INDUSTRIAL ARCHAEOLOGY NEWS

179
WINTER
2016

THE BULLETIN OF THE ASSOCIATION FOR INDUSTRIAL ARCHAEOLOGY

FREE TO MEMBERS OF AIA

2016 Telford Conference • Aga Foundry and Jewellery Quarter
Wappenshall Crane • Derbyshire Oil • Zellverein and Völklingen

INDUSTRIAL ARCHAEOLOGY NEWS 179 Winter 2016

Liaison Officer
David de Haan, AIA Liaison Office, The Ironbridge Institute, Ironbridge Gorge Museum, Coalbrookdale, Telford TF8 7DX.
Tel: 01952 416026.
E-mail: secretary@industrial-archaeology.org
Website: www.industrial-archaeology.org

COVER PICTURE
Aga Rangemaster Foundry conference visit, filling the transfer crucible
photo John Stengelhofen

AIA 2016 Conference

The 44th Conference, held at the Telford Campus of Wolverhampton University, was a great success thanks to the organisation by the team; David de Haan, Steve Dewhirst, Shane Kelleher, John Powell, Ian West and John Stengelhofen.

A report on the Friday seminar with the title – 'Britain's Industrial Heritage: What has 'World Heritage Site' inscription done for it?' is on page 10.

The comprehensive tour notes were by the team with help from David Adams, Glynn Barratt, Tim Booth, John McGuiness and Kelvin Lake. Brief notes on each of the 12 visits are below.

In place of the regular gazetteer each of those attending was presented with a copy of a new edition of Barrie Trinder's *The Industrial Archaeology of Shropshire* originally published in 1996 but now completely revised and with 140 colour illustrations.

More detailed descriptions of visits to the Aga Foundry and the Birmingham Jewellery Quarter are on pages 7 and 9 and an article about the Wappenshall Crane can be found on page 11 and Ben Thomas as a newcomer to the conference gives his impressions on page 8.

Laminated Arches overhead as Lady Harriet tells us the history *photo Peter Stanier*

Apley Park Home Farm

An 1875 'model farm', still in use – the cattle were outside enjoying the autumn sunshine – with stock pens serviced by passages behind them, using barrows and a piped water supply. What is remarkable about the buildings is the quality of the ornate brick construction together with the roof structure, which uses semi-circular laminated timber arches of very high quality. Consequently the buildings have needed little repair and have been little altered. A fine brick chimney has survived the replacement of the original steam engine used for powering the barn machinery. The owners, Lord and Lady Hamilton, are very proud of the site and made us very welcome.

DA

Broseley bottle kiln *photo Bill Barksfield*

Broseley Clay Tobacco Pipeworks

The last of the pipeworks in Broseley closed in 1960 and reopened as a museum in 1996. On show as nearly as possible in the state it was when abandoned even to the extent of leaving the graffiti untouched. Each firing of the bottle kiln could produce up to 10,000 pipes

The main warehouse at Wappenshall canal basin.
photo John Powell

Wappenshall canal basin

The AIA was able to help with the restoration of one of the two warehouses through a Restoration Grant. They were built in 1835 when the canal link to Norbury was completed and were used for the transhipment of goods from narrow boats to the tub boats used on the Shrewsbury Canal.

This visit was somewhat of a pilgrimage for our member, Jur Kingma. He knows a great deal about cranes so turn to page 11 and you too will be enlightened.

Lilleshall Mining Landscape

The Shropshire Caving and Mining Club are excavating the engine house of Pitchcroft mine from 1798 until 1860 when it was abandoned after flooding.The mine had produced a million tons of limestone. We saw this and the extensive opencast workings and kilns.

The excavation of Pitchcroft mine engine house
photo Kevin Lake

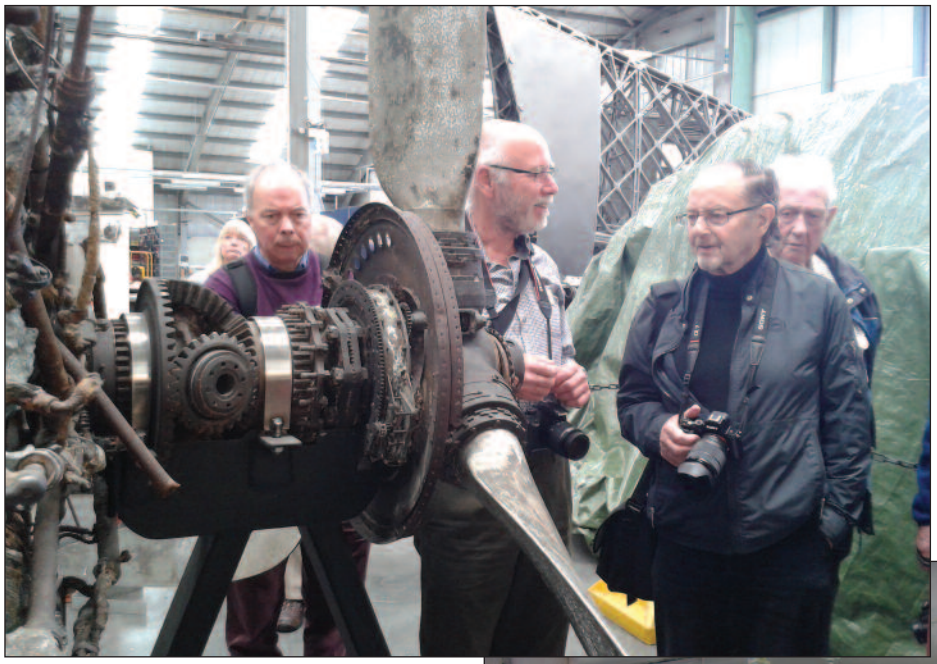
The scaffolding continues inside *photo Chris Barney*

Ditherington Flax Mill Maltings

Members were guided around this famous site by expert John Yates, who that morning had delivered the Rolt Lecture on this very mill. I was impressed by the amount of scaffolding holding this fragile complex together and I still cannot get my head around the continuing problems to be overcome before the historic iron-framed mill can be preserved. Discussions on the details of the ironwork were revealing. We shared our visit with a Heritage Open Day where the Friends of the mill were putting on events, such as guided tours, a light show inside the Cross Mill and displays in the dye house including a demonstration of flax processing by hand. A small AIA party managed to arrange a visit to the top of the tower.

On our return to Telford we stopped at the Kynnersley Arms in Leighton which was built on top of an early charcoal furnace and a corn mill with gearing and waterwheel. The bar was open too!

PS



Dornier 17 gearbox *photo David de Haan*

RAF Museum, Cosford

Fortunately the day was fine; the various hangars, workshops, parked planes and a huge museum building are spread over a sizable area. The exhibits are largely military but there are some civil light aircraft and airliners. The highlight of this visit was being shown round the area where the only remaining Dornier 17 bomber, lifted from the Goodwin Sands, is being reconstructed. An enthusiastic restorer explained the work being done and some of the problems. A number of the party could remember the sound of German bombers in the blitz – a slightly odd form of nostalgia.

DA

Middleport Pottery

An excellent and highly informative tour of this labour-intensive pottery. We saw all the processes from blunging the raw clay to moulding, finishing, decorating and firing. A comprehensive restoration has put the pottery back in production at the same time creating a popular working museum.

PS

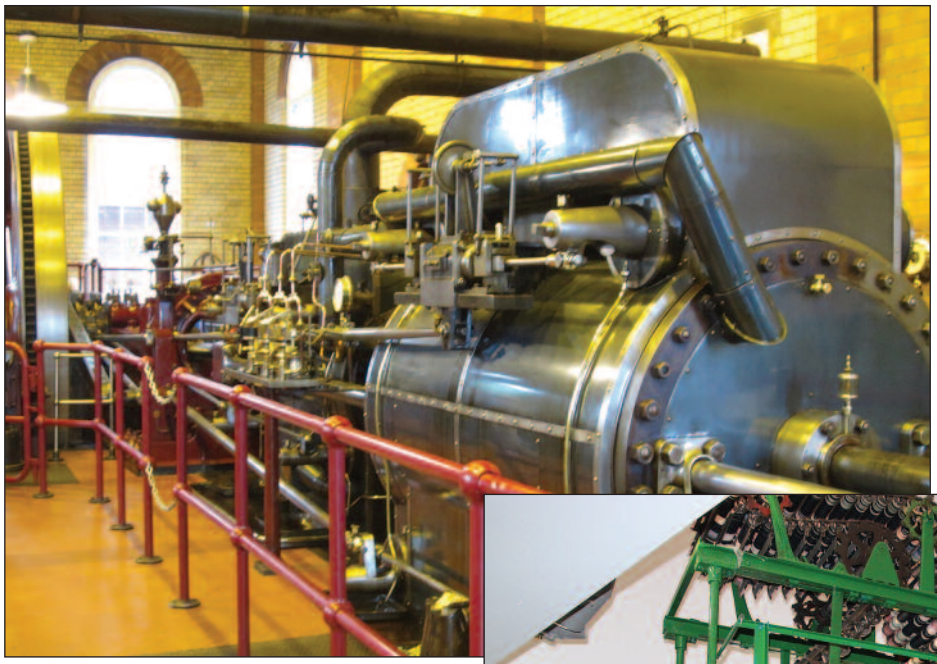
Plaster of Paris moulds filled with clay slip *photo Chris Barney*

Kilns for calcining flint before grinding in the mills beyond *photo Peter Stanier*

Cheddleton Flint Mill

The AIA came here on the Keele Conference in 1974, so it was interesting to return after so many years. This is a wonderful site, with the two undershot wheels turning for our benefit.

PS



1927 Hawthorn Davy engine *photo Chris Barney*

Mill Meece Pumping Station

This is a very large pumping station with a chimney to match. We saw the boiler house and the engine room with great early twentieth century engines and their pumps in working order.

The boilers appear to be in excellent condition but cannot, at present, be fired as there is a problem of access for the inspector before they can be certificated. Small electric pumps at the bottom of the wells now do all the work.

PS

Kidderminster Carpet Museum

Noisy demonstrations of two working carpet looms helped some of us finally to discover the difference between Wiltons and Axminsters. Though not large, the museum covers carpet designing and some of the social history of the industry, clearly and imaginatively presented .

DA

Massive Jacquard loom for weaving Axminster carpets
photo Bill Barksfield

photo Bill Barksfield

Kidderminster Town Station

This station on the Severn Valley Railway is a modern recreation of a typical late nineteenth century GWR station, and we were shown around their demonstration signalbox as well as being able to visit the small museum.

The Drakelow Tunnels

These are a number of linked vaults dug in 1941-2 to provide 25,000 m^2 of vital engineering capacity safe from enemy attack. No machinery remains. In 1961 part was taken over for a Regional Seat of Government and members could compare it with the example visited at the Chelmsford Conference.

DA

photo Bill Barksfield

Engine house at Snailbeach *photo Chris Barney*

Snailbeach lead mine

Well, it rained here very heavily. My party had a surface tour in torrential rain, followed by an underground trip – a pity we did not do it the other way around. The local mining group has done excellent work restoring and presenting the various surface buildings and structures of this important lead mining site.

PS

Titterstone Clee Hill quarries

A beautiful sunny day for our visit to Tittertstone Clee Hill, where we had been warned it could be cooler on this high hill, and so it was – a nice cooling breeze while we explored the amazing concrete structures of crushing, screening and storage bins for the once famous roadstone quarries.

A long walk down through very overgrown quarries (no rocks but lots of big trees), with a tramway incline and limekilns at the bottom - followed by lunch, kindly put on at short notice by the proprietors of a nearby cider farm. We also sampled the product.

PS

Hoppers at West Quarry *photo Peter Stanier*

Pontcysyllte Aquaduct *photo John McGuiness*

Thomas Telford: roads and canals in North Wales

Blessed by glorious weather, this visit was delightful scenically, and we travelled a variety of Telford's roads, some now little used, others still main routes. We only had a glimpse of the Chirk aqueduct and viaduct, but did have an hour to marvel at the Pontcysyllte aqueduct. Some of the more energetic went down to see it from below: others settled for a quick look at the information centre and a sit in the sun with an icecream. Thus fortified, we were taken to the Horseshoe Falls - actually a weir which diverts water from the Dee into the Llangollen Canal. Returning to Telford's road we made our way to Betys-y-Coed for lunch and a quick look at the fine cast iron Waterloo Bridge.

