

INDUSTRIAL ARCHAEOLOGY NEWS

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THE BULLETIN OF THE ASSOCIATION FOR INDUSTRIAL ARCHAEOLOGY

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INDUSTRIAL ARCHAEOLOGY NEWS 175 Winter 2015

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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

Gundagai Road Bridge, New South Wales, seen through a span of the railway viaduct – see page 4

Photo Bill Barksfield

Subscription renewals for 2016

Thank you all for your forbearance over the problems with your Membership Renewal Notices, following the takeover of Maney by Taylor and Francis.

Most members were asked to pay an incorrect amount and, to make matters worse, VAT was wrongly added to their subscription. Unfortunately Taylor & Francis' efforts to put matters right resulted in further errors and many of you will have received several requests before, eventually, being asked for the correct amount. Even with the final, correct, requests, some members have reported receiving multiple copies in the same post.

We have, as you would expect, maintained close contact with T&F throughout this saga and have left them in no doubt about our feelings on the matter. They have assured us that the problems have been resolved and every member has now been asked for the correct subscription. No VAT should be added and the rates have not changed since last year:

	UK	Overseas
Individual member	£33	£38
Joint member	£38	£43
Student member	£21	£26
Affiliated society	£42	£47

A few members have paid the amount originally requested. Consequently they are owed a refund and this should already have been sent to them by T&F.

Now that the correct amount has been requested from all members, we hope that you will renew your subscriptions promptly, ideally by sending back the direct debit form. You can do this with complete confidence, thanks to the Direct Debit Guarantee which assures you of a full and immediate refund from your bank, on request, in the event of an error.

If you still have any outstanding queries, you can contact Taylor & Francis at enquiries@tandf.com or our Treasurer, John Jones, at Treasurer@industrial-archaeology.org.

'A Bullet from a Shooting Star' – Developments in Industrial Areas

This brief article introduces, and to some extent describes, a number of sizeable artworks, which at the time caused amazement and probably even outrage. These works drew public attention to areas little-known in polite circles but often rich in industrial archaeological interest.

Robert Carr

The conceptual artist Alex Chinneck is hard to categorise; artist-architect-engineer would cover the range of his activities but this may sound a trifle too renaissance. He is also described as a British Sculptor.

Chinneck has been responsible for art works of a surreal nature, generally involving buildings. A house front has been modified to give the appearance of being upside down; another artwork gives the impression that the front of a building is melting and slipping downwards to flow across the pavement. In another work a building appears to be levitated; he is an exponent of 'trompe l'oeil' effects.

One of his works is vaguely reminiscent of the artists Rachael Whiteread and Anya Gallacio: 'A pound of flesh for 50p', a two storey house in Southwark Street, not far from the Kirkaldy Testing Museum in London. Built from 7,500 paraffin wax bricks in September 2014, these slowly melted over the course of a month – so roughly speaking we might consider it a cross between Rachael Whiteread's 1993 'House', a concrete cast of the interior of a house, and Anya Gallacio's 1996 'Intensities and Surfaces', a melting mass of ice in the hydraulic pumping station at Wapping. Gallacio's ice melted fairly quickly of course –

Rachael Whiteread's concrete 'House' in Grove Road, Mile End, classified as a sculpture, lasted from October 1993 until demolition in January 1994.

Alex Chinneck's latest work, 'A Bullet from a Shooting Star', at first sight looks like an electricity pylon uprooted by a giant hand and thrown down in anger like a dart to embed itself in the ground, sticking up at a dramatic angle. More mature reflection shows that this of course cannot be the case. A real electricity pylon would collapse; it could not stand up in this manner. A pylon works structurally because its weight is spread over a wide area at the base. Upside down the situation is reversed! Moreover the axis of the sculpture is inclined at an angle and if it were actually a pylon, bending would rapidly exacerbate structural failure. This sculpture is attempting to illustrate an impossible situation. The idea is perhaps to depict an instant in time.

In reality, 'A Bullet from a Shooting Star' is a significant tour de force of structural engineering which must have been a real headache for the Cambridge-based practice of Smith & Woolwark which did the hard work: this new artwork is a cantilever embedded in massive concrete foundations – out of sight. These foundations employ 19 metre deep piles – and 78 cubic metres of concrete.

It is actually made from 450 pieces of steel welded and bolted together and it weighs about 15 tonnes and is 35 metres high.

Industrial areas seem to attract this kind of art. In 2005 in Beswick in Manchester we had Thomas Heatherwick's 'The B of the Bang'. When built at 66 meters it was the tallest sculpture in the UK. It was demolished in 2009.

Dramatic pieces of engineering of this type are ephemeral, an early example being Felix Samuely's 'Skylon' for the 1951 Festival of Britain and of course the Festival site was itself an area of intense industrial activity which by the late 1940s had fallen into decay.

