 4th August 2016

The Society enjoyed a boat trip on the *MV Conway Castle* from Upton-upon-Severn to Tewkesbury and back, captained by our very own Len Holder, accompanied by Brian Draper.

Due to problems with the public address system Len and Brian were unable to deliver the commentary they had hoped for. Len has agreed to write a fuller account of this trip for the next edition of the newsletter so that we will then know what we missed!

There is a picture on page 37.

### Angel Place, Worcester

Thursday/Friday 11-12th August 2016

These visits included a repeat of last years visit (see a previous newsletter) and a small group on a follow up tour of two buildings. If anyone on the latter would be able to write a brief report it can be printed in the next newsletter.

### Coach to Nottingham and Papplewick Pumping Station

Thursday 18th August 2016

The coach decamped us at the Castle Gatehouse and we climbed the hill up to the Castle and made our way to the Café, where we sat out and enjoyed the views across the city whilst enjoying our

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tea or coffee The Castle was demolished in 1651 and a Ducal Palace was built in 1678, which was burnt down by Reform Act rioters in 1831. The building was remodelled and it opened to the public on 3 July, 1878, as a Museum of Fine Art.

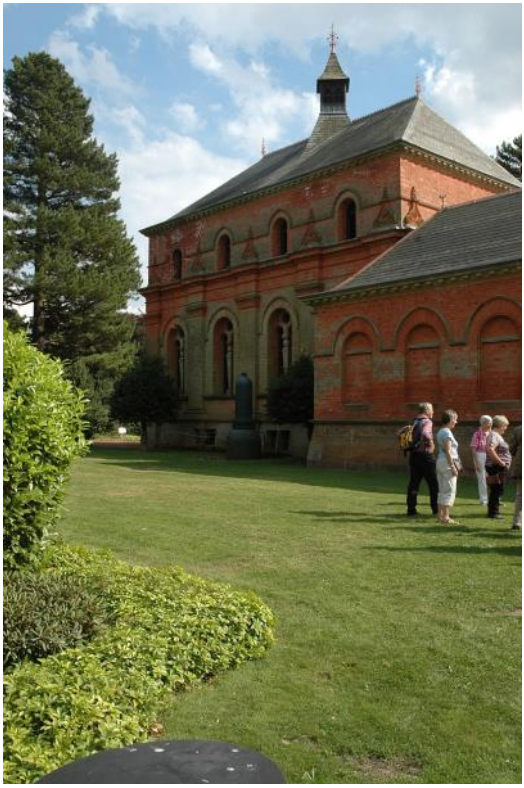
Members who were exploring the Caves were gathered and the rest of us explored the Museum exhibits until it was time to meet them to visit the Museum of Nottingham Life, housed within five 17th century cottages below the Castle. Going round the rooms of exhibits one heard many exclamations of "we used to have one of those", and reviving childhood memories of long forgotten toys. In the time left to explore, my impression of the city centre was it was like any other modern city, good for shopping, but unfortunately with no interesting old buildings left – I could be wrong! Maybe they were burnt down by the Reform Act rioters.

**Papplewick Pumping Station**

To quote their website '*This is Britain's finest Victorian Water Works and the only one in the Midlands to be preserved as a complete working water pumping station. Papplewick Pumping Station was built between 1882 - 1884 to supplement the water supply for the growing city of Nottingham.*

*In the main building there are two massive beam pumping engines, thought to be the last built by the famous firm of James Watt & Co. of Soho Works, Birmingham and London*.'

Marriott Ogle Tarbotton, b.1834 designed and built the elaborately decorated building housing the pumping engines We admired the terracotta detailing and brickwork of the windows and walls, the interior with the golden birds atop the four decorated iron columns and stained glass windows. It raises the spirit when you see it, and transforms the ordinary into the extraordinary, making



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the mundane, together with the power of steam, practical and beautiful. The beam engines lay silent but one could envisage their power drawing water up from 200 feet below you can if you wish, watch them under steam on You Tube.

In the buildings around the site, such as the Engine Winding House are examples of other machinery of various types. Our visit was made more interesting by the informative guide who showed us around.