DA

The AGA Rangemaster Foundry

One of the most popular visits at the Telford conference was to the Aga Foundry in Coalbrookdale. The Swedish origin Aga cookers have been made there since the 1930s but the foundry has been brought right up to date in recent years and was a revelation to many of us.

Nigel Jopson

Led by David de Haan, we began with a tour of the water systems installed for the second or New Furnace of Abraham Darby. That furnace lies somewhere beneath the foundry that we were to visit. A contemporary illustration shows the relationship between the Old and New furnaces, the situation of both furnaces being determined by ease of supply from coal and iron mines to the north – at Coalmoor, Lawley, Dawley etc. However, the site of the New Furnace was further constrained by the need for an adequate water supply to drive the blowing-engine.

The system of ponds, sluices and leats was designed to provide water year-round, whereas previously the smelting of iron was a winter activity when water was freely available. Not until the advent of steam blowing engines later in the eighteenth century was it possible to operate throughout the year and to group furnaces closely together away from large-volume water sources.

Abraham Darby original market was hollow ware – cauldrons, pots, pans etc. It is therefore appropriate that the surviving commercial foundry on the Coalbrookdale site is devoted to the manufacture of domestic utensils in the form of AGA cookers. The plant became part of the Glynwed Foundries Group in 1969, which in turn was absorbed into the St Gobain Group. In 2015 AGA Rangemaster was acquired by the Middleby Group, based in Illinois.

The tour, led by Eddie Lindsay and Dale Jones, began with the sand preparation plant, where the foundry sand is mixed with a bentonite clay binder (6-8% on sand) and coal dust (0.6-3%). The bentonite is a reactive layered clay. The surface electrostatic charges of the clay are attracted to those on the sand grains and bind the whole together. The coal-dust acts as a release agent by decomposing when in contact with the molten metal and coating the sand grains with a graphite-like layer. The loss of volume of the coal-dust through carbonisation also compensates for the expansion of sand during casting. This prevents defects arising through the adhesion of the sand to the metal surface. The sand plant is part of an automated DISA casting line installed in 1991; a second line was added in 2000. Each half of a mould is formed against an aluminium pattern, e.g. an oven door, with the moulding sand tightly compressed.

The two halves of the mould are formed separately and brought together so that the central cavity between them defines the shape of the finished article. The mould is ready for casting. All this is entirely automated.

Aga Foundry sand plant recycling moulding sand *photo Nigel Jopson*

Automated moulding line *photo Nigel Jopson*

Molten iron being transferred to the induction furnace *photo Nigel Jopson*

Next we went outside to the raw materials bays. These days, the foundry coke is imported from Poland or Czechoslovakia as merchant coke-ovens no longer exist in the UK. Half the iron charge is return material from the casting process, gates risers etc and the very few rejects. A quarter is high quality general scrap and a quarter is, surprisingly, scrap vehicle brake discs.

The materials are weighed out in proportion and added to a skip which is then hoisted aloft and charged into the top of one of two cupola furnaces to which we repaired next. We saw the molten iron being poured from the furnace into a holding crucible. At intervals, this was tilted to allow transfer of the iron into an open transfer crucible. The open crucible was covered in a 'blanket' made of ceramic fibre, to prevent splashes, heat loss and undue oxidation. One was reminded of a domestic tea pot and tea-cosy!

The 'tea-pot' was transported to the casting line where the contents were decanted into the induction furnace that acts as a reservoir for the continuous casting process – and yes, and it did resemble a monumental tea-urn! The casting line was a conveyor which fed a stream of moulds to the pouring point at which the iron was transferred from the induction furnace to each mould. The moulds then passed to a cooling area before being opened to allow two operators to retrieve the castings and knock off the sand for recycling. This was one of the few non-automated processes on the whole line. It was heavy work and required the two operatives to wear protective helmets with their own air supply and heat-resistant clothing such that they resembled creatures from a science fiction movie! They worked three quarters of an hour on and a quarter off. The castings were then fettled and sent to the enamelling plant at Ketley for finishing and assembly into the cookers.

Retrieving the castings *photo Nigel Jopson*

Our profound thanks are due to the company and the knowledgeable guides for allowing such close access to the foundry, consistent with safety. We are sure Abraham Darby would have approved!

A New View

As a first time attender of the AIA conference this year and finding myself to be one of the youngest, if not the youngest member present, I was naturally nervous about what to expect. During my three days at the conference, from the Friday seminar to the afternoon of the Sunday, I hoped to meet as many people as I could and make the most of the experience.

Upon arrival I realised how tight knit the association was – everyone seemed to know each other. This was slightly daunting as I was unsure of how to involve myself with an already well-established group; however it did not take long for members to begin talking to me. This led me to realise the inherent advantages of the tight knit group the AIA is; as meeting one person immediately led to meeting others, each with new knowledge and different areas of interest which they were willing to share.

It did not take long for me to feel comfortable and I was able to completely appreciate the conference itself and learn more about the industrial heritage industry as well as individual aspects and sites which I have myself studied or visited. The Friday seminar allowed me to see the work being done in the field of industrial heritage and the ways in which World Heritage Inscription really makes a difference to the maintenance and conservation of important sites, while encouraging their use in education and as visitor attractions.

The main conference began on the Saturday and was made up of both lectures and visits to local sites, all of which were clearly chosen for their importance and relevance to the conference's aims and objectives. The lectures covered a broad range of topics from the eminent Barrie Trinder's lecture on the industrial archaeology of Shropshire to members' fascinating contributions on more specific areas of industrial archaeology throughout the world. This broad range of topics was in keeping with the conference's focus of 'Shropshire and Beyond', which was of personal importance to myself as I grew up in the area. The mix of lecturers from different backgrounds really showed the openness of the conference and the ways in which professionals and amateurs are considered equal within the association. Each lecture demonstrated the importance of industrial heritage as well as the wealth of knowledge, experience and passion within the AIA.

Despite the fact that I grew up visiting Shropshire I managed to visit two sites which I had never been to before, the Wappenshall Canal Basin on Saturday morning and the Lilleshall Limestone area on Sunday afternoon. The Wappenshall trip was fascinating and it was lovely to see the work being undertaken by the Shrewsbury and Newport Canal Trust in restoring the site with the assistance of Heritage Lottery funding. The trip to Lilleshall showed the ways in which industrialisation completely changed the face of Shropshire, as well as showing how sites which were once home to an industry such as limestone mining can become popular visitor areas, combining the fascinating history of the area with the natural beauty for which Shropshire is well known. The journeys to and from each trip were well organised, with information about the area being given while we were travelling, putting what we saw into a wider context.

Overall, the conference was well run; the lectures and tours were good and we were comfortably and well catered for thanks to the hospitality staff at the University of Wolverhampton at the Telford Campus. The opportunity to meet other members and discuss ideas and share opinions was valuable to me and particularly at meals where the communal nature afforded me the chance to meet people whom I would not have ordinarily met. I was able to experience the conference as though I had been before, oweng to the ease with which I could socialise with other members.

Overall, I would say that visiting the AIA conference was a great experience because of the people I met, the ideas I began to develop and the knowledge that was so willingly shared with a newcomer to a tight knit group. The way in which the conference was run was tailored well to both those who had been before and people such as myself who were there for the first time, while still running smoothly and delivering information about the local area and beyond. It was a pleasure to meet the people I did and I feel fortunate to have done so and to have had the chance to attend my first AIA conference. I would therefore like to end by saying I will ensure it is not my last and I would fully recommend others interested in this aspect of archaeology to join us next year.

Ben Thomas

Birmingham's Jewellery Quarter

A walking tour of this area formed one of the conference visits and a description follows. Members on a visit to Birmingham might like to trace the route including the two conserved businesses.

Terry Evans

We started in Fleet Street, adjacent to the Birmingham and Fazeley Canal of 1786-89. This waterway and its Whitmore branch were a major stimulus for the subsequent grouping of many interdependent craft industries in this part of Birmingham, helped by the absence of medieaval guilds with their restrictive behaviour.

As we entered Newhall Street the grid layout of the earliest estate development of the area was plain to see; St. Paul's (1776-79), known as 'the Jeweller's Church', and its square being the focal point of the plan. The late-lamented Museum of Science and Industry site shows remnants of the pioneering Elkington's Electroplating works, while opposite lies the old Birmingham Assay Office (now relocated to Moreton Street).

Moving from St. Paul's Square into Caroline Street the visual attraction of the Quarter becomes apparent. The immediate post-canal period saw manufacturing commence in existing houses, some with small workshops to the rear. A later c1830-c1880 phase produced many combined house/workshop arrangements. From about 1860 extensions and infilling of gardens, together with the full conversion of houses, created the now familiar roofscape and streetscape. A snapshot of the work carried out is of interest from metal 'toys' to case making, diamond merchandising, electroplating, non-ferrous foundries and casting shops, pen nibs, buttons, spectacle frames, much gold, silver and brass work and more. All this was evident to left and right throughout the walk.

Hearths in JW Evans silverworks *photo Terry Evans*

JW Evans silverwoks – Stamp shop with dies stored on shelves *photo Terry Evans*

Continuing along Spencer Street and Hylton Street, we passed numerous examples of purpose-built factories from 1837 to the end of the century. This was the era of architectural effects, contributing much to the visual delight of the streets. An intriguing narrow passageway led from the impressive brick frontages of Hylton Street to Key Hill Drive with its mid nineteenth century factories and workshops overlooking the 1836 Key Hill Cemetery. This was strictly nonconformist and was run by a company formed by local businessmen who were disgruntled by Church of England attitudes towards burial ceremonies. Many well-known names can be found amongst those lying there.

The cemetery's location was a casting-sand quarry worked until the 1930s and supplying not only Birmingham but also the hungry Black Country. Passing the surviving cast-iron urinal on Vyse Street, which facility is situated upon a railway (now Metro) bridge (!); many rued its current non-availability.

Straightaway we came to Warstone Lane Church of England Cemetery, also once a sand quarry. Dating from 1848 and, similarly to Key Hill, company owned, its peacefulness contrasted with the ever more noticeable early twentieth century, large windowed factories with 'designed to impress' office frontages. Post World War II ideas were seen in the towering Hockley Centre of 1970-71; this was intended for multiple occupancy a scheme which conspicuously failed to replace the two and three storey workshops and factories of the area.

Appropriately, the tour finished by passing the 1903 Clock Tower which commemorates the return from South Africa of the much-loved Joseph Chamberlain (being a free-churchman he lies in Key Hill cemetery). Dominating the crossroads the tower's corner neighbours are twentieth century banks and the 1919-20 'Rose Villa Tavern', both necessary adjuncts to the many small and large craft industries of the Quarter.

As a specific example of a purpose-built and architect-designed factory, in this instance 1892-94, the Newman Bros. Coffin Works, now in the care of Birmingham Conservation Trust, was a delight. Initially founded by the brothers Alfred and Edwin Newman in 1882, they were succeeded by Horace and George Newman, who ran the business until Horace's death in 1952 when a shareholder group took over until 1989. Joyce Green, a remarkable woman who had once been the office secretary, then took over the running of the factory.

She it was who strove to save the works after closure in 1999 and there is a wonderful portrait of her on display. The site now represents a huge conservation effort and is her memorial. The three storey front range of office, shroud room and warehousing with a manual goods hoist survives as does a rearward extension, also of three storeys. This latter contains the stamp shop with a quartet of drop hammers and one large drop stamp and overhead line shafting. Noisy demonstrations were given.

Die block installed in press *photo Terry Evans*

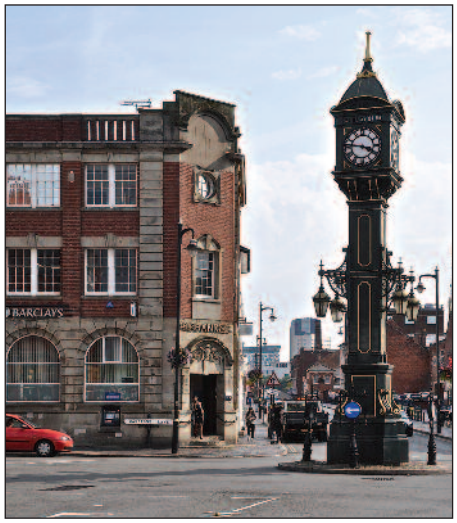
The other parallel extension once containing the casting shop has been demolished and replaced, but a barrelling room exists below ground level and the line shafting and a tumbler barrel were in the process of being restored/conserved at the time of the visit.