In the area around the Millennium Dome the artist Alex Chinneck was inspired by the 'gritty industrial atmosphere' of the Greenwich Peninsula, which he likened to that of the Hudson River in New York: all such decaying ports probably have a similar feeling of place. In East Greenwich we had at one time probably the largest gasworks in Europe and the guide frame of George Livesey's No. 1 gasholder of 1886 still stands, not far to the south of the Millennium Dome. When this gasholder was built it was the world's first with four lifts and it was claimed to be the world's largest. This gasholder was an inspiration for the artist who took the idea of gas forward – to electricity! Funding for the Bullet sculpture was provided by developers Knight Dragon who are based in Hong Kong. They will be redeveloping a substantial swathe of the Greenwich Peninsula.

Why do developers and the like fund these apparently outrageous and no doubt costly art works? One view is that they are part of a historical process. An area becomes industrialised, later on the factories become obsolescent and then they start to close; the area becomes run down – and proceeds towards dereliction. Attracted by low rents artists move into the area and their activities come to the attention of well-to-do aesthetes. The area begins to become fashionable and can then be redeveloped for housing having become known to a wider public through media attention. The artworks can be a way of cleansing a locality of its previous reputation by making it trendy. Funding art has become part of the process of making money.

Located on the Greenwich Meridian in view of business commuters passing by on Thames Clippers and airline passengers landing at City Airport, 'A Bullet from a Shooting Star' signals the

arrival of Knight Dragon, mega-capitalist developers from Communist China. They are now in Southeast London and they mean business. The 'Bullet' will occupy its present site for about nine months and then be demolished. Well, you wouldn't want to waste valuable building land

with a view of the river, now would you? The blocks of flats soon to be built just to the south of Mike Davies' Millennium Dome will mostly accommodate people with deeper pockets. But then you would expect to pay more to live close to the site of one of the world's great gasworks.



Alex Chinneck's 'Bullet from a shooting star'

Photo: R Carr

AIA Practical Day Speaking up for Industrial Archaeology

In the current economic climate of heritage funding cuts and cuts to local authority archaeology and conservation services, historic industrial sites, buildings and collections are arguably more at risk than they have been since the 1970s. At the same time there is an increasing focus on local decision-making through local plans and new community powers. The AIA is therefore holding a one day workshop at the Ironbridge Institute on Saturday 23 April 2016 on speaking up for industrial archaeology on a local scale.

This workshop will ask why is it more important now than ever that local groups speak up for industrial archaeology, and what can groups and societies practically do to help support and protect industrial archaeology in their local areas.

The workshops will include contributions from national organisations that support local advocacy, including the Council for British Archaeology (CBA), Civic Voice and the Industrial Heritage Support Programme, as well as a number of local case studies from voluntary groups who are working to protect a range of different industrial sites, including archaeological sites, industrial buildings and museums. There will be practical sessions in the afternoon, and a feedback and discussion session to look at issues such as the challenges of speaking up for industrial archaeology and what support currently exists for groups who want to help to protect and raise awareness of industrial archaeology in their local area.

Tickets for the event will be £18 with a discounted rate of £15 for AIA members (including affiliated groups) and students. This will include lunch and refreshments.

Information and booking form from: David de Haan, AIA, 7 St Michael's Close, Madeley, Telford, Shropshire TF7 5SD. 01952 416026 email: secretary@industrial-archaeology.org

New South Wales Pre-pre Conference Tour

The 18th National Conference on Engineering Heritage organised by Engineers Australia was held in Newcastle, New South Wales in December. A short tour preceded this but in advance of that, to cater for the group of British who were attending the conference, Heritage of Industry organised a 'Pre-pre Conference Tour' of southern New South Wales. This is a brief report of the highlights.

Chris Barney

The Blue Mountains which were such a barrier to the original settlers of Sydney, both voluntary and those at his Majesty's pleasure, contain valuable coal seams as well as iron ore, brick clay and limestone so it was fitting that our first call, having wound ourselves over the mountains, was

to Lithgow, once predicted to become the Birmingham of Australia. Iron smelting began here in 1875 and steel production in 1900. There are some partly preserved remains of this but our main visit was to the famous Zig-Zag Railway, opened in 1869 to bring the line 500 feet down the steep scarp to the rich farm country west of the mountains. It was designed as a less expensive alternative to a series of loops and tunnels. However, with the resulting delays and after several accidents the Ten Tunnel Deviation was opened in 1910 and the Zig-Zag closed.

The potential of the original line as a tourist attraction and its heritage value encouraged enthusiasts to reopen the line and in 1975 after relaying the track to the Queensland 3' 6" gauge (New South Wales operates to standard gauge but their equipment was not available) the Zig

Zag Company opened with great success. However, tragedy struck in 2013 when bush fires destroyed millions of dollars' worth of historic rolling stock and structures.

Because of this a ride on the railway was of course out of the question but we were very grateful to Mark Langdon who guided us on a lineside walk and talked to us about the history, construction and future of the Zig-Zag.

Assessing the value of the damage has proved very difficult – what is the value of a 1930s carriage? – but once the insurance claims are settled it is hoped to reopen the system but meanwhile, although the enormous pile of scrap is depressing, we were able to see several interesting locomotives which had survived and walk up the line with its dramatic stone viaducts.

As we were leaving a train coasted down the main line headed by four massive locomotives on its way to collect another few thousand tons of coal from the one remaining mine in the district.