*David Attwood*

*Below—Members enjoying cups of tea o the MV Conway Castle on 4th August 2016 during our trip on the River Severn.*

# THE STORY OF JET FLIGHT by John Mason

*This article summarises the material presented by John in his two recent talks; Part One in February 2016 and Part Two in September 2016.*

**Part One**

The principle of jet power had been appreciated for many years ever since the first fire hoses had shown that the hosepipe wanted to retreat in the opposite direction to the flow of water and at a speed directly related to the speed that the water left the hose; this we would today consider as basic physics. It was not until early in the twentieth century however that the principle was to be applied to aviation.

Our story starts in the industrial midlands town of Coventry where at the turn of the century, light engineering companies and sometimes small individual engineers climbed on to the bandwagon of the new form of mechanised transport, many starting by making bicycles and progressively developing into motorcycles and eventually early cars. It was in this environment of developing engineering expertise that Moses Whittle and his wife Sarah ran their modest engineering business. On June 1st 1907 Sarah gave birth to a son who would be named Frank and we could say the rest is history, but what is that history?

Young Frank would grow up with grease under his finger nails learning at first hand the complexity of being a 'seat of the pants' engineer needing to face different, new and complex problems every day. Frank had been born just four years after man's first powered flight by the Wright brothers; so it was no surprise that as a young man he would be obsessed by aviation and would endeavour to make it his vocation. After attending council school in Coventry and subsequently Leamington College, as a young man Frank enlisted in the newly formed Royal Air Force to learn about the new science of aviation and hopefully one day become a flyer himself.

In the next few years he progressed rapidly to become the complete airman, a very accomplished pilot and with his deep knowledge of engineering and aviation science, he was a person who could interpret the reactions of an aeroplane and understand what makes it fly and as a result how to improve its performance. It was during his flying days that he realised the performance of the frail wood, canvas and wire construction of the early aeroplanes were severely handicapped by the weight of the multi-cylinder piston engine that powered it. It was then that Frank Whittle possibly flying high above the clouds conceived the idea of a jet thrust engine to propel his machine through the air, he envisaged a massive increase in performance if he could drastically reduce the power weight ratio, giving greater speed and economy which in turn could mean long range. Frank foresaw the future of aviation: he wanted aeroplanes to be able to fly at great height above the weather and be able to cross the Atlantic as standard practise, replacing the slow lumbering airships that were the only alternative to ocean travel at the time.

The unorthodox design that Frank Whittle came up with was submitted to

the RAF as a potential improvement to benefit the service but people who could not understand the concept and had little interest in the wild ideas of an unknown and lowly Flight Lieutenant rejected it out of hand. At this time Frank had been to Cambridge University on an RAF sponsorship and had met many Dons some of whom suggested that he should progress his ideas and form a small company for the purpose and with their limited financial support; he did just that but as a serving RAF officer he had to get RAF approval first. Frank now needed time for his project and he was given one day per week so he opted for a Friday giving him the prospect of being able to couple a few weekends and make three days.

A company registered as 'Power Jets Ltd' with a very limited capital was set up by Whittle and a few supporting friends and the design principle for the world's first jet engine was patented in 1930, he now needed premises to build his engine. The biggest manufacturer of turbines at that time was BTH in Rugby and as Frank Whittle's machine was in fact to be a turbine, after some negotiation he was given the facility to utilise a small part of the works at Rugby. It was not long however before the noise and unpredictable explosions caused some workers to fear for their lives and motivated the trade unions to demand that the strange newcomers be evicted. So it was that Whittle and his small team were moved on and given an alternative site a few miles away where they could cause less nuisance, this was a surplus forge at Lutterworth known locally as Ladywood Works.

Trying to continue his duty as a serving officer and in his 'spare time' organise an experimental engineering laboratory-cum business, led to one of many nervous breakdowns that Frank Whittle would have to endure over the next few years. The new technology being developed at Ladywood Works made demands on the need for new metals and lubricants to tolerate the high temperatures and friction now being encountered for the first time as the project advanced. Whittle's finances gradually drained away and when his patent came up for renewal he could not afford the £15 fee so his patent was released for worldwide usage.