In contrast, the other visit of the day was to a perfect example of domestic premises converted to industrial use, namely JW Evans' Silverworks in Albion Street. Latterly specialising in top quality hollow-ware the company was started in 1881 by Jenkin William Evans in a rented house and made tools and dies for the silverware and jewellery trades.

Four three storey rendered brick terraced houses of 1837 were purchased and by about 1886 three of these had acquired workshop extensions to the rear. Closure came suddenly when the doors were shut and the place left untouched until the site was acquired by English Heritage. The party was greeted by and taken round the interior by Tony Evans who through father and grandfather is directly linked to the founder of the business. This connection allowed much anecdotal story-telling to enliven the tour as he is a keen historian and a natural guide.

He stressed the multiple support available in the streets where many distinct enterprises could supply the needs of a number of others. The area's transport system was shown with pride – this being a hand pushed wicker basket on a tricycle undercarriage, apparently used by scores and scores of works up and down the streets and passageways of the Quarter. There are some 38.000 objects inside the building, including partially finished ware and complete but unsold little masterpieces. The gloomy shelves of dies, together with drop stamps and large electrically powered stamps in the stamping room lie adjacent to many hearths squeezed into corners and passageways. Polishing lathes are crushed into a narrow walkway to contain the unwelcome dust problem. Fly presses and countless hand tools abound.

In entire contrast with this apparent chaos is the display room where exquisite craftsmanship has produced the amazingly beautiful items on show. The works can still manufacture to order as most requisites are on the premises an interesting example follows from the recently-published photograph of David Cameron and Theresa May in the Cabinet Office upon the changeover of Prime Ministership.



Chamberlain clock and 1903 bank photo Terry Evans

The 2016 AIA Seminar – Britain's Industrial Heritage: What has 'World Heritage Site' inscription done for it?

This very successful programme of speakers explored the wider issues of WHS inscription and covered the process and difficulties of achieving WHS status and the value of having done so. It is hoped that the full presentations will be available on the AIA website or as an online publication.

Of the 26 sites in the UK nine have significant industrial content ranging from the Cornwall and West Devon Mining Landscape, the Ironbridge Gorge, the Pontcysyllte Aqueduct to the latest – the Forth Bridge. The potential problems and the continuing need to promote the status were emphasised.

The first speaker, Helen Maclagan, who is the Cultural Director of the UK Commission for UNESCO, which provides expertise and advice as well as connecting the government, UNESCO and cultural bodies, described how, if positively managed, inscription can do four things. It can enhance the appreciation of heritage, it can help the development of a world class tourist destination, it can influence and improve local development plans and, perhaps most importantly, it can inspire social and economic regeneration.

The Ironbridge Gorge is the oldest industrial WHS, inscribed in 1986. Les Sparkes, who had previously managed the conservation and development programme of the former Telford Development Corporation, before moving elsewhere, and is now Chair of the World Heritage Site Steering Group, said that in 1974 over half the 700 buildings in the gorge were or were in danger of being listed as 'unfit for habitation' but between 1976 and 1981 the great majority of these had been improved under policies such as 'General Improvement Areas'. The cost of this 'conservation deficit' had been countered by the rise in value not only of the individual properties but of the whole area and he emphasised the importance of the WHS to the whole community.

Sarah McLeod, Chief Executive of the Arkwright Society, spoke about how listing in 2001 had transformed the Derwent Valley Mills WHS which extends some 24 km from Masson Hill south of Matlock to the Derby Silk Mill. Although the population within the boundaries of the WHS is small over six million people live within range. The inscription was having a dramatic effect on the prosperity of the valley but only because of a concerted effort by the managing partnership to raise publicity and promote the benefits. She particularly emphasised the absolute requirement to have high speed broadband available to attract businesses. A very good Research Strategy for this WHS, edited by David Knight, had recently been produced and a copy was made available to all seminar attendees, hoping that other WHS sites might follow this example.

Liverpool is a complex city with a strong sense of self belief. Andrew Croft, who had been closely involved in obtaining the city's inscription in 2004 as a maritime and mercantile city, spoke about the problems of balancing the remarkable development of the dock area in sympathy with the historic legacy with the further development needed to survive as a modern city. In particular, the huge development proposed by Liverpool Waters would almost certainly lead to withdrawing of WHS status and the uncertainty of the future and the tension between the city and UNESCO is very damaging.

Three students from the Ironbridge Industrial Institute for Cultural Heritage spoke about their research into the concept of Outstanding Universal Value in relation to the Ironbridge Gorge WHS, the subject of their AHRC-funded research for the Ironbridge International Institute for Cultural Heritage. The Lake District National Park is the UK's only submission to UNESCO for 2017 for consideration in the category of 'cultural landscapes'. This was the subject of John Hodgson's contribution as the WHS coordinator for the bid, and he emphasised the wide partnership necessary to support the bid and how historic industry was an important part of this.

Peter Wakelin, former Secretary and Chief Executive of CADW, continued by describing how attitudes among the local population towards heavy industry in Blaenavon, South Wales, had changed following inscription, from being a subject people would rather forget,' to one which engendered a pride and confidence in their past. This was also happening in North Wales where the slate industry, which is another industrial site on the tentative list, is gaining the support of the local population. This is a vital factor in the campaign.

Sir Neil Cossons summed up saying that industrialisation is one of the roots of civilisation and urbanisation. An example of the transmission of industrial technology is expressed in the proposal for a transnational bid for WHS inscription for Cornish engine houses. The design was exported to countries as far away as Mexico and South Africa.

He went on to say that as time had passed achieving inscription was requiring more and more work and he held up the document needed to support the 2015 inscription of the Sites of Japan's Meiji Industrial Revolution, a massive tome which contrasted with the modest file required for the Ironbridge Gorge in 1986.

The message from the 2016 Seminar was unanimous. If we are to maintain the interest and enthusiasm for celebrating industrial heritage, then promotion is vital and World Heritage Site inscription is extremely valuable in achieving this.

The oldest surviving iron crane in the world?

Wappenshall crane showing pivot in roof *photo Jur Kingma*

Wappenshall crane brake *photo Jur Kingma*

Shropshire is the first place in the world with an iron bridge, the first cast iron framed factory, the first iron boat and the oldest surviving iron aqueduct. Do they also have the oldest surviving iron crane in the world?

Jur Kingma

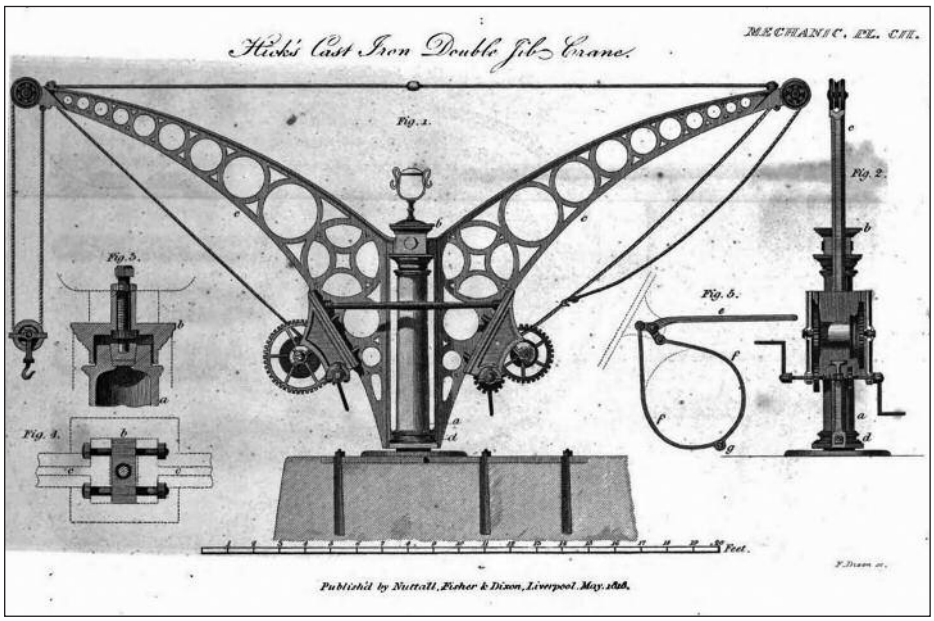
One of the visits during the AIA conference 2016 was to Wappenshall canal basin. Between 1793 and 1797 the Shrewsbury tub boat canal was constructed from Trench in the East Shropshire coalfield to Shrewsbury. In 1835 a narrow boat canal was constructed from Norbury on the Birmingham & Liverpool Junction Canal (later Shropshire Junction Canal) to Wappenshall on the Shrewsbury Canal. This linked the Shropshire canals to the national canal network and Wappenshall became a transhipment point from tub boats to narrow boats. Between 1836 and 1838 a three storey warehouse, now a grade II listed building, designed and constructed by James Trentham, was built over the canal. On the first floor is a simple hoist which could serve the boats through trap doors. There is another grade II listed building of the same date now separated from the canal, maybe because in its later years it was a truck repair site. This second building held a surprise. At the back was a cast-iron crane from 1835, called No. 2. There was no maker's name on it. Our guide told us that crane No.1 had been stolen. In 1835 there was already a rule that 'The person using cranes must be liable for all damage done to them when moving weights exceeding 6 tons'. So, in 1835 there were two cranes at Wappenshall; one survives.

Oliver Bachmann in his History of Cranes suggests that the oldest cast-iron crane is the one made by Hick and Rothwell in Bolton in 1834. The second cast-iron crane was in Neuburg on the Rhine in Germany. The complication in this story is that Rothwell, Hick and Rothwell, founded in 1822, was dissolved in 1832. Benjamin Hick started B. Hick and Sons and the rest of the firm carried on as Rothwell and Co. But, interestingly, in the Joshua Field's diary of 1821 is a sketch of a cast-iron crane with a double jib made by Hick of Bolton which he saw at work in Liverpool. The crane was described in 1818 as Hick's cast-iron double jib crane. At Blists Hill is a crane which looks somewhat like the Hick double jib crane.

Before the advent of the iron crane there were wooden cranes in many sea and river ports and later in canal basins. Gradually gear work began to be made of wrought iron. Later, hybrid cranes were made of cast-iron, wrought iron and wood. Examples of hybrid cranes can be seen at Blists Hill and at the Ellesmere Boat Museum.

The Wappenshall canal basin site has been a place of interest to the industrial archaeologists for a long time. The hoist inside the 1836 canal warehouse is often mentioned, as has the beautiful skew bridge, but the cast-iron cranes have not been mentioned.

The history of the crane in Wappenshall canal basin needs more study. Barrie Trinder wrote about a pillar crane. But this is not a pillar crane because they are free standing structures which resemble post mills, from which they are descended. The Wappenshall basin crane no. 2 looks like a wall mounted crane, although it is not attached to the wall but to the roof through, as far as I could see, a trunnion. It looks like a forerunner of the later hydraulic cast-iron dock cranes and its discovery shows the need for more research into the history of iron cranes. It is an asset for the Shrewsbury & Newport Canals Trust and needs a proper industrial archaeological study and conservation.



Double jib crane by Hick of Bolton from Mechanic 1818

Prickwillow engine back in order

Prickwillow Museum 'Tuesday Gang' and others *photo Chris Barney*

The Prickwillow Museum, with its splendid collection of engines once employed to drain the Fens, held on open day on 24 July to re-launch of one of the most spectacular engines in its collection, the very rare 1921 Vickers Petter engine. It was re-started following two years of repair works, part funded by an AIA restoration grant, necessary after it developed a major fault in 2014. It has always been a particular favourite with visitors since it requires blowlamps to heat up the cylinder heads before it can be started, and there was spontaneous applause when it was back in action.