After a night in Bathurst and a stop at Cowra, where there had been a prisoner of war camp notorious for a dramatic breakout of Japanese prisoners in 1944, our next industrial highlight was at Junee. Essentially it is a railway town midway between Melbourne and Sydney and we had lunch in the splendid refreshment room where passengers formerly had had just 20 minutes to snatch a meal and get back aboard. At one time there were over a thousand employed at the railway works which included a complete roundhouse with 42 bays and a 100ft turntable. This all survives with half the circle now used by a private firm to service locomotives while the other half is a museum with a collection of locomotives and rolling stock from all over New South Wales and we were warmly welcomed by Mark Ison, Chairman of the Museum.

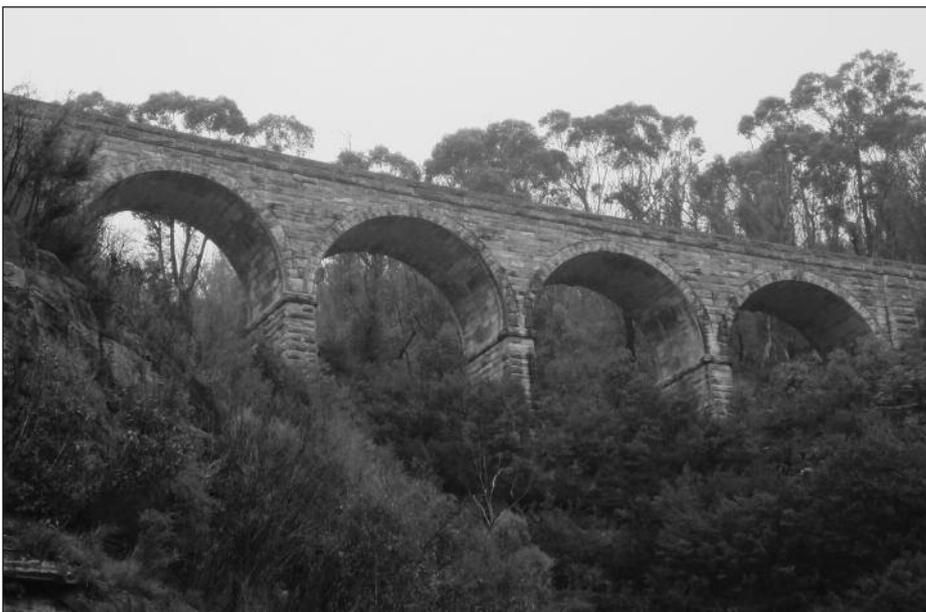
On the way to our next night's stop at Tumut we called at Gundagai where the main road and the railway cross the Murrumbidgee River which is liable to rise and flood dramatically with very little warning. The earliest bridge was opened in 1865 and in a strengthened and lengthened form survives. It now has some 76 timber spans crossing the flood plain, with wrought iron trusses crossing the river, and was in use until superseded by a prestressed concrete bridge in 1977. The adjacent timber railway bridge, built in 1903 and equally dramatic, was used until the railway closed.

No tour of New South Wales would be complete without a sight of the Snowy Mountain Hydro Scheme. This immense and imaginative scheme constructed between 1949 and 1974 was primarily to redirect water flowing from the east side of the mountains by tunnel to the west side where it could join the Murray River and increase the supply for irrigation. Electricity generation was a by-product of this and we had a tour of Tumut 3, a six generator, 1500Mw station, the largest of the nine power stations. Tumut 3 is mostly used at times of peak loading. It can achieve full power in less than three minutes. The



The depressing pile of scrap at the Zig Zag Railway – the result of the 2013 bush fire