At this time in North Germany and by now under the regime of the new National Socialist government a young playboy with a keen interest in cars and engineering picked up Whittles ideas and saw the potential but he had no financial problems and with many engineering friends who could support him with their expertise, he started the German part of the jet flight story, he was only four years younger than Frank Whittle and his name was Hans Von Ohain.

With plenty of technical and financial support Hans Ohain was able to overtake the struggling Whittle and with the help of a family friend who owned an aeroplane manufacturing business named Willy Heinkel, it did not take long before the partnership had progressed to an experimental prototype and the world's first jet powered aeroplane the Heinkel He 178: flying for the fist time on 27th August 1939 only days after the start of WW2.

During this period of rapid develop-

ment in Germany things had been progressing slowly in England but Whittle had produced a prototype engine that ran for two hours during a period when the local residents of Lutterworth on hearing a constant barrage of strange noises and explosions had been obliged to call the police fearing that an IRA bomb factory existed in their midst. The undoubted reliability of the new engine prompted the Air Ministry to order two new engines to power a pair of prototype aeroplanes and the contract for those was given to the Gloster Aircraft Company at Hucclecote in Gloucester under the control of their chief designer George Carter, the aircraft would be known as E28/39 (experimental number 28 -1939)

It was not until 15th May 1941 that Whittle's new engine would power the first flight of the E28/39 but by then intelligence from Germany divulged that the enemy were now manufacturing jet aircraft forcing the hand of the Air Ministry and following the success of the two Whittle prototypes, a new operational jet fighter was ordered again from the Gloster Aircraft Company this would be the F9/40 (Fighter type 9-1940) and we would come to know it as The Gloster Meteor. But now if the new fighter was to be of any value we needed to be able to produce the aeroplanes and engines in large numbers as quickly as possible; leading the Air Ministry to take over Whittle's business of Power Jets Ltd and sub-contract the manufacture of the engines, keeping Frank Whittle as consultant designer and in the process prompting another nervous breakdown.

The contract for engine manufacture was given to Rover Cars at Coventry and the engine designs were circulated to other engine manufacturers such as Armstrong Siddeley, Bristol and DeHavilland in the hope that they may be able to develop their own engines based on Whittles concept. The manufacture of airframe components for the F9/40 would be distributed throughout the industry. Rover could not master the fine tolerances needed in aero engine manufacture and after a disastrous twelve months when little progress was made toward producing two prototypes to be sent to Gloucester, the contact was removed and given to Rolls Royce at Derby and as a replacement contract allowing Rover to manufacture Merlin engines destined to power army tanks.

The switch to Rolls Royce proved to be the answer to the problem and the rapid improvement and development of Whittle's ideas became immediately evident and also it became an historic landmark: the point at which Rolls Royce the world's greatest engine builders entered the jet engine business. At the

time of the Battle of Britain when we were fighting on our own and the USA who at this time were still not involved in the European conflict 'The Tizard Commission' went to the USA to try and get them to mass produce vital radar components for us and as part of the 'bribe' we gave them many vital secrets including Whittles jet engine designs and this would kick start the American jet aircraft industry.

Back in Germany things were moving at a pace and despite Heinkel producing a second type a twin jet; potentially an operational jet fighter in the He 280 he did not get the contract. Other manufacturers had come up with better designs and by the end of 1941 Messerschmitt had two designs in manufacture and Arado had one, later in 1943 Heinkel would also have a design accepted and go into production. The British attempt to get an operational jet fighter had now progressed with the first flights of the Gloster Meteor with engines made by deHavilland but later up rated Rolls Royce engines would greatly improve the rather disappointing performance of the first production Meteors.

As the conflict with Germany moved into the final phase in late 1944 and 1945 the constant aerial bombardment of German cities and manufacturing capacity seriously affected the supply of vital materials and this complicated the German production of their very good engine designs and subsequent unreliability of the engines was probably as big a cause of pilot fatalities as the military action they were undertaking. The effect of the very destructive and heavily armed Messerchmitt 262 on the USAF air armadas was considerable and many losses of the RAF night bombing crews would fall victim to the Me262 night fighter versions. Other advanced jets in service were the rocket powered Me163 and the Arado 234 reconnaissance bomber that was able to fly over southern England in 1944 and 1945 completely un-molested by our defences due to it's speed and height.