The connection between Petter and Vickers began in 1919 when Petter Ltd purchased the Vickers factory at Ipswich (which had been acquired by Vickers in 1915 to build submarine engines) and production of all engines of more than 25 hp was transferred there. Vickers Petters Ltd. produced engines up to 400 hp and production continued in Ipswich until 1925 when the factory was closed and production consolidated at the Westland Works.

The 210 litre engine at the Prickwillow Museum which produces 200hp at 225 rpm had developed a lubrication problem which resulted in damage to the main bearings and one of the big end bearings which all needed recoating with white metal. After the engine was dismantled to discover the full extent of the damage, and funding secured, the bearings were sent away to STM Engineering to be machined, remetalled, peaned and machined back to size, complete with oil ways. The scale of this work can be best understood by the weight of the flywheel alone – five tons.

During the work to rebuild the engine, by the Museum 'Tuesday gang' volunteers, all gaskets have been hand-made (20 O-ring and main copper per cylinder). A new oil pump has been installed and the cooling water rerouted. New blowlamps were needed and these were recast with a purpose made pattern by East Coast Casting. The fuel injectors needed to be sent away to be re-machined by Colchester Fuel Injection Ltd, at a generous discounted cost.

When the Vickers Petter was being reassembled and trialled, water leaked from the seals on the cylinder heads. Two cylinder head gaskets had to be specially made by East Anglian Sealing Company Ltd to solve the problem. After a few teething problems, which have been resolved, the engine now runs better than it has done for many years.

Cotton spinning again

A new organisation, English Fine Cottons, has invested £5.8m in the Tower Mill at Dukinfield, Greater Manchester with the latest equipment to start spinning high quality yarn and creating 100 new jobs. The plant moved into production during 2016 and the very modern machinery can be seen in action on their website – English Fine Cottons. The short videos on their website are amazing though you may not be entirely clear what is going on. We can only wish them well.

Burnley Gasholder Demolished

This gasholder, situated in Oswald Street, was a prominent landmark clearly visible from the M65 motorway. It was the last remnant of Stoneyholme gas works and had been out of use since 2006.

Robert Carr

The AIA helps Hemmingfield Colliery

The Friends of Hemingfield Colliery (FoHC) are delighted to announce that they have re-ceived commitments of the funds needed to reconstruct the roof of the historically important 1846 Vertical Winding Engine House.

The Friends of Hemingfield Colliery were formally constituted in 2014 with the aim of protecting the site. Since then through their volunteer work days, they have cleared many parts of the site, researched the history of the site, raised awareness and prepared for the refurbishment works.

Allocation of funds has been secured from the Dearne Valley Landscape Partnership (DVLP), The Association for Industrial Archaeolo-gy (AIA) and Subterranea Britannica (SUBBRIT).

This tremendous support means that when reconstruction work is complete:

- This important building will be made safe and weatherproof, enabling volunteers to work safely inside it and visitors to enter it;
- The two winding engines contained in the building will be protected from the elements and work on their conservation and restoration can begin;
- The FoHC can start planning for wider pub-lic access to the building.

The stone built vertical winding engine house, constructed around 1845 is understood to be the only example from the UK coal industry in its original location. Its survival is unusual given the previous approach to demolishing end of life colliery buildings and structures.

Since the site was last regularly occupied (c1985) the roof, as with the other site structures, has deteriorated with some alarming gaps opening over the past 18 months.

With the funding now in place, it is hoped work can begin immediately, and will comprise:

- Removal of all existing slates and the retention of as many as possible for reuse;
- Removal of all roofing battens;
- Removal of the rafters and most of the timberwork from the L shaped wing;
- Replacement of all timber removed with new treated timber;
- Reinstatement of the coping stones and ridge tiles and repointing the wall tops;
- Re-roofing the whole building with reclaimed welsh slate to the same size and standard as the existing (and of course reusing any recovered slates);
- Installing guttering, downpipes and related materials to replace original items.

This work is expected to take around 12 weeks and will be completed to 'heritage' specifi-cations to match as closely as possible the origi-nal building materials.

David Alderton retires from Council

David climbing on to the water powered roundabout at Silverdale, Isle of Man, 2006 *photo Peter Stanier*

David Alderton retired from the AIA Council at the AGM this year. He has been a very long-standing member of Council, joining it at more or less the same time as myself in 1979! He took on the role of Conference Secretary shortly after being responsible for the first AIA conference in Norwich in 1981 and putting together one of the first of the series of conference gazetteers which have been very popular. David's was designed to direct people to sites of interest along the approach routes to Norwich – I still have my copy! He assisted with the IRIS initiative for the classification of industrial sites in the 1980s, and played an important role in the AIA Education Group and edited its Newsletter. He served as President (we did not have a separate Chairman then) for three years to 1992, taking over the role of Conference Secretary again from that time. Even then, he took on the role of the Association's Secretary in 1999 and dealt with, among other things, the necessary changes to our Memorandum and Articles as a result of changes in Charity Commission rules. More recently, he has represented AIA at meetings of the Heritage Alliance and responded on behalf of AIA to various Government surveys.

David and I first met as teachers in Leicestershire and went on into teacher training, myself at the University of Loughborough (as it became) and David at Keswick Hall College of Education, later part of UEA. He has considerable knowledge of the industrial archaeology of East Anglia, gave the Rolt Memorial lecture in 2009 and wrote, with John Booker, The Batsford Guide to the Industrial Archaeology of East Anglia, in 1980 – ironically, he did not write the chapter on Essex but has since moved there and organised yet another AIA conference in Writtle in 2012, together with one for the AIA/CBA Training days in Ipswich in 2009. We all owe David a great deal for all his work for AIA and commiserate with him on the recent death of his wife Anne, who also served AIA for a time as our Publicity Officer.

Marilyn Palmer

Welcome to new members:

John Walter of Brighton (Welcome back)

Joao Sequeira of Almada, Portugal.

David Ingham of Peterborough

Siobhan Osgood of St Albans

Richard Sims of Bridport

Gerry Thacker of Oxford.

Help needed

Could anyone help with membership applications? Please contact the Secretary, David de Haan, for more details.

VISIT THE AIA WEBSITE

www.industrial-archaeology.org

AIA Restoration Grants

Criteria for awarding the grants are:

- The grant is for the restoration of historically, technically, architecturally, and/or archaeologically important industrial buildings, structures, machinery, vehicles and vessels within the UK:
- the application will usually relate to a single, tangible structure or artefact;
- the heritage asset must be covered by a Conservation Policy and/or Statement;
- the heritage asset must be sustainably managed, displayed and interpreted for the public, therefore the public must have full access to the asset;
- the grant must not result in another body reducing its funding;
- the maximum grant that can be awarded is £20,000;
- the applicant organisation must be a not-for-profit organisation such as a Trust, charity, CIC etc. Grants are not available for private businesses or individuals;
- the grant is to be used as partnership funding, the applicant being in the process of or having already raised matching funding from their own resources, fund raising, an HLF, PRISM or other grant award;
- the grant from the AIA must be a significant part of the total project cost, not just a small contribution to a very large project, so that the AIA grant has significant impact. The AIA would not normally fund projects where our grant represents less than 20% of the total project costs;
- the grant can be either for new projects or ones which have begun but need further funding for completion;
- the grant is for capital funding only, not on-going revenue funding;
- the AIA grant must be publically acknowledged with the AIA logo, for example on an information leaflet, on an interpretation board, on your website

The AIA is keen that both the Association and, in turn, the public appreciation of our industrial heritage, is enhanced through the awarding of these restoration grants. To ensure this the final 10% of the grant will only be made when the recipient produces evidence of publicity obtained and also provides a short article (around 250 words), with accompanying photographs, summarising the project for publication in the Association's news bulletin, IA News.

For full details of how to apply please consult the AIA website.

AIA Council members may wish to visit your site to see the asset it is proposed to restore and seek further information in order to reach a decision.

The AIA reserves the right not to award any grants if no satisfactory applications have been received.

The closing date for applications is 31March in each year.

AIA Award Winners, 2016

Left to Right
Tony Holroyd and Graham Walker, Dorothea award, Kew Bridge Engine Trust
Bill Pickering, Undergraduate dissertation award, University of Newcastle
Marilyn Palmer. AIA President
David Gwyn, Peter Neaverson Award for Outstanding Scholarship
Back Row: John Yates, receiving Professional Publications Award on behalf of Mike Williams and Colum Giles of Historic England.
Mike Shaw, Voluntary Societies Publications Award, Shropshire Caving and Mining Club.
Front Row: Clare Lewis, Take 27, Peter Neaverson Award for Digital Initiative and Innovation.
David Pearce, Leicestershire Industrial History Society, Special Award for Voluntary Society Publications.

The aims of the AIA include the following:

- Sponsor research and reward excellence through our awards scheme;
- Encourage research and publication;
- Pool knowledge and set standards for recording;
- Support local and special interest societies;
- Assist preservation through a restoration grants programme.

A number of awards are made each year to encourage the fulfilment of these aims. Those for 2016 were presented by the President at the conference dinner during the Telford Conference in September, 2016.

There are several categories of awards for publication. The Peter Neaverson Award for Outstanding Scholarship went to David Gwyn for his Welsh Slate: Archaeology and History of an Industry. David is the only person so far to receive this award more than once, his previous book, Gwynedd, Inheriting a Revolution, obtaining the award in 2009. The Professional Publications Award was presented to John Yates on behalf of Colum Giles and Mike Williams of Historic England, for Ditherington Mill and the Industrial Revolution. John had contributed a chapter to this book on 'Ditherington Rescued', a topic considered in his Rolt Memorial Lecture given at the conference.

Two awards were made for publications by voluntary societies as we had a bumper crop of entries this year. The main award went to the Shropshire Mining and Caving Club for their Aerial Ropeways of Shropshire, eds. M. Shaw, D. Poynter & Robert Evans, Shropshire Caving & Mining Club Journal, No. 28. A special award was made to the Leicestershire Industrial History Society for their continuing outstanding series of publications, and in particular the publication of John Briggs' work on Tubes of Desford, published in Bulletin 2, 2015.

The AIA seeks to further research in industrial archaeology and heritage in colleges and universities. The postgraduate award was presented to Joanne Harrison of the University of York for her thesis on Heritage at Risk: Victorian back-to-back houses in 21st century Leeds. The undergraduate award went to Bill Pickering of the University of Newcastle for his entertaining thesis on The Role of Souvenirs in the 1929 North East Coast Exhibition.

The legacy that Peter Neaverson left to AIA has now also been utilised for awards for digital initiative, something we very much encourage. We hope that this year's award to Claire Lewis of Take 27 for an animation of Peace, a compound steam engine at Queen Street Mill, textile museum, Burnley, may assist in the saving of that mill, whose future is still in doubt. We were also able this year to make a Dorothea Award for Restoration to the Kew Bridge Engine Trust for the restoration of an 1898 Benham & Co Deep Well Pumping Set at the London Museum of Water & Steam.

The former President's Award for a site visited during annual conferences has now been abandoned in favour of awards for the creative re-use of industrial buildings. This year's main award goes to King Edward Mine, Cornwall – a previous winner of the President's Award – for the restoration of the Mine's Count House and Carpenter's Workshop. Apart from bringing back into use two buildings of the mine, one of which was on the At Risk Register, they provide interpretation, satisfy environmental credentials and a local demand for light industrial use. Certificates will also be presented to The Sack House, Wantage Wharf of the Wilts & Berks Canal, which has been developed by Barrett Homes in a sensitive manner, and to Ryze Trampoline Park, the former Kingston Engine Works, in Glasgow..

Please continue to submit entries for all categories of awards, details of which will be found on the AIA's website.

Marilyn Palmer

We need to know

Best Creative Reuse of an Industrial Building

This award is entering its third year and becoming more widely known nevertheless if any AIA member is aware of a recently reused industrial building which they think is worthy of notice please bring it the attention of the award co-ordinator Amber Patrick at endangered-sites@industrial-archaeology.org

AIA Practical Day – 8 April 2017
The Iron Industry

Ironbridge Institute, Coalbrookdale

The day will provide introductory practical training and a broad understanding of the processes and buildings used in the historic iron industry.

It will begin with a short talk at Coalbrookdale focussing on processes, structures and landscapes. This will be followed by a walking tour which will take in the Old Furnace at Coalbrookdale, Bedlam Furnaces, and the Blists Hill blast furnaces, and other sites of interest.