Photo: Bill Barksfield



Top level viaduct on the Zig Zag Railway

Photo: Chris Barney



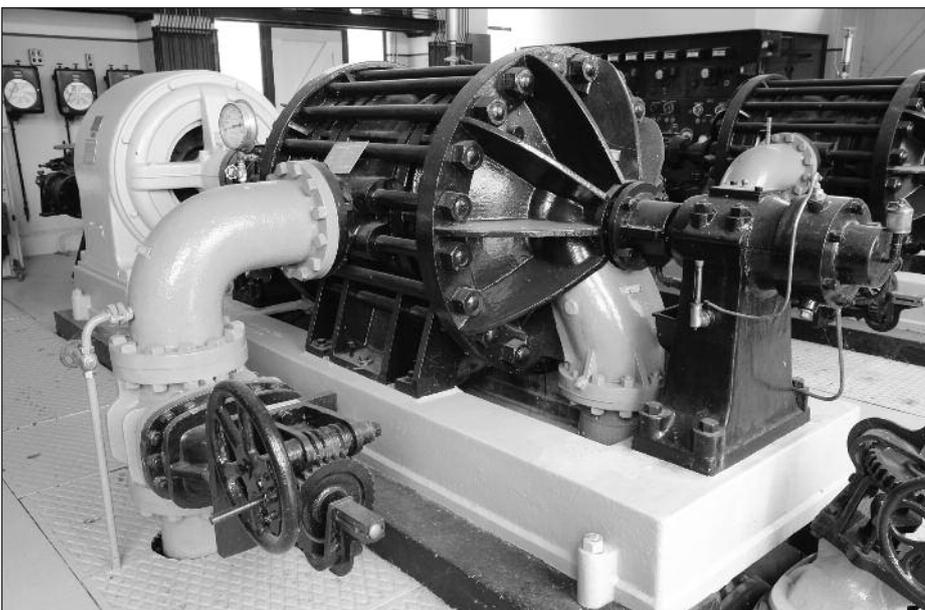
The Refreshment Room at Junee Station

Photo: Bill Barksfield



The 100 foot turntable at the Roundhouse, Junee

Photo: Bill Barksfield



1918 Gwynn electric pumps at Cotter Pumping Station, Canberra

Photo: Bill Barksfield

station is not normally open to the public and thanks should go to Ronan Magaharan who arranged this private visit and Andrew Murdy who led the tour.

In Canberra we had a full day tour led by Keith Baker, Chair of Engineering Heritage Australia, assisted by Rob Breen. An ambitious programme started with a climb (by coach) of Mount Ainslie for an overview of the city which was planned by Walter Burley Griffin in 1911 as the capital of the newly federated Australia. In a quiet valley south of the city we were shown around the Tidbinbilla Deep Space Communications centre with its collection of steerable dishes. These, in association with others in Spain and the US, all of which are controlled by NASA, maintain communication with distant satellites including the Exploration Rover series to Mars and Voyagers 1 and 2 now heading out beyond the solar system. We visited Mount Stromlo observatory which was destroyed in the 2003 bush fires but now houses the Advance Instrumentation Technology Centre where we were shown the highly specialised equipment used to test the materials and components used in satellites.

From there we went to the pumping station below the Cotter dam which still contains the original 1918 Gwynne pumps that had supplied the city water. These are no longer in use but the building has been extended to house a later generation of pumps. The motors and switch gear for these are on an upper story above the flood level experienced in 1952.

The party then divided between those who needed another dose of historic railways and who went to the Kingston Railway Museum and the rest who visited the original Kingston Power Station which is now very imaginatively converted into Canberra Glassworks, a craft glass studio. This handsome building dating from 1915 still contains much of the original coal handling equipment and its overhead crane. It provided all the electric power for the city until 1929 and continued in use until 1953.

The day ended with a most convivial barbeque at Keith's house to which he and Pam had also invited other engineering friends.

On our last day we drove back to Sydney stopping at Goulburn water pumping station which opened in 1885. The building contains the original 120hp Woolf Compound Appleby Bros beam engine and a pair of Galloway boilers. The engine last worked in 1918 after which electric pumps were installed. It was restored in 1958 and now regularly operates with steam from a small vertical boiler. It was in superb condition.

Also on show was an 1867 Hicks and Hargraves horizontal engine which originally worked at Bills Creek goldmine and then at a tannery in Sydney. It was last used in 1961 and came to the museum where it was restored in 1970. The museum had particularly good information and interpretation and we were made most welcome.

After a brief stop at the renowned Robertson Pie Shop a series of hairpin bends brought us down the same scarp that we had climbed on our

way out of Sydney four days earlier though at this point the scarp is much closer to the coast. Here the very high quality coking coal is mined (and has been since the very early days of the colony) with the majority exported to China and India, though it also supplies the Port Kembla steelworks. This now operates with a single blast furnace producing some two million tons per year.

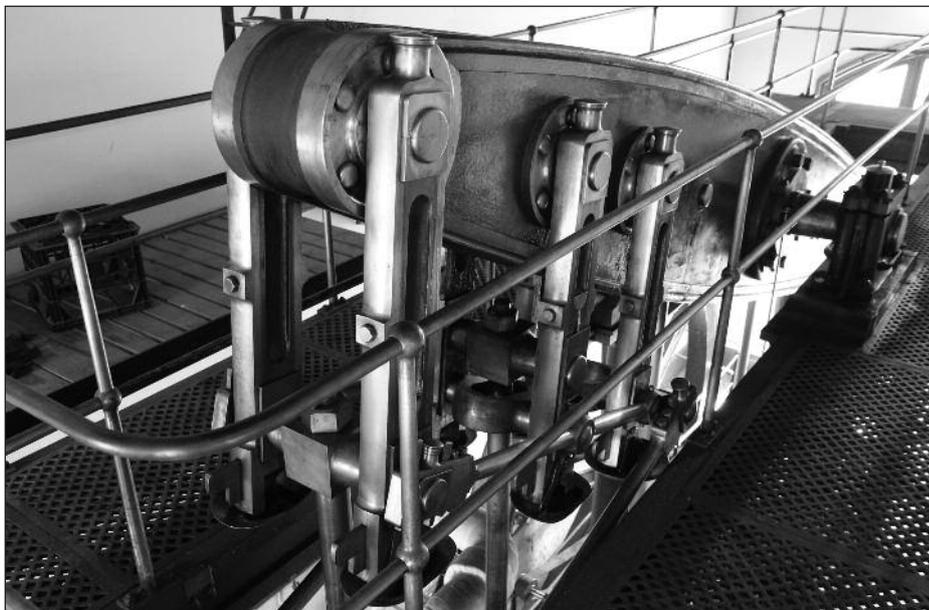
The port receives the majority of imported vehicles as well as exporting grain grown in the south and west of NSW. We had particularly come to see a new grain terminal which was nearly complete. We were greeted by Dan Figliomeni, the port manager, and by Simon Barney, who represents Qube, one of the four partners developing this new \$100m facility. When complete, trains will deliver grain, 2500 tons at a time, which will be stored temporarily in eight enormous steel silos before being loaded into ships at 1500 tons per hour. We were all impressed by the technology and the scale of the operation.