There was never any confrontation between the German Jets and our own early marks of the Meteor the latter being restricted to attempting to intercept flying bombs over our own territory; and missions to the continent were not allowed until the end of hostilities. The reliability of Whittles designs enabled the RAF to have two types of jet aeroplanes in service during 1945 with a long service career in front of them in the Gloster Meteor and the deHavilland Vampire introduced just after the fall of Germany.

After the end of the war, recovered designs and specifications secured from the Germans showed the enormous gulf that had opened up

during the latter part of the war leaving no doubt that had the German industries not been deprived of so many highly specialised materials; the outcome of the conflict could have been very different. The production of aircraft by the Germans increased during 1944 due to the dispersal of component manufacture helping to evade some of our bombing sorties. We were amazed at the vast numbers of jet and other aeroplanes awaiting delivery deprived of vital fuel and lubricants and especially experienced aircrew.

Many of the advanced projected designs for German aircraft captured after the war would form the basis of future development in Britain the USA and Russia and many of our later aircraft to go into service would bear a family resemblance to designs with their roots in The Third Reich. We had appreciated the advances made in Germany and many of the new airframe designs would have an influence on our own thinking in the future.

## Part Two

During the latter months of WW2, pilots flying the latest of our high speed fighters would on occasions and particularly when in a dive, just try and see how fast they could go and many paid for the prank with their own lives. Test pilots whose job it was to find out the tolerances of an aeroplane's construction were paid to take risks and it was during these high speed flights that it became obvious that the conventional propeller impeded the speed of an aeroplane and acted as a brake, much in the way a car will use it's engine in low gear when going down a hill.

Clearly the only way very high speed could be achieved was by jet flight where there was no impedance from a propeller and this had been shown by the performance of the German Me163 rocket propelled fighter which had it not been for it's bulky shape would have achieved the speed of sound (Mach one).

The Germans had of course already produced supersonic flight with the infamous V2 Rocket and that had reached Mach 5 = 3,500mph during the flight, the problem now was to design an aeroplane that could take off, reach high speed and land again without killing anyone. We had received intelligence in 1943 that the Germans were planning a supersonic aeroplane capable of achieving 1,000 miles and hour, (as it happened this was a typing error and should have read kilometres an hour making it about the speed of sound (710mph at sea level).

This alarming information spurred us into working on the same objective and early in 1944, Frank Whittle

came up with an engine design called PJ700, we now needed a special aeroplane to accommodate it and that task would be given to the Miles Aircraft Company of Reading. Miles were making small light aircraft mainly for the purposes of training and had a low profile where security could be enforced, they also had a reputation for designing aeroplanes with an unconventional configuration, so in modern parlance they could 'Think outside the Box'.

Immediately after the war when we were virtually bankrupt as a nation it was vital that we develop markets to earn the money to sustain our new health service and social security packages about to be introduced by the new Labour government. Friendly co-operation with our ally the USA was the answer and mutual agreement existed that we would share technological ideas and knowledge to the benefit of both nations and the development of high -speed flight would be part of that agreement.

So it was that early in 1946 a deputation came over from America to inspect the progress we were making toward the production of two very advanced prototype aeroplanes under construction at Miles Aircraft in Reading. The visitors were given full access to the factory and the designs in return for a visit to the USA by our own scientists a week later to see the progress being made in their research facilities. It came as a serious shock when subsequently the authorities in USA refused to allow visas to our team on the grounds of national security. Our so called friends had sold us down the river while at the same time picking our brains in the process, this was only the start of a campaign by the Truman government to decline revealing any of American science including the development of nuclear weapons. This situation hurried the development of our own independent nuclear research at Harwell. The M.D. of Miles aircraft was convinced that the Americans did not have any worthwhile project to show us, hence their reluctance to play host.