The day will be led by Richard Hayman, an archaeologist and historian who is an expert on the of historic iron industry, with assistance from local and not so local AIA members.

Further details and booking instructions will be provided on the AIA website nearer to the time.

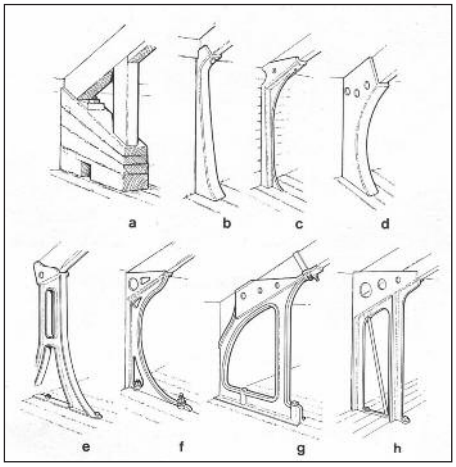
LETTERS

More on mill roof trusses

IA News 176 carried a note from John Boucher on a collar-beam roof truss with cast-iron knee brackets in a corn mill at Castleford, West Yorkshire.

This style of roof is featured in Colum Giles and Ian H Goodall, *Yorkshire Textile Mills 1770-1930*, RCHME (HMSO), 1992, pp.74-5 (a marvellous book, incidentally). Such trusses would seem to have been quite common in Yorkshire mills. It can be seen that the knee brackets raise the feet of the principal rafters above floor level to provide headroom, while restraining the wall tops against outward thrust from the rafters, which would otherwise become a problem. Being bolted to the rafters and to the floor beams below, they convert the roof trusses into portal frames.

Malcolm Tucker



Yorkshire Textile Mills *HMSO 1992*

The Wrong Stamps

I expect many readers will have noticed already that the picture on page 3 of IA News 178 labelled 'California Stamps' actually appears to be a picture of a battery of 12 heads of Cornish stamps.

In Californian stamps the heads turn during each lift, so the lifters tend to be cylindrical as are the uprights holding the heads. Those in the photo are rectangular as are the uprights, so the nogs on the axle will only provide a straight lift as per Cornish stamps.

If you get the chance to visit sites in Cornwall, King Edward Mine have a nice set of large Californian Stamps which they run occasionally; Kelly Mine has 4-head set of California stamps which they run on open days. You can see Cornish stamps in operation most days at the Blue Hills Tin Streaming plant near St. Agnes (well worth a visit to see a small water powered processing site working).

Kelvin Lake

Apologies – my ignorance. Ed

Max Sinclair

Max Sinclair, known to many as Max the Miller, died in April, aged 85. He was closely and very actively involved with the restoration of the Droitwich Canal and in the recreation of the Blaenau Ffestiniog Railway.

He was a founder member of the Worcester Civic Society and co-founder of the Worcester History and Industrial Archaeology Society.

After Army service he joined GKN Engineering at Smethwick before moving to Rubery Owen at Darlaston. Made redundant in the early 1980s, he was able to switch his keen interest to industrial heritage with a job as commercial manager at the Black Country Museum.

A few years later he moved to the Avoncroft Museum of buildings to become 'Max the Miller', changing his previous role as factory sales manager to the self-styled 'director of sails'.

His interest in steam locomotives began modestly in the 1950s when he joined the Worcester Model Engineers and helped plan and construct their model railway at Diglis.

His next big interest was in canals and he bought a 45ft narrow boat Vesta which he had to restore before spending the next few years travelling aboard her.

In the late 1950s Max started campaigning for the restoration of the Droitwich Canal which he had known since childhood and had been abandoned in 1939. The first big dig was in 1973 and over the years Max helped raise funds for the restoration work by holding jumble sales and giving talks. In July 2011 his hard work and that of thousands of others was rewarded when the Droitwich Ring opened. The work had included dredging more than five miles of the derelict canal, creating over half a mile of new canal and restoring nine locks.

In 2012 his work was further rewarded by his being named a 'Heritage Angel' winning the Industrial section of the English Heritage Angel Awards for his work on restoring the Droitwich Canals. As the citation said – 'it would not have been possible without Max's drive and vision'. See *IA News 163.*

The full obituary by Mike Grundy was published in the *Worcester News* on 23 June 2016.

Dalaucothi tramway?

I have been a member of the AIA for several decades. Could I make a request through the IA News for help with a National Trust guide book, which I am producing (as editor) for the NT?

The NT marks on its estate plan for Dolaucothi at Pumsaint near Llanwrda in Carmarthenshire the trackbed of 'an old railway', which must mean a tramway. Nothing is listed in *Stone Blocks and Iron Rails,* and I wonder whether any AIA members can shed any light on this. I have walked the marked section and the earthworks suggest a tramway, but I doubt it has any connection with the gold mines which the NT opens to visitors.

Anthony Lambert

The British Archaeological Awards

This year there is good news for industrial archaeology, David Gwyn won the Best Archaeological Book Award with Welsh Slate and Mike Nevell from Salford and his team from were short listed for the Best Community Engagement Project – Dig Greater Manchester.

This year's Awards Ceremony was held at the British Museum in London, now the usual venue, on Monday 11 July 2016. The Awards were presented by Julian Richards and Bettany Hughes and we were very pleased to have DCMS Heritage Minister, Tracey Crouch with us at the ceremony. She reminded us that Archaeology is such an important part of our nation's heritage, helping us to understand our culture and how people lived in the past. British archaeologists are world leaders in their field and the British Archaeological Awards celebrate their achievements and the new discoveries and narratives they have unearthed.

David Gwyn's book Welsh Slate was recognised by the panel of judges as an outstanding contribution to industrial archaeology and social history. It increased our understanding of the past and introduced this subject to new audiences, marking the perfect end to a publication project which began in 2007. Welsh Slate is an archaeological overview of the slate industry in Wales, not only of the quarries and the techniques of extraction and production but also of the transport systems and settlements associated with the industry.

Dig Greater Manchester is a project intended to create an opportunity for local communities in the Greater Manchester region to get involved in a variety of ways in their own history and heritage. Over the next four years the University of Salford and the Association of Greater Manchester Authorities are providing the chance for thousands of Greater Manchester residents to actually get hands-on experience of archaeological excavation in a safe and healthy environment. Dig Greater Manchester is an ambitious large-scale project providing people with opportunities to investigate and understand local archaeology in the context of industrialisation thereby 'Accessing, Exploring and Celebrating' their heritage.

The Award for the Best Archaeological Discovery went to the excavations at Must Farm, Whittlesey, Cambridgeshire. Now hailed as 'Britain's Pompeii' – Bronze Age roundhouses, log boats, numerous wooden fish traps and the most complete Bronze Age wooden wheel ever found in Britain have been unearthed. So astonishing and overwhelming were the discoveries at Must Farm that the judges immediately decided that the prize for the Best Archaeological Discovery should, without doubt, be awarded to this site. The two shortlisted runners up, although notable, were totally outclassed by what has been described as 'the site which keeps giving'.

Bob Carr

Zollverein and Völklingen Ironworks World Heritage Sites

During August 2016, I was able to visit two of Germany's industrial World Heritage Sites: the Zollverein Coal mine industrial complex and the Völklingen Ironworks, as a result of a successful application to the AIA's Peter Neaverson travel grant fund. The desire to visit these sites was primarily to gain a greater understanding of how UNESCO's World Heritage inscription and values are communicated through onsite interpretation and formal learning programmes.

Jamie Davies
Ironbridge Institute for Cultural Heritage

This understanding would support my ongoing PhD research at the Ironbridge Institute into World Heritage Education. Ironbridge Gorge inscribed as a World Heritage Site in 1986 is my research case study on the question 'How are World Heritage Values communicated in the formal learning process'. As a result of presenting my research to the German National Commission for UNESCO's World Heritage Education working group in November 2015, contacts had already been made with educational staff at industrial WHS in Germany with the aim to visit in the near future and, as a result, I was fortunate and most grateful to be given a personal tour by the lead education officers at both sites.

First was the Zollverein Coal mine industrial complex inscribed in 2001. The site was inscribed as a WHS as it was the largest and most modern coal processing plant in the world, and also for its buildings, examples of the Modern Movement in architecture.

The site is dominated by the iconic coal mine pit head frame and the cooking plant chimneys. The scale of the 800m long coking plant is breath-taking. The architecture of the Modern Movement, red and brick brown Bauhaus-style, contrasts with the beauty of industrial decay and is rightly of 'Outstanding Universal Value'. The aesthetic value of the industrial heritage is certainly now equal to its technical value.

Völklingen was inscribed by UNESCO in 1994 as the most authentic pig-iron production plant of its type in the world and for the technological innovations pioneered there.

Given the limited space it is not possible to write about all observations and developments at both sites, so I will outline a number of key points from the trip.

Zollverein Coking Plant *photo Jamie Davies*

Working Industrial site to World Heritage Site

Beyond the scale, the most fascinating insight was appreciating how quickly both sites changed from working industrial sites to become public heritage and inscribed as WHS. The process seems to have occurred more quickly in Germany than in the UK.

Völklingen ironworks, founded in 1873, remained in operation until 1986. Within three years the Ministry of Culture had recognised the cultural value of the site, with management and conservation plans underway by 1989. In 1994 Völklingen became Germany's first industrial WHS. It was only after the site was inscribed as a WHS, in 1999 that the site fully opened to the public as a heritage attraction through the Völklinger Hütte.

Zollverein had been a working coal mine from 1847 to 1986 and, as with Völklingen, within three years the site was bought by the regional state government with the Ministry of Culture opening it as a heritage attraction and with former miners leading site tours. By 1998 it was owned and managed by Stiftung Zollverein (Zollverein Foundation) which still manages the site today. The coking plant remained in operation until 1993 and became part of the heritage site in 2000. In 2001 the site was inscribed a WHS, Germany's second industrial WHS.

Both sites which had previously been enclosed industrial work spaces, separated from the public for security and safety reasons, were now open for the first time. Today, they are very much public spaces. Beyond the ticketed museums and buildings, the landscape is freely open for recreation and use by walkers and cyclists.

Since the World Heritage inscription of the sites, significant investment has gone into the management, conservation and interpretation of the sites and their landscape.

At Zollverein a major redevelopment took place in 2010, with the Ruhrmuseum, designed by Rem Koolhaas, opening in the coal washing plant, new interpretation in Shaft XII and heritage trails being developed. The site now includes a number of museums, offices for creative companies and university buildings. These new builds have been sympathetically developed within the WHS and should be recognised as examples of positive development which enhances rather than

Völklingen *photo Jamie Davies*

detracts. Furthermore, controlled vegetation growth and a sculpture trail have created a green landscape out of a once black one.

Since 1999, the Völklinger Hütte have used the spacious industrial buildings to host temporary exhibitions as a means of attracting tourists to the industrial site. Photographic exhibitions have proved popular and at present there is an artefact exhibition on the Buddha in the Blower Hall and a photographic exhibition in the Burden Shed. While it may appear that the industrial heritage merely forms the backdrop to the heritage attraction, the success of this approach has proved that it is essential to go beyond traditional themes in order to sustain the sites. Given their scale and aura the industrial buildings provide a unique space for exhibitions.

2014 saw the opening of a world heritage visitor centre at Völklingen. This impressive space uses the latest digital technology within the sintering plant building. The conservation of this authentic industrial building is evident in the interpretation through non-intrusive digital projections of historic photos and videos and digital touch screen tables. This detailed introduction to the site allows for minimal distracting interpretation on the site itself.

Perhaps the most special space at Völklingen is The Paradise. Beyond the coking plant, and the WHS inscription boundary, through a green arch, visitors enter an area where the industrial heritage is left to Mother Nature and time, resulting in the popular aesthetics of industrial decay. This is possible as it is beyond the UNESCO conservation area; and not subject to the same strict conservation regulations. The vegetative growth is controlled, creating the illusion of industrial decay. This approach to industrial heritage should be welcomed and adopted where possible.

The scale of the conservation challenge at both sites is immense. At Völklingen it has taken 30 years to conserve 80% of the main site; however, the conservation actions are only designed to last for 30 years before they will need renewing. Both sites are a reminder that unlike other WHS which were designed for permanence, industrial WHS, despite their scale, were constructed with change in mind and preserving them for the future is a constant challenge.