On our run back north to Sydney we took the coast road which includes a long section of viaduct, the Sea Cliff Bridge, built over the sea to replace the original cliff front road which was crumbling away.

All in all a very satisfactory trip and many thanks to Bill Barksfield of Heritage of Industry who organised it and, of course, to Mike our driver who was a fund of information. It all went 'without a hitch'.

In a sad footnote to the Lithgow story more steam heritage has been wiped out at Yarloop, a Western Australian town 125 km south of Perth, which was hit by a bushfire on 10 January. Paul Sauter has been told by his contact in WA that the Yarloop Steam Workshops and Museum, visited during a pre-pre-conference tour a few years ago, has been completely destroyed.

Two people were killed in the town which was given very little notice to evacuate.



The beam of the 1885 Appleby Bros 120hp Woolf compound engine at Goulburn

Photo: Bill Barksfield



Silos nearing completion, Quatro Grain Terminal at Port Kembla

Photo: Bill Barksfield

Dorothea 40

In 1974 a small group of enthusiastic young engineers set up in business to restore historic buildings, structures, and machinery - generally of an industrial nature. This enterprise was amazingly successful and in Bristol on 17 July 2015 a celebration was held to commemorate the founding of Dorothea, surely well known to all readers of Industrial Archaeology News.

Bob Carr

This event was formally opened by Sir Neil Cossons, skilfully using an oxy-acetylene torch to cut a chain across the doorway to a yard beyond, where demonstrations, exhibits and a pig roast had been set up. Live demonstrations of actual techniques such as dry-ice blasting using pellets and millstone dressing took place later, following excellent introductory speeches by Geoff Wallis and Sir Neil.

There was an intriguing display illustrating metal stitching by means of which it is possible to repair cracked cast iron. It is hoped to write further on this interesting process in a later issue of Industrial Archaeology News, and also more on Dorothea itself and its considerable achievements.

The name Dorothea is no doubt well known to readers, but perhaps not the vast repertoire of skills that they now offer. Dorothea Restoration provide one of the most comprehensive restoration services in the country with the ability to deal with most traditional engineering materials, principally wrought iron, cast iron, copper, bronze and brass, tin, zinc, lead, steel, and Victorian glass – as well as timber. In conjunction with clients they are generally involved from the outset with both the planning and organisation of projects in situations where engineering based on traditional methods is needed.

In the field of heritage and engineering maintenance they have a real enthusiasm - which

has not cooled over 40 years. Work is carried out for both public and private organisations, museums and preservation trusts. They have a wide experience linked to a passion for traditional techniques. Areas of expertise include beam engines and pumps, locomotives, agricultural and industrial machinery, static and hydraulic engines. Work on industrial machinery includes condition survey and reports, engine maintenance & servicing, health checks, and emergency call out. Dorothea carry out the motorisation of engines and machines, and the manufacture of replica or missing components involving the casting and machining of replacement items.

For wind and watermills, Dorothea offers the U.K.'s most comprehensive millright service having worked on more than a hundred and fifty restoration projects over 30 years. It is also possible for them to motorise millstones, and they build new water wheels from scratch.

Report on the International Committee for the Conservation of the Industrial Heritage Lille 2015

TICCIH holds its congresses on a three-year cycle, and that held in 2015 is adjudged a success for the wide range of its participants (for the first time Iran and Morocco were represented) and the highly appropriate venue. Up to 13 parallel sessions made it a certainty that something equally interesting was being discussed in adjacent rooms in the University campus, adapted from the le Blan flax mills in Lille. The start was set back by a day to avoid a vast street market, la Braderie de Lille, as well as a head-on collision with the AIA conference across the Channel. I omitted the pre- and post-conference tours to Calais, Dunkirk and the Paris region, but the whole congress enjoyed a half day in Roubaix – a wool city twinned with Bradford – and a full day exploring the Bassin Minier coal field, a 120 km long industrial landscape that is on the world heritage list and is doing well to engage, as it must, with the inhabitants of its numerous and meticulously-planned mining villages.

The main post-holders are as before with Patrick Martin (USA) remaining in the chair. Board members who had completed their terms were thanked for their efforts, often behind the scenes, and three new members were voted onto the

board, one of them from the People's Republic of China. The fact that six sites of an industrial or engineering nature in three continents were inscribed by UNESCO in 2015 indicates, says Pat, the important role that TICCIH has in support of ICOMOS in its advice on world heritage nominations.

There was good UK presence, on certain days or for the full event, but no list of all participants. A trawl of TICCIH Members in the UK produced no volunteers to take my place as national representative for the United Kingdom. There was no representation from Ireland, north or south. The national report for the UK left room for a separate all-Ireland contribution, but yet again there has been no national report for Eire, with or without Northern Ireland. If I were to co-ordinate the next national report in 2018 I propose therefore to make more than a nod to Northern Ireland.