In the aftermath of the defeat of Germany the many captured designs under development showed a marked difference to the orthodox layout of the allied aircraft in that for potential high-speed flight they all had highly swept back wings. This was a matter of great concern to the head of aircraft procurement, a chap named Ben Lockspieser (a very religious man). Ben Lockspieser consulted Barnes Wallis who agreed that for high speed; wings should be swept back, in fact he personally was working on a system for variable geometry wings to give an aeroplane the capability of both high speed flight and slow speed for take

off and landing. Not surprisingly our government were not interested in his ideas and it would be foreign governments who would utilise his design such as the USA, Sweden, France, Israel and Russia. As it happened the design for the Miles project had normal straight wings and Lockspieser was so concerned that test pilots would be killed and that we had got it completely wrong, that he cancelled the Miles M52 project ordered destruction of the prototypes and gave all the deigns to the Americans.

Subsequently in the USA they quickly developed a machine that could be dropped from a bomber and piloted to high speed utilising a German designed rocket engine. This was the X1 and featured nearly all of the Miles design apart from a gas turbine jet engine, and a later model the X1a flown by Chuck Yeager and again dropped from a bomber flew supersonic for the first time and just like the Miles project from which it had developed it had straight wings. It is generally acknowledged that this episode in our aviation history the cancellation of the M52 was to set back high speed development in this country by twelve years and probably lost us billions in earnings.

In the post war period and for many years afterwards this country like most of Europe was bankrupt and desperately needed exports to start paying back the enormous debts we had built up with 'Lend Lease' from the USA. Aviation along with the motor industry would prove to be one of our main saviours at this time: we may not have had any supersonic aircraft but we led the world with jet engine technology and exports and superb civil airliners such as the Vickers Viscount. In

military terms we were able to export our jet fighters to many Middle East countries and maintain these links to the present time. Ultimately we would introduce the world's first jet airliner with the DH Comet followed closely by the French twin jet Caravelle.

Sadly the quantum leap was just a bit too far for De Havilland at that time and metal fatigue failure in their new all metal jet aeroplanes both civil and military would demand a basic re-think for the whole industry and hard lessons learned then are now applied to all aeroplanes making air travel extremely safe for most of the time.

Realising the need to compete in the jet civil market the Boeing and Douglas companies in the USA quickly developed their competitors to the Comet and Caravelle and with increased passenger and freight capacity they established a firm grip on the world market for many years, until the formation of a com-

bined European consortium known as 'Airbus Industries' who would give some serious competition to the civil aviation market and secure a large share of the available business.

The on-going 'Cold War' would see the evolution of very fast supersonic and versatile military aircraft developed on both sides but only after our government had given the Russians a massive leap forward immediately after WW2 by giving them some Rolls Royce jet engines and forming the foundation of their formidable military strength that still exists today.

Supersonic flight had been an enigma in the early days of high-speed trials and the outcome of test flights frequently seemed to end in tragedy with the loss of life of the test pilot and in the days before computers, all testing was done by the old trial and error system and 'seat of the pants flying'. Aeroplanes would often lose control near the speed of sound and sometimes the engine would suddenly cut out as the dreaded sound barrier was about to be reached. It took a long time to establish what was wrong and how to combat the problems all of which were directly connected to the reaction of existing designs to the mysterious pressure wave created when entering the threshold of supersonic travel.

Today these problems are well understood and revised aerofoil and engine cowling designs make supersonic speed normal for many military aircraft and better understanding of wing designs, has advanced airliner performance in load carrying and economy and as a result endurance and extended travel. The ultimate development in the post war era was to be commercial supersonic travel with the superb Concord built jointly by UK and France. A Russian copy the Tupolev 144 was also produced thanks to some espionage at Toulouse and Filton but this did not result in any world sales for the Russians following the very public disaster at Paris air show.

The end of the 'Concorde Era' was prompted by the tragic accident at Paris - Charles |De Gaulle airport when a Concorde was damaged at take off by debris on the runway resulting in the loss of all on board. This has left a very unusual situation; in that throughout history, all scientific developments have been succeeded by a better or more advanced system, whereas with Concord there has been an empty hiatus showing just how advanced this aircraft was within the era of its existence.

There have been many different schemes put forward in the USA for a future high speed commercial aircraft since the retirement of Concord but world financial uncertainty

and the prospect of another quantum leap possibly into stratospheric travel are holding back any potential investment. We can be sure that within the next ten years the technology will produce air travel between London and Sydney in less than five hours.