The World Heritage Brand

At both sites the UNESCO World Heritage branding is fully utilised. However, it is only at Völklingen that there is a UNESCO World Heritage visitor centre. It includes digital touch tables (in German, French and English) allowing the visitor to understand the inscription, the 'Outstanding Universal Value' and UNESCO values. One of the touch tables even includes a section on another WHS; the Ironbridge Gorge and the Darby Furnace, in order to communicate its contribution to the development of the industrial processes which led to Völklingen.

Education

At Zollverein all interpretation and educational programmes are through guided tours managed by the Zollverein Foundation. This is due to the limited visitor capacity, despite the scale of the buildings. In terms of formal education an innovative approach has been developed; since 2009, 300 cooperation agreements with regional schools have been agreed. This encourages repeat visits to the site and allows for an education programme to be tailored to a school's needs. The site has numerous educational spaces which make the most of the vast buildings.

Völklingen Visitor Centre *photo Jamie Davies*

In 2018, Germany's last coal mine will close. At Zollverein they recognise the increased interest this will bring to the site and they understand that their educational programme must reflect this. Even so, there is no access to the underground coalmines themselves, unlike at Big Pit, Blaenavon WHS. This represents a challenge in developing the visitors' understanding of the industrial site as many visitors expect such an experience.

At Völklingen, with limited staff, there is a less developed educational programme. The formal programme is based on temporary exhibitions and outreach projects which are often arts based. The arts have been a useful means of engaging young people with industrial heritage. For example, semi-permanent non instructive street art and graffiti, part of UrbanArt Biennale, which took place in 2011, 2013 and 2015, has made the site more accessible to young people.

As with the UK, funding for formal education programmes and staff and maintaining school-site relationships are a challenge in ensuring the WHS are learning resources. World Heritage Education, as at other WHS, is slowly being developed but it is rightly given lower priority than conservation, the development of visitor infrastructure and sustainable funding models.

Twenty two years after Völklingen was inscribed and 15 years after Zollverein, World Heritage Status has clearly transformed these industrial WHS. The breathtaking scale and the technological and architectural significance of these sites were quickly recognized by the German authorities and later by UNESCO. Industrial sites, once closed to the public, now attract millions of visitors each year and have become regional cultural creative centres. Site masterplans have ensured the authenticity and integrity of the sites are maintained while making them accessible and relevant for the post-industrial society of the twenty-first century. Given their confidence and vision, these industrial WHS are ones to watch over the coming years. They will continue to be places of pilgrimage for industrial archaeologists, but now also for heritage managers, architects and researchers.

Thanks to the AIA for the grant and Petra Becker from the Zollverein Foundation and Peter Backes from the Völklinger Hütte for being so hospitable and taking time out of their day for me.

Heath Oilwell, Derbyshire, 1922 – Britain's first Fracking site?

Few people in Britain, know about the amazing history of the oil industry in Derbyshire - of the refinery set up at Riddings in 1848, of the oil wells sunk in seven locations in the county as the First World War came to an end, and particularly of the well at Tibshelf which produced oil for the next 25 years, through to the end of WW2.

Each of these sites has a story to tell, but perhaps it was the sinking of the oil well at Heath (a village close to what is now Junction 29 on the M1 motorway) that has particular relevance today.

Cliff Lea

During WWI the Government decided to carry out the very first exploration for oil in Great Britain; it was an attempt to prove whether we had our own commercial resources. At the time WWI was declared oil had become a vital commodity, particularly to power the nation's naval and military equipment. Yet it had to be shipped in from America, Persia or Burma at a time when threats from submarines were growing.

The main area for exploration (the other areas were the Potteries and Lothian) was to be Derbyshire, where so many chance and serendipitous oil finds had been encountered in lead and coal mines over centuries. The geologists decided that wells were to be sunk in the Chesterfield area - at Ridgeway, at Renishaw on the Sitwells estate, on Brimington recreation ground, the Chatsworth Hardstoft Estate at Tibshelf, and near Alfreton. There was also to be a well sunk at Heath, in the fields behind the Post Office.

The drillers were recruited by the Government's contractor S. Pearson & Co. Ltd. from existing oilfields in North America, and they worked on the Derbyshire sites for a number of years.

The site at Heath is on the same anticline as the successful well at Tibshelf but three miles further north. It was spudded on 27 February 1919. Initial drilling was through the coal measures, but between 17 and 26 feet down they struck an old and unrecorded coal-working. Drilling was suspended, and they inserted concrete pillars to support the derrick before proceeding further down. They inserted 20 inch diameter steel casing pipes through the next 55ft, cementing them in to avoid cave-in and flooding by water and soft clay. Gradually the steel casings were reduced in diameter. Seven diameters were used in all, reducing to 4½ inch at the base of the well.

At 2,950 ft depth with casing diameter now just eight inches, they had considerable difficulty when the bottom two casings collapsed, and it was a mammoth task to fish them back out. They chopped them up with the drill bit and got them to the surface in pieces.

In February 1920, at 3,650 ft, they lost the tools at the bottom of the well – these were pushed to one side and the drilling continued for a further 100ft when further caving problems necessitated packing the base of the well with concrete and drilling through it. The well was completed on 20 January 1921 at 4,000 ft.

And did they find oil? They struck great quantities of gas in the coal measures at 1,875 ft and 2,615 ft, estimated at 450,000 cu ft per day. The coal measures occupied the first 2,800 ft, followed by 725 ft of millstone grit. They entered the limestone shales at 3,525 ft in which they might have expected to find oil. Carboniferous limestone began at 3,942 ft and it was with some disappointment that they won just a tiny amount at this depth – it was lighter in both colour and gravity than the Tibshelf oil, which by this stage, was flowing quite freely less than three miles away. They continued to 3,988 ft, encountering another small sample of oil.

The riggers were clearly quite sure that oil was to be found at the base of the well, and so it was here that in January 1922 they decided to encourage oil flow by using an explosive charge to fracture the rocks at the bottom of the well. The operation was to be one of considerable difficulty on account of the small size of the hole (4½ in diameter) and the great depth.

Their first attempt to 'shoot' the well was by lowering 110 lb of dynamite packed into a length of steel pipe. The hole was then filled with brine to tamp the blast. It was detonated by a hand dynamo and electric cable. The explosion caused the total entanglement and matting of the electric cable and wire rope which had been used to lower the charge within the hole.but not much else.

The team reported that only small quantities of oil seeped into the well, more disappointment after two year's work. One final 'make-or-break' attempt was made to encourage oil flow before abandoning the well. They decided to use nitro-glycerine. 'Nitro' is a highly unstable explosive liquid, which could be detonated simply by shock, or heating to a modest 60° C – close to the temperature of the rock 4,000 ft down!

Since it was forbidden to transport Nitro by road, they decided to make it on site. Dynamite is the safe form of nitroglycerine, and Nobel's 75% 'Nitro' dynamite was transported to the site and the nitro-glycerine was extracted from it using warm (not too hot!) water.

Ten canisters eight feet long were very, very gingerly filled with the Nitro, and each was lowered to the base of the 4,000 ft well. Each canister was lowered as soon as it was ready, to reduce the risk of detonation on the surface – the bottom of the well was the safest place for them to be.

The total charge was 1200 lb – half a ton of nitro-glycerine! To be exploded in the field behind the old Post Office, not far from the church, in the village of Heath!

Disappointment was now complete – no further oil or gas was dislodged, but in clearing the hole, they noted that the underlying rock had at least been successfully fractured.

Could this be regarded as Britain's first example of 'fracking'? Not fracturing the underlying rock by hydraulic shock, but by use of a severe explosive charge. So, fracking perhaps and it was carried out in Derbyshire in 1922, with nitro-glycerine. And the village of Heath survived!

First published in the North East Derbyshire Industrial Archaeology Society Newsletter August 2016 and republished with their kind permission.

New Donnington

New Donnington is part of the borough of Telford, situated roughly two miles to the north of Telford centre. Some quite remarkable houses, unusual for the district, were built here in the late 1930s. They are red brick, modern, with flat roofs and there is a considerable area of them. They were built to attract workers from Woolwich Arsenal in London to work at the new RAOC Central Ordinance Depot which was being set up close by. This was almost a proto-Telford project – so the Government had ideas of rejuvenating what was then a run-down and economically depressed industrial area even before the Second World War. The new houses were certainly in-fashion and stylish for their time and would probably have tempted some of the best workers.

New Donnington is an example of a Pre-War Shadow development, the idea being to move munitions and armaments away from Thameside so as to disperse such war materials and locate them further away from the expected bombing in London. Another great attraction for people to go there was that Guernica was happening about this time and pundits were prophesying something like one million casualties should London be bombed by the Germans. It would have been much safer in Shropshire.

Hand in hand with shadow developments of this kind, in the 1930s Britain, as in several other countries, there was also a general programme of public works to create much needed jobs for manual workers.

By 1980 the Central Ordnance Depot (COD) Donnington, together with COD Bicester, were the two remaining Depots in use by the Royal Army Ordnance Corps. In the 1970s and 1980s Donnington grew to be one of the largest military store complexes in Europe. It is still in use as a storage depot, though the size of the Depot was reduced following fires in 1983 and 1988.

However, things have now come full circle; a large new state-of-the-art army logistics centre is being set up next to the old COD Donnington. This makes extensive use of computer-controlled racking and robot retrievers to shelve and locate military stores.

Robert Carr

Award for Knockando Mill

Hugh Jones, the weaver who kept the mill going since the 1970s and who led the overhaul of the machinery in the recent conservation project *Historic Environment Scotland*

Knockando Mill in Morayshire has earned a Europa Nostra conservation award, one of just two in the UK this year, the other going to an English folly. On 15 August there was a celebration in they Speyside valley to mark the unveiling of a plaque, at which the European Commission and Europa Nostra UK were well represented.

Knockando Woolmill has been active and producing textiles with its original machinery since 1784 and is a living monument to an important Scottish tradition. The restoration project is notable not only for its high quality and attention to detail but also for its success in promoting rural revival in this distinctive region. "The Knockando Woolmill is special due to its continuous, unbroken production of textiles over the last 200 years. This is exceptional in Europe and the survival of this type of local production is rare", the jury said. They added, "Though it is a decidedly local endeavour and is linked very much to its regional identity, the Woolmill's production of high-quality textiles to a growing global market makes it an internationally significant endeavour. Its very survival in today's globalised world is deserving of European, if not international, recognition".

In 2000, the condition of both the buildings and the machinery was critical and a major programme of repair and renewal became an absolute priority. To this end, the Knockando Woolmill Trust was established to raise funds. As the buildings were generally in an extremely fragile state, extensive research was required and complex strategies for their repair were devised to allow the original vernacular architecture to remain intact .

One of the main priorities was to provide a Craft Training Workshop to train young people in traditional crafts which may otherwise have been lost. The byre, which formerly housed farm animals, was converted to a visitor centre. The jury appreciated these aspects of the project, commenting that "the community involvement, the generation of new employment opportunities and the attraction of visitors to this relatively remote region is a wonderful example of rural revitalisation and of what can be done in comparable locations throughout Europe".

Knockando Mill 1994

Your Ironwork Needs You!

In the United Kingdom we have a precious heritage of architectural ironwork displaying an unparalleled mastery of design and craftsmanship – and it needs your protection. So if you are passionate about art, devoted to conservation or have a penchant for metalwork, or if you are simply interested in safeguarding the future of your country's heritage. Please consider joining the NHIG in our endeavour to preserve this magnificent aspect of our shared heritage by signing up to our mailing list or offering longer-term support through membership.

Established in 2009 to secure the future of our rich ironwork heritage by promoting high standards of workmanship, the NHIG has since passed many important milestones. From launching the first ever Conservation Principles for Heritage Ironwork – now widely accepted as the gold-standard – to organising regular training events, we have gone a long way towards achieving our goals, but there is still further to go.

Flood damage on the Dee

Last New Year's floods did severe damage to several footbridges on the River Dee near Ballater, and three pedestrian bridges were still closed in August. Crathie Bridge by John Justice of Dundee built in 1834 (visited by the AIA during the 2013 Dundee conference), has tree debris tangled in the interesting trusses below the deck. Cambus o' May Bridge, built 1905 and rebuilt 1988, and Pollhollick Bridge, built 1892, repainted and repaired 2014, are both badly dented by the force of the water.