The national reports are published, – search: TICCIH National Reports 2015 – the UK taking pages 182-190, with input from UK TICCIH members and the AIA. The editor made small updates to record that the Forth Bridge is now world heritage listed and that Historic

Environment Scotland has come into being. This digital publication of 200 pages at 12 MB gives an example to the UK which still has not published the national reports gathered in when London hosted the congress in 2000.

The next TICCIH Congress will be the first in Latin America, in Chile. These dates and theme – 'Industrial Heritage: Making a Sustainable Future by Understanding the Past' – are provisional.

9-12 September 2018: Visits

13-15 September: Congress, Universidad Central de Chile, Santiago

16 September: Closure and visit to Sewell Copper mining town (a WHS)

Three to four days for the congress proper may reflect anticipation that a smaller number of papers will be presented and given the location, that those who have travelled far will want time to see more sites in this elongated country. Whether the Atacama Desert – seen in *Quantum of Solace* – is included is not guaranteed at present. Another industrial world heritage site is in *Skyfall* – Hashima Island, Japan. Bond film location scouts should join TICCIH!

Mark Watson

An Exciting Discovery

Occasionally one comes across what appear to be really old advertisements and notices but many of them turn out to be more recent than they look. They can result from the deliberate alteration of a street for a film set; film makers take little trouble after their work to remove their modifications. A recent development in street art, where what at first appears to be a faded old advert turns out to be the recent work of a would-be Banksy, is an additional complication. However an exception is this advertisement for Greys Cigarettes, uncovered after fifty years or more and a rare survival. It was revealed when advertising hoardings were taken down and is almost certainly genuine.

Just off Midland Road, Bedford, at the north end of Western Street, this artwork is painted directly on to the brickwork, perhaps with the aid of a stencil, but is a work of considerable skill. Advertisements printed on paper that are simply pasted on to a hoarding only require wallpapering skills. Strictly of course this poster is illegal; cigarette advertising on billboards has been prohibited since February 2003, but it is probably impossible to buy Greys cigarettes now. Do any readers remember them? They may not have been on sale for fifty years.

The picture of the guardsman is probably to imply that tall well dressed men smoke Greys. A short shabby man used to Woodbines might be impressed? Shortly before 2003 cigarette advertising in this country was restricted by law

and things had become more subtle – even subliminal. We had numerous beautifully produced posters depicting white bathrooms where the taps were gold. That was often all – no lettering at all. People in years to come looking at

street photographs of this period will probably assume they were about nice bathrooms. It is so easy to misunderstand the past.

Robert Carr



Greys cigarette advert, Western Street, Bedford

Photo: R Carr

Swindon 175

On 25 February 1841 the GWR directors gave the go-ahead for their railway works to be built in Swindon. That decision was based on the advice of Daniel Gooch and given to Brunel in a letter of 13 September 1840.

Bruce Hedge

Gooch had many reasons for his choice of Swindon - to quote from his letter in the order they were given:

"I have studied the convenience of the Great Western Railway only, but also think the same point is the only place adapted for the Cheltenham and Great Western.

"The only objection I see to Swindon is the bad supply of water. There is also an apparent inequality of distance or duty for the engines to work - but which is very much equalised when the circumstances attending it are taken into account". Gooch is referring to the unequal distances between London and Swindon and Swindon and Bristol, also to the relative gradients.

He goes on to say: "Swindon being the point at which these gradients change, the different gradients necessarily require a different class of engine, requiring for the Bristol end a more powerful one than for the London end. ...Swindon would also enable us to keep our

Bank engines for Wootton Bassett incline at Swindon instead of having a separate station for that purpose...and in addition it would at any rate be necessary to have a considerable station at Swindon to work the Cheltenham line".

Swindon also: "had the advantage of being on the side of a canal connecting with the whole of England and by which we could get coal and coke".

As 2016 marks 175 years since the birth of Swindon as a railway town, local businesses and community groups will be involved in the Swindon 175 celebrations alongside the creative, heritage and statutory sectors. As part of the celebrations, two flagship locomotives have made a return to the town, *King George V* and *City of Truro*.

King George V was designed by Charles B Collet and was the GWR's most powerful 4-6-0 engine. It was the first 'King' Class to be built at Swindon Works in June 1927 and was shipped to the United States in August 1927 to feature in the Baltimore and Ohio Railroad's centenary celebrations.

Number 3440 *City of Truro* was designed by George Jackson Churchward and was built at the Swindon Works in 1903. She was the first British locomotive to travel in excess of 100 miles per hour (160.9 km/h) on 9 May 1904, and was one of world's first to do so.

New exhibitions at STEAM to mark the anniversary of New Swindon and the huge role Sir Daniel Gooch played in creating the works and the town will also be held throughout the year.