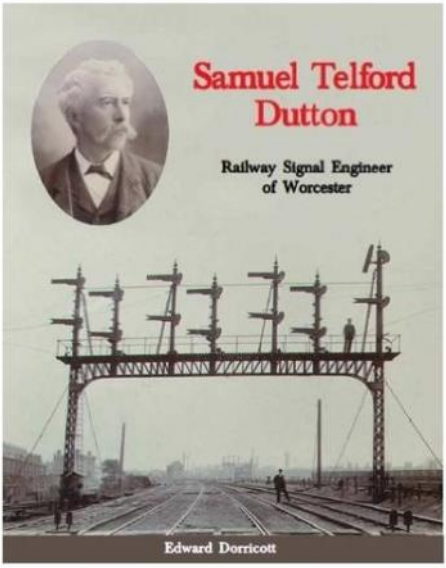
While the human race is hell bent on trying to find better ways to destroy itself, military high speed and normal flight will continue to advance but with the emphasis on unmanned aircraft. We already have unmanned military aeroplanes controlled from a remote ground operational station and able to spy on an adversary or even direct weapon systems and this will undoubtedly continue into the future.

It is not beyond the bounds of possibility that our well loved holiday airliners may also be flown by remote control in the future and simply monitored by an attendant aircrew to give 'the office at the front' a human touch. We can be sure of one thing, jet aviation has yet to reach its peak.

*John Mason - 2016*

## BOOK REVIEWS

We have not received any reviews of books for this edition, but we are aware of the following that have been published recently or that have just come to our attention.




**Samuel Telford Dutton: Railway Signal Engineer of Worcester**

Edward Dorricott

Signalling Record Society
Publication Date: 31/05/2016
ISBN: 9781873228265
Price: About £30

From the flyer:

*This book, published in May 2016 by the Signalling Record Society, describes the life and work of enterprising engineer Samuel Telford Dutton who, towards the end of the Victorian era,*

*founded a business in Worcester for the manufacture of railway signalling equipment for British and export markets. A native of Manchester, Dutton made Worcester his home town as a young man and during his lifetime contributed to its corporate life as a city councillor and through his involvement in the community.*

*The first part of the book is largely biographical, tracing Dutton's family and business life. This leads on to a close look at the equipment he supplied to many of the railway companies in the British Isles. A surprising number of his products, both functional and as museum and collectors. artefacts, survive today. During the preparation of the volume, extensive original sources have been consulted and site visits made the length and breadth of the UK. This is the first book to be published on this subject and is the culmination of many years of research.*

*256 pages, 215x273mm, printed on gloss art paper, casebound with printed board covers, with 375 illustrations including many colour photographs, and comprehensively indexed.*

We hope to print a review of this book in the next newsletter. On 18th June he author held a book signing at The Hive in Worcester, followed by a guided walk which several of our members attended.

The book is available also by post, with a cheque payable to "Signalling Record Society" from SRS Book Sales:

John Lacy,
66a Lower Wyche Road,
Malvern,
Worcestershire WR14 4ET

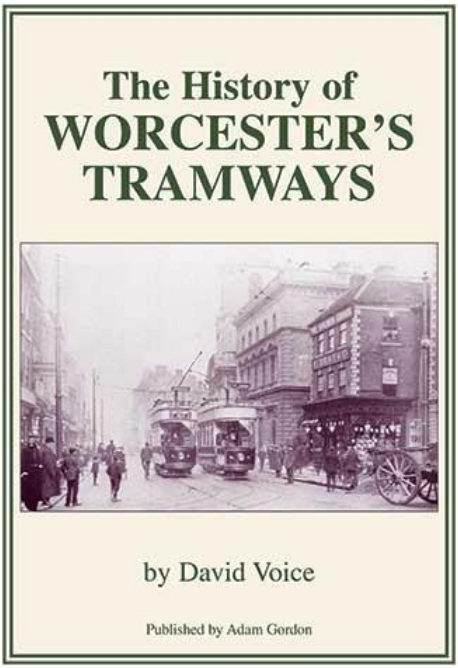
**History of Worcester's Tramways**

David Voice

Published by Adam Gordon
Publication Date: 17/03/2015
ISBN: 9781910654026
Price: About £25