At Abergeldie the flood cut back the south bank of the river endangering Abergeldie Castle. The south abutment of Abergeldie Bridge which was already derelict was swept away at the same time but some of the surviving cables held; so the remains of the bridge have now swung through 90 degrees to lie parallel to the bank. There is very little left.

The Finzean wood mills, also visited in 2013, suffered damage to the launder and weir.

Cambus O May bridge, Ballater after floods January 2016 photo Mark Watson

Brewing artefacts on display

Work is underway to create what might be the first specially designed display area for industrial artefacts in a UK housing scheme. York property developer Northminster is working with the AIA to conserve historic brewing artefacts at Clementhorpe Maltings in York, which is being converting into six townhouses in a £2m regeneration scheme backed by the City of York planners although controversial within the local community.

Two more engines for the Waterworks Museum, Hereford

The Waterworks Museum has one of the largest collections of historic working water-pumping engines in the UK. It is also home to a number of engines which were not expressly used to pump water but which played an important role in the total process.

The Museum's collection includes engines covering a century-long chronological range, from the steam-operated Simpson beam engine of 1851 to a Pelapone diesel engine of 1955. These two are perfect examples of the transition from external combustion to internal combustion.

The museum recently put two further engines on display. A Blackstone open-crank oil engine was supplied to Burnley Education Committee in 1934 for use in a technical college. It enabled students to make measurements such as brake-horsepower during their practical work. The engine has only one flywheel. At the other end of the crankshaft is a drum wheel which could be filled with water and a brake strap applied. The friction caused the water temperature to rise, enabling the students to make the relevant measurements.

The engine was in generally good condition when it was donated to the museum by the Lancashire Museums Service in 2012. However, some parts were missing and these have been fabricated by museum engineers.

The second engine to be put on show is a hot-tube gas engine built by the Campbell Gas Engine Co Ltd in 1895. Hugh Campbell was born in Glasgow in 1860. Originally a carpenter and joiner, he established his own firm in Halifax in 1883 to design and produce gas engines.

For many years this engine remained cocooned in a back store at the museum until it could be accommodated for restoration and display in the Southall Gallery. The engine was originally installed at Rhos-on-Sea in Clwyd, North Wales. It was used to provide compressed air from an integral compressor for starting much larger water-pumping engines in the town. It was donated to the museum by D r Cymru Welsh Water.

The gas is detonated inside the engine by a tube heated from the outside by a separate gas burner. Considerable experimental work was needed to be able to run the engine on natural gas.

1895 Campbell Gas Engine

Buildings at Risk in Cardiff

Besides Bute Road station which is listed by the Victorian Society (see page xx), also under threat is another grade II* building in Cardiff, the large and impressive Coal Exchange. In 1904 the first cheque for £1 million was probably signed here. A £40 million plan to convert the building into a hotel, apartments and so on, has been in abeyance owing to financial uncertainty. However, there are now fresh hopes. Built in 1883, The Coal Exchange closed in 1958 following the decline of the coal industry. In the 1970s it was considered a suitable location for the proposed Welsh Assembly.

The 20th Century Society has been campaigning to save Broadcasting House at Llandaff in northern Cardiff. The purpose-built headquarters of BBC Wales Cymru, it opened in 1966 and consists of three blocks designed by Dale Owen of the prestigious Percy Thomas partnership. Professor Judi Loach, architectural historian at the University of Cardiff, has claimed that this is the most significant twentieth century building to be threatened in Wales since the loss of the grade II* rubber factory at Brynmawr, built 1946-51 and demolished in 2001.

Robert Carr

The Iron Duke goes home

The Iron Duke reassembled

A recently restored nineteenth century rubber rolling machine has been returned to the Kingston Mills in Bradford-on-Avon where it operated for more than a century. The 16-tonne, 12ft-high machine, known as the Iron Duke, was the first of its type in Europe.

It enabled rubber to be attached to cloth, meaning waterproof garments such as capes could be made. Built in 1848, the Iron Duke, named after the Duke of Wellington, was central to the start of the rubber industry in the town, and it stayed in service until the 1960s.

Bradford-on-Avon's Museum Society and Preservation Trust restored the machine, which had been stored in pieces at the Industrial Museum in Bristol since 1973.

More demolition

Herbert Morris works Loughborough

The former Herbert Morris buildings in Empress Road will disappear from the Loughborough landscape forever after plans to demolish them to make way for 30 new homes were given the go-ahead.

The AIA Endangered Sites Officer, Amber Patrick, had written to the council to say that; "…… no consideration appears to have been given to the potential re-use of at least some of the buildings by converting them to the residential accommodation rather than wholesale demolition. The loss of the buildings will result not only in a loss of an important piece of the town's history, which they so clearly represent, but also the opportunity to create a varied setting for the proposed accommodation and to re-use the materials of the site. The complete demolition of the buildings should be a last resort."

A report by the council planning officers who passed the application states: "The factory, whilst imposing and notable, is not of any particular special interest. It is not a listed building and is not a locally listed building. Given that the previous local plan identified that the site could be re-developed, the principle of the loss of the building has already been previously accepted. It is not considered that circumstances have changed since that previous conclusion."

Following the decision *Loughborough and Shepshed Echo* editor Andy Rush wrote in a strongly worded editorial: "So plans have been passed by council officersto demolish the old Herbert Morris works in Empress Road for housing. Yes, there is a need for homes. Yes, brownfields is often a better alternative than greenfields. But demolition ... really...?

This is a big part of the town's industrial heritage. Why didn't somebody think to sit back and say: 'Hey hang on there... Just a minute, can't we ask them to incorporate the old buildings somehow? At least preserve some of it?' It seems not." He then quoted at length from the AIA letter above.

He finished with "To be honest I despair. This isn't anything new. I look around Loughborough and see chances lost, buildings lost, history gone forever. Maybe many buildings were deemed to be uninhabitable in the late 1950s early 60s when the wrecking ball of 'progress' seemed to be king. But how come other towns manage to salvage their constructions and, not only that, turn them into features? And why can't Loughborough do the same?"

We need more local paper editors to be so outspoken.

Old Chimneys – New Flues

When is a chimney not a chimney – when it's a flue.

Demolition by explosives; blowing things up as a public spectacle has been popular this year. Here are two examples.

The concrete chimney of Westbury Cement Works in Wiltshire which was 122 metres (400 feet) high was demolished by explosives on 8 September. The site is about one mile north-east of Westbury and a large crowd was present for the event. This concrete chimney was only slightly shorter than the spire of Salisbury cathedral – many people probably regarded it as an eyesore. The Cement Works were opened in 1962 and cement production continued here until the works were mothballed in 2009. It was the second chimney to be built at the works; the first chimney, 250 feet high, was demolished in October 1965. There is an entry for this site in the AIA Gazetteer for Wiltshire, 2008 on page 62.

At 244 metres (801 feet) the chimney of Grain A Power Station in Kent was the tallest concrete structure ever to be demolished in Britain. It was 37 years old and demolition took place on 7 September this year; the event was all over in nine seconds. Grain A power station burnt oil and gas and had an output of 660 MW. It was opened in 1979 and closed in December 2012. Built in 2010, Grain B gas-fired power station, 1275 MW, will produce electricity at this location in the future.

A new flue

Large out-of-town power stations are falling out of favour. Now regarded as environmentally preferable, smaller power stations in urban areas which provide district heating are currently being built. Two of these were completed for the Olympic Park in East London, one at Stratford and one towards Hackney Wick.

A large thermal power station built forty years ago would have had an efficiency as low as forty percent. This means that a colossal amount of heat is wasted. The idea now is that rather than having cooling towers or heating up rivers – thermal pollution – it is better to heat housing. So if you are using a local power station to warm your apartment, your rooms are serving the function of a traditional cooling tower.

Dissipating heat locally in a useful way is hardly a new idea; in the nineteenth century the fountains in Trafalgar Square in London were used as a heat sink for a pumping engine situated in Orange Street. The fountains act as a heat exchanger in a similar manner to a twentieth century cooling tower. Another example was Battersea Power Station where hot water from the condensers was used to warm flats north of the river - this district heating scheme flourished for many years.

Nearing completion off Millennium Way on the Greenwich Peninsula in London, the new Low Carbon Energy Centre will serve the largest newly-built residential district heating system in Europe. Designed by architects C.F. Møller, this

Greenwich Energy Centre *photo Robert Carr*

power station has a flue stack 49 metres high. The stack is now enveloped in perforated, folded panels of brushed aluminium, a creation by artist Conrad Shawcross called The Optic Cloak. Compared with the original design for a monolithic 600 tonne steel box, this new artwork is claimed to reduce the weight of the stack's frame by 40%, and a 'moiré effect creates transparency'.

The photograph, taken in August 2016, shows the cladding of the flue stack nearing completion. The idea is to replace an 'eyesore', a chimney, with a beautiful art work which will enhance people's lives. As it is situated next to the southern approach road for the Blackwall Tunnel, large numbers of people pass close to this new flue every day. The Optic Cloak certainly makes clear that dramatic things are happening on the Greenwich Peninsula.

The new Energy Centre will have a capacity of 87 MW. Its construction was partly financed from the European Union Regional Development Fund.

Robert Carr

New plaque for Greenwich Tunnel

On 5 July the Friends of Greenwich and Woolwich Foot Tunnels assembled at Cutty Sark Gardens to celebrate the unveiling of an interpretive plaque for the Greenwich Foot Tunnel.

The Greenwich Foot Tunnel was built in 1902 by the London County Council, as the second of a series of free river crossings for the people of east London. As such, it was a major and innovative piece of engineering. The first of these crossings was the phenomenally successful – but much maligned - Blackwall Tunnel, which celebrates its 150th anniversary next year. Both tunnels were designed by the Council's Chief Engineer, Alexander Binnie. FOGWOFT hopes we can honour both him and his tunnels – and we hope to add the slightly later Woolwich Foot Tunnel and, of course, the Woolwich Free Ferry.

New World Heritage Sites

Although this year's UNESCO World Heritage Committee meeting in Istanbul was interrupted by the attempted coup, all the nominations were decided. Mark Watson, the AIA's and UK representative observed from a safe distance (at home) on the live feed on UNESCO'S website.

New World Heritage Sites are more evenly spread this year than last, between cultural and natural, and are less Euro-centric. The six industrial inscriptions achieved in 2015 were exceptional. This year will be remembered for modernism: two new sites, and much time discussing a Frank Lloyd Wright site, that was referred, to try again with better reasoning for the selection. There was no overtly industrial era inscription, but I draw attention to these:

Qanat water collection systems and 28 (apparently surviving) watermills in Iran;

Antigua Naval Dockyard and related archaeological sites: "The construction of the Dockyard by the British navy would not have been possible without the labour of generations of enslaved Africans since the end of the eighteenth century. Its aim was to protect the interests of sugar cane planters at a time when European powers were competing for control of the Eastern Caribbean." In fact I think no slaves worked in the Antigua Royal Navy Dockyard, although Georgetown, Bermuda (also a WHS) and Jamaican dockyards did have slaves for a short time. Pirates of the Caribbean would be a more accurate description! Ships were careened, not dry docked.

Summary

- 21 New inscriptions; 12 Cultural, 6 Natural, 3 Mixed;
- China becomes only the second state to reach 50 WHS;
- Japan, Iran and Brazil reach 20 or more WHS, UK reached 30 with Gorham's Cave, Gibraltar (last stand of Neanderthals);
- Three sites inscribed for India;

Seven deferrals overturned in favour of inscription;

- Two states (Micronesia and Antigua) have their first site inscribed.

Inscriptions by Region

8 Asia

6 Europe + Canada

2 Arab States.

2 Latin America

2 Africa

1 Le Corbusier serial site (3 continents)

Mark Watson - UK rep to TICCIH

Victorian endangered buildings

Victoria Mill, Grimsby *photo Mark Watson*

The Victorian Society's annual list of the Top Ten Endangered Buildings includes four industrial sites.

Old Bute Road Railway Station, Cardiff (Grade II*, 1842, Brunel?)