As well as the return of the two locomotives, Swindon175 will see a year-long programme of events this year throughout the town to commemorate the 175-year anniversary. Details will appear on www.swindon175.com

Postscript: when Gooch wrote of the bad supply of water he probably would not have conceived that 175 years later the problem would still exist. It is ironic that where I live in the Vale of White Horse is the half way point between Paddington and Bristol. Didcot is the junction with the Oxford, Worcester and Wolverhampton line and running through the Vale is also the same canal that runs parallel to the Swindon works. A junction and a canal - the same features that helped Gooch choose Swindon. Had gradients not played such an important role in his decision, then this area would likely have been the choice. But, having escaped the blessings of an ever expanding former railway town, we are faced with the possibility of a huge reservoir on our doorstep to remedy the water shortage that Swindon still experiences.

Suggested Reading: *Swindon – The Legacy of a Railway Town*, by John Cattell & Keith Falconer, Historic England, £45, ISBN 9781873592540

The Hydraulic Lift at Alnwick Castle

A few years ago Dr Ian West sent me a photograph of a hydraulic machine in the basement of Alnwick Castle. In September 2014 I was able to visit the castle and see the lift with the Country House: Comfort & Convenience tour led by Prof. Marilyn Palmer. The machine worked a hydraulic lift, the remains of which survived next to it. It was said to have been installed in the Castle in the mid-1850s by Armstrong & Hudspeth. The Alnwick archives show that, between 1856 and 1861, Armstrong & Hudspeth built a waterworks at Hulne Park, north-west of the castle, with a supply pipe for drinking water and another for the hydraulic lift.

Tim R Smith

Makers of the Lift

Directory entries list (George) Armstrong and (John) Hudspeth (or Hudspith - entries differ) as builders at Percy Street, Alnwick in 1850. By 1855 the firm was still trading at Percy Street, but John Hudspeth had been replaced by Henry Hudspeth (his son?). The 1858 directory shows Armstrong & Hudspeth, builders, at Prudhoe Street, Alnwick.

Clearly this Armstrong is not the same man as William George Armstrong (later Lord Armstrong) who took out a patent for his hydraulic crane in 1846.

There is no evidence to suggest that Armstrong & Hudspeth were anything but builders who had no facility for making a hydraulic crane. It seems likely that they sub-contracted the work. There were two iron foundries in Tweedmouth: R Ramsey & Sons of the Tower Iron Works and J & A Robertson & Co of the Tweed Iron Works. By 1855 there was also an iron foundry at Pottersgate Row, Alnwick, run by Mary Bowey. But did one of these firms have the capability to make a hydraulic lift? As W G Armstrong & Co of Newcastle-upon-Tyne were, by the mid-1850s, the leading firm in the manufacturer of hydraulic machinery, it would seem highly possible that the lift was made by them.

But there are compelling technical reasons for thinking that W G Armstrong & Co did not make the Alnwick Castle crane.

Hydraulic Lifts

There are two basic forms of hydraulic lift. The direct-acting lift has its cylinder in a well beneath the lift shaft with the ram supporting the lift car from below. The suspended lift has the car suspended by chain or wire rope. The Alnwick Castle lift was of the latter type. Both types use versions of the hydraulic press, invented in 1795 by Joseph Bramah. The suspended lift uses machinery that is similar to that used for the

hydraulic crane. Joseph Bramah adapted his press to work a crane at his Pimlico works around 1802. This used a rack-and-pinion arrangement to turn a winding drum. The same arrangement was used at Alnwick, although the hydraulic cylinder at Alnwick was mounted horizontally whereas in the Bramah crane the cylinder was mounted vertically. In 1839 the firm of Bramah & Robinson, with which Bramah's sons were involved, built a direct-acting lift to lower coffins from a chapel to the vaults at West Norwood Cemetery. This lift survives in the vaults, though the chapel above was destroyed by bombing in World War II.

Bramah's hydraulic crane was illustrated in the *Edinburgh Encyclopaedia* of 1830. [A redrawn version can be seen in Dockland, ed R J M Carr, 1986, page 159]. It appears to have a piston with the piston rod attached to the rack. But it is a single-acting device, the piston being returned to the bottom of the cylinder by the weight being lowered. In practice an overhauling weight would be needed.

William Armstrong's 1846 patent introduced a new form of hydraulic mechanism, using a system of fixed and moveable pulleys. His patent shows a quay crane and a wall crane.

The cylinder, ram and multiplying sheaves, sometimes known as the hydraulic jigger, became the standard hydraulic machine for Armstrong's cranes. In 1850 Armstrong installed the first high-

pressure hydraulic system, using weight-loaded accumulators, at New Holland, Lincolnshire, for the Manchester Sheffield & Lincolnshire Railway. The high-pressure hydraulic system became a common feature of docks and the larger railway goods depots. By the 1860s, if not before, Armstrong was making both direct-acting and suspended passenger lifts, the latter using the hydraulic jigger mechanism.

Hydraulic lifts became more common after 1870, with several firms entering the market. Some firms such as Richard Waygood & Son specialised in lifts. Waygoods eventually became part of Otis. Others such as the Hydraulic Engineering Company of Chester specialised in all types of hydraulic machinery. Yet others, like Easton & Anderson, were more general engineers who made some hydraulic lifts. Many used water at low-pressure but others were high-pressure lifts on small, self-contained systems. Demand for lifts increased again when public supplies of hydraulic power became available.

During the early twentieth century electric lifts began to appear but it was a long time before the water hydraulic lift finally gave way. Today oil-hydraulic lifts, using small, electrically-driven pumps, are now common in shopping centres and at railway stations. Most are of the direct-acting type but some are suspended with jiggers mounted in the lift shaft.

The Alnwick Lift

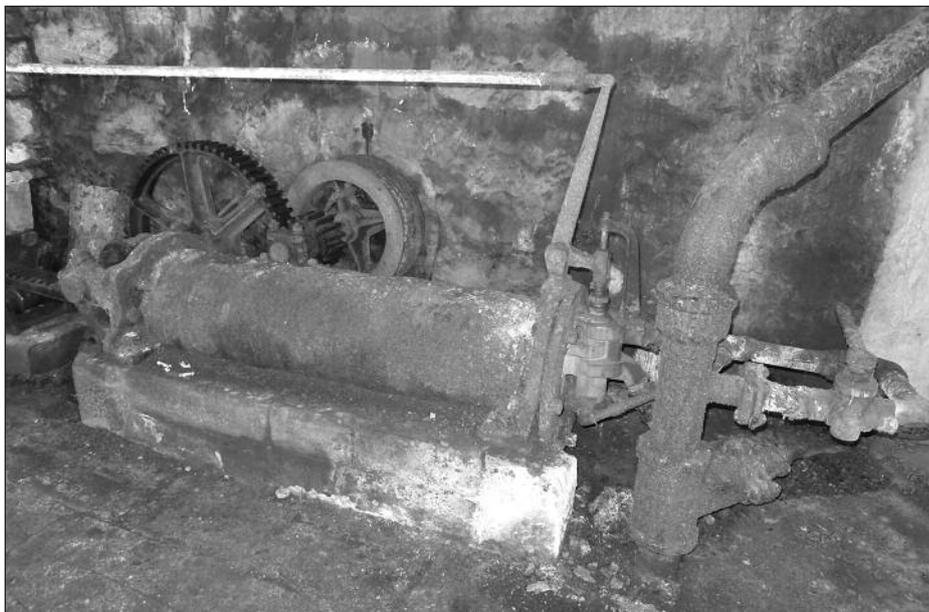
Turning now to Alnwick Castle, the lift there seems to have been installed in the mid 1850s. The castle was not the first 'country house' to have a hydraulic lift. That was probably at Osmaston Manor, Derbyshire.

The Alnwick lift served the cellar and up to the third floor, including the first floor dining room. It seems to have been used as a dumb waiter, and to have taken coal, water and chamber pots. There was a sluice in the cellar.

The hydraulic cylinder was installed in the cellar next to the lift shaft. It had a horizontal cylinder with a rack protruding from one end. The rack was supported by two rollers. Close to the cylinder there was a pinion which was turned by the rack. This turned a spur wheel on the same axle, which itself turned a second pinion. There was a small winding drum on the same axle of the second pinion.

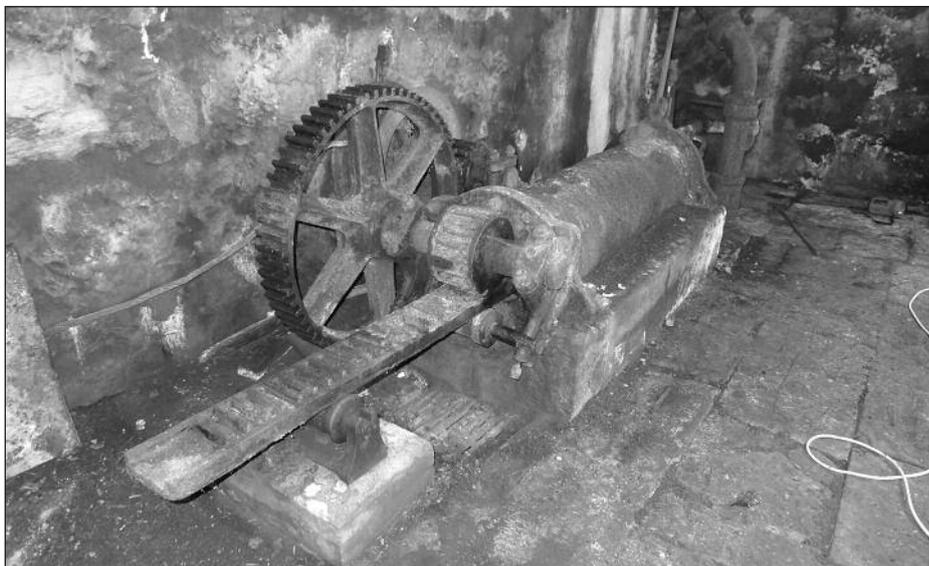
Given the position of the rack and the proximity of the first pinion to the end of the cylinder, it would appear that there was a piston perhaps a foot from the inner end of the cylinder, with a short piston rod attached to the rack. With the piston at the inner end of the cylinder, the end of the rack would just be supported by the second roller. It would appear that the piston was single-acting, requiring the weight of the lift car to force it back into the cylinder.

The overall length of the cylinder was