Abstract:

*In his latest book the acknowledged tramway historian, David Voice, has*




*written a detailed history of the tramways of Worcester. The chequered history of the system from horse tramway to electric operation is examined in detail. The sometimes fraught relationship with the local council and the impact of the tramway on the city and its people are explored. This one system typifies the issues surrounding early public transport, with financial failures and dubious characters. The tramway finally ceased operation in 1928 after the city council had purchased it from BET, initially with the possibility of running it themselves. However, when the BET offered to run a local bus service the cash strapped council were quick to agree and the city was served by the 'Midland Red'.*

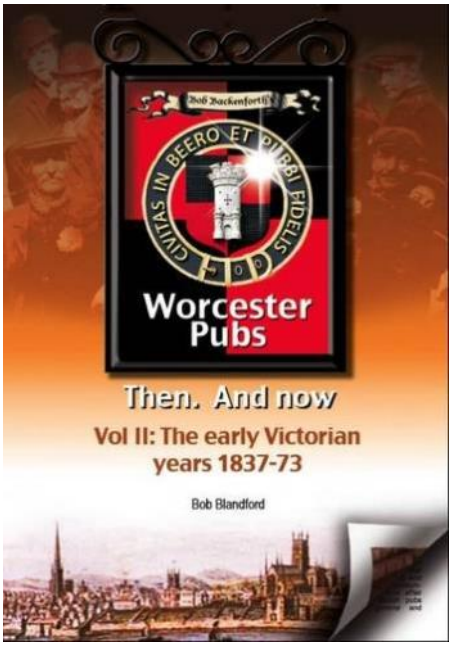
*The book is fully illustrated and many of the photographs have not been previously published. 108 pages, softback with around 100 black & white photos.*

This book seems hard to find, try MDS books (Glossop) or Ian Allan Direct.

**Bob Backenforth's Worcester Pubs Then and Now: Vol II: The Early Victorian Years 1837-73**

Bob Blandford

*A sequel to Bob's first volume was published last year but you may have missed it. Tudor House Museum may have copies for sale, or try the usual bookshops!*



## WINTER ON THE LICKEY

Many thanks are due to our stalwart member and contributor, John Mason, for permission to reproduce one of his paintings on the front cover. This splendidly captures the atmosphere as what appears to be an ex Midland Railway 0-6-0 3F locomotive (someone will correct me I am sure) hauls a freight up the Lickey Bank on a snowy day. There is a banking locomotive on the rear. The period is probably the 1950s .

This picture has been chosen at the scene is going to change dramatically again soon. Bromsgrove station has been rebuilt on a new location and now has 4 platforms. This is to accommodate the extension of the Cross-City Line from Barnt Green. Electrification is underway with the gantry foundations mostly in place up the bank. The bridges were raised recently. The signalling in the area is also being renewed, and control of the line from Eckington to Blackwell is being transferred from Gloucester to the West Midlands Regional Control Centre in November 2016.

The old station at Bromsgrove was very quickly demolished to make way for new trackwork currently being installed.

## WORCESTER ARCHIVE & ARCHAEOLOGY SERVICE - AUTUMN 2016 EVENTS

*29th October—Explore House History, workshop, 10am-3pm, £15*

*1st November—First Steps in House History, 10-11am, £5*

*1st November—First Steps in Family History, 11:30-12:30, £5*

*9th November— Lest We Forget, talk based on he war memorial committee papers for All Saints Worcester, 7:30pm. £5*

*11th November—"We Did Our Bit" (Film) - A film of testimony of eleven military veterans of the Second World War who lived in Worcestershire in 2013. £2.50*

***19th November—Archaeology Day School (at the University of Worcester), 10am-5pm, £20 (bring packed lunch).***

*23rd November—Behind the Scenes Tour (Archives), 2pm, £6*

*All events at the Hive unless stated. Prebooking essential, call 01905 766352 or book at www.thehiveworcester.org*

# WIA&LHS ROLES

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