Arriving at Cardiff Bay by train today you would never guess that this dilapidated station was the home of the first steam-powered passenger train service in Wales and vital to the development of Cardiff into the important international port it became in the nineteenth century. Thought to be designed by Brunel, it was built as the headquarters of the Taff Vale Railway in 1842/3, and is Grade II*-listed as an exceptionally early surviving example of purpose built railway architecture in Wales. The station's dereliction is all the more shocking given its location just a stone's throw from the centre of Welsh political power at the Welsh Assembly and the regeneration of Tiger Bay. Surprisingly, a modern shelter was built at the station, which still serves commuters, right next to the old station - one of the few remaining historic buildings in the area. Sadly, it has been left to rot since a museum it housed closed. Surely a new use can be found for this important building. With passengers still using the station, a food or retail use may well be feasible.

Victoria Mill, Grimsby (Grade II, 1889 and 1906, Sir William Gelder of Hull)

The former flourmill, warehouse and office complex was built in phases between 1889 and 1906 and partially converted to flats in the 1990s.

Now the tower of this Grimsby landmark, which was not converted to housing, has suffered from structural difficulties. As a result, some people living in the flats were made homeless for weeks owing to their homes being declared unsafe. After the owner failed to take action, the council carried out work to allow residents to return home and prevent a collapse onto a main road. While the council battles to recoup the costs of this work the long term future of the tower remains uncertain.

Oliver Buildings, Barnstaple (Grade II, (1888, William Clement Oliver)

The Grade II listed Oliver Buildings occupy a prominent riverside site in Barnstaple. William Clement Oliver designed the Shapland and Petter multi-coloured-brick factory, showroom and office complex in 1888. Following a disastrous fire which destroyed the firm's previous works, the buildings use an innovative combination of fireproof and fire-retardant construction, compartmentalisation and a sprinkler system. Shapland and Petter originally used advanced American machinery to produce high-quality, mass-produced Arts and Crafts furniture and were Barnstaple's biggest employer for many years. The buildings closed in 2009.

A developer who bought the site repeatedly fought to overturn the building's listing, even backed by a local MP. Concerns over their future were compounded by North Devon Council leader Des Brailey mistakenly stating that Grade II-listing does not protect the buildings' interior. After rejecting an offer by the local building preservation trust to buy the buildings, the developer needs to produce plans incorporating the buildings without any further delay before they are allowed to decay further.

Rylands Mill, Wigan, (Grade II, 1865, George Woodhouse) also known as Gidlow Works.

A former cotton mill with integral boiler, chimney, weaving sheds, its own private railway and collieries – the mill reportedly held 60,000 spindles and 1,500 looms. It was one of the few mills built immediately after the cotton famine. 1300 people worked here in the 1880s. The two rectangular turrets may be dust extraction flues from either side of the engine house, which had two early cross-compounds. The building was last occupied by Wigan and Leigh College but has lain derelict since the early 2000s. Although designed to be fireproof, the mill has suffered regular fires in recent months, resulting in the demolition of a twentieth century extension. Locals remain concerned about the lack of vision for the site where children risk their lives trespassing. Ideally located next to Mesne Park, recently restored after a £6.1 million grant from the HLF through 'Parks for People'. The mill is currently for sale at £2,500,000.

Oliver Buildings, Barnstaple

Local Society and other periodicals received

Abstracts will appear in *Industrial Archaeology Review.*

Berkshire Industrial Archaeology Group News, 38, Summer 2016; 39, Autumn 2016

Bristol Industrial Archaeological Society Bulletin, 148 Summer 2016

Dorset Industrial Archaeology Society Bulletin 46, September 2016

Greater London Industrial Archaeology Society Newsletter, 285, August 2016; 286, September 2016

Historic Gas Times, 87, June 2016

ICE Panel for Historical Engineering Works Newsletter, 150, June 2016

Manchester Region Industrial Archaeology Society Newsletter, 153, Autumn 2016

Merseyside Industrial Heritage Society Newsletter, 354A, July 2016; 355, August 2016; 356, September 2016; October 2016

Midland Wind and Watermills Group Newsletter, 115, August 2016

Northamptonshire Industrial Archaeology Group Newsletter, 139, Summer 2016

North East Derbyshire Industrial Archaeology Society Newsletter, 63, August 2016

Piers: the Journal of the National Piers Society, 120, Summer 2016

Somerset Industrial Archaeological Society Bulletin, 132, August 2016

Suffolk Industrial Archaeology Society Newsletter, 134, August 2016

Surrey Industrial History Group Newsletter, 211, August 2016

Sussex Mills Group Newsletter, 171, July 2016

Trevithick Society Newsletter, 172, Summer 2016

Yorkshire Archaeological Society Industrial History Section Newsletter, 98, Autumn 2016

Books

British Industrial Architecture, Victorian and Edwardian, by Lynn Pearson, 160 pp, 149 illus, ISBN 978 1 78500 189 5, Crowood Press Ltd, Marlborough SN8 2HR, hbk £22.50.

This book is concerned with the architecture, planning and design of those factories that were part of the second wave of the industrial revolution. The book's geographical range encompasses the whole of the British Isles while its time span covers the Victorian and Edwardian eras, 1837- 1910, and the period leading up to the First World War. It also looks back to earlier buildings and gives some consideration to the interwar years and beyond, including the fate of our factory heritage in the twenty-first century.

Lynn Pearson has published over twenty books, including *Built to Brew: The history and heritage of the brewery* (2014), which won the Association for Industrial Archaeology's Peter Neaverson Award for Outstanding Scholarship in 2015.

British Bricks, by David Kitching, Amberley Publishing, The Hill, Stroud, GL5 4EP, 2016, ISBN 978 1 4456 5912 1, 96pp 180 illus. £14.99 pbk.

A book for the brick enthusiast with illustrations of individual bricks and brief descriptions of their manufacturers, Which range in scale from a single kiln in a field to massive works with continuous kilns and chimneys, which grew up in areas where the right clays were available. This book demonstrates the extraordinary variety of the product.

Technology in the Country House by Marilyn Palmer and Ian West, Historic England, 2016, ISBN 978-1-84802-280-5t, 272pp, 250 illus, £60.00 pbk.

This magnificent book by Marilyn Palmer, the AIA President, and Ian West, a long standing member of the AIA Council is the product of several years research and involved visiting nearly 100 houses in the United Kingdom.

Many members will have touched on the subjects while on Country House Comfort & Convenience tours organised by Heritage of Industry – this is the comprehensive work covering the background and the details.

By the nineteenth century, life in most country houses changed as a result of various technical inventions such as improved water supplies, flushing water closets, boilers and pipes to provide central heating, internal communications by bells and then telephones, and better lighting by means of gas and electricity. Country houses, however, were usually too far from urban centres to take advantage of centralised sources of supply and so were obliged to set up their own systems if they wanted any of these services to improve the comfort of daily living. Some landowners chose to do this; others did not, and this book examines the motives for their decisions. It also sets out to discover what evidence has survived for the impact of technological innovation on the buildings, contents, parks and gardens of country houses and on the lives of the people within them. Many books have been devoted to the lives of those in domestic service in such houses, but this book looks not so much at the social records of their lives as the actual physical evidence for the greater levels of comfort and convenience sought by landowners in country houses from the eighteenth to the early twentieth centuriy.

Historic England are offering members of the AIA 20% discount and free p&p on Technology in the Country House (rrp £60.00). Visit their online shop at retail.historicenglandservices.org.uk and enter discount code 7220160019 on the basket page. **Valid until the 31 December 2016.**

NEDIAS Journal, Volume 6

The North East Derbyshire Industrial Archaeology Society have just launched the latest in their series of occasional journals.

The 100-page *NEDIAS Journal Volume 6* begins with an article on one of the most active mechanical engineers of his time – William Brunton. He started his career in David Dale and Richard Arkwright's New Lanark mills, moving on to Boulton and Watt's Soho Foundry before joining Butterley Works. He was to bring much expertise and his time at Butterley has been the subject of extensive research by Martyn Taylor-Cockayne to locate the engine shed where his famous 'mechanical traveller' or 'steam horse' had been built.

Ronald Presswood's article on the considerable education and training encouraged and sponsored by Staveley Chemicals and Staveley Iron Works for its employees is a welcome addition to his earlier history of the works which he researched and submitted for NEDIAS Journal Volume 3.

The days of Chesterfield's own trolley bus operations are recounted by Philip Cousins who has researched Leicester Corporation Passenger Transport Committee's records concerning a visit they made to study, discuss and learn from Chesterfield's experiences.

Derek Grindell in a further article recounts the activities of the famous Norwich based aircraft and armaments manufacturer, Boulton & Paul, during the Great War. The Boulton & Paul Ltd name has all but disappeared as they are better known today as part of Dowty Aerospace.

The final article concerns a little known 'Derbyshire first'. Few locals know that the most interesting history of Britain's oil industry took place in Derbyshire, in particular that the world's refining technology was worked out here over 150 years ago. The Journal's final article concerns an oil refinery that was set up at Riddings near Alfreton in 1848 on the site of James Oakes 'Alfreton Iron Works'. In 1848, this refinery was not just Britain's first, but one of the earliest – if not THE earliest – in the world.

More details are available either from NEDIAS web site or cliff@nedias.co.uk

8 April 2017
AIA PRACTICAL DAY
Ironbridge Institute Coalbrookdale
See page 14

6 May 2017
EMIAC 92
Cromford Threads
North East Derbyshire Industrial Archaeology Society nedias.co.uk

11 – 13 May 2017
INTERNATIONAL EARLY ENGINES CONFERENCE
Newcomen and colleagues achievements untainted by the smoke screens of Watt
Elsecar, South Yorkshire

22 – 25 June 2017
INSTITUTE OF HISTORIC BUILDING CONSERVATION ANNUAL SCHOOL
Manchester
Historic Transport Infrastructure - the backbone of civilisation

25 – 30 August 2017
AIA ANNUAL CONFERENCE, SOUTH EAST MIDLANDS
Based in Northampton

6 – 10 July 2017
BRIDGE: THE HERITAGE OF CONNECTING PLACES AND CULTURES
Ironbridge
Historic Transport Infrastructure - the backbone of civilisation

7 October 2017
ESSEX INDUSTRIAL HERITAGE FAIR
Wat Tyler Country Park (former Nobel explosives works)
essexiag@gmail.com

20 – 22 October 2017
E-FAITH WEEKEND
Barcelona

22 – 28 June 2018
AIA ANNUAL CONFERENCE, CAITHNESS

9 – 16 September 2018
TICCIH CONGRESS
Santiago Chile
Industrial Heritage Making a Sustainable Future by Understanding the Past

Information for the diary should be sent directly to the Editor as soon as it is available. Dates of mailing and last dates for receipt of copy are given below. Items will normally appear in successive issues up to the date of the event. Please ensure details are sent in if you wish your event to be advised.

More Diary Dates can be found on the AIA website at www.industrial-archaeology.org

SCENES FROM THE 2016 CONFERENCE

Are you sure we have come to the right place?

Well I suppose we might as well go home then. *Photo Peter Stanier*

INDUSTRIAL ARCHAEOLOGY NEWS
(formerly AIA Bulletin ISSN 0309-0051)
ISSN 1354-1455

Editor: Chris Barney

Published by the Association for Industrial Archaeology. Contributions should be sent to the Editor, Chris Barney, The Barn, Back Lane, Birdingbury, Rugby CV23 8EN. News and press releases may be sent to the Editor or the appropriate AIA Regional Correspondents. The Editor may be telephoned on 01926 632094 or e-mail: aianewsletter@btinternet.com

Final copy dates are as follows:

1 January for February mailing
1 April for May mailing
1 July for August mailing
1 October for November mailing

The AIA was established in 1973 to promote the study of Industrial Archaeology and encourage improved standards of recording, research, conservation and publication. It aims to assist and support regional and specialist survey groups and bodies involved in the preservation of industrial monuments, to represent the interests of Industrial Archaeology at national level, to hold conferences and seminars and to publish the results of research. The AIA publishes an annual Review and quarterly News bulletin. Further details may be obtained from the Liaison Officer, AIA Liaison Office, The Ironbridge Institute, Ironbridge Gorge Museum, Coalbrookdale, Telford TF8 7DX. Tel: 01325 359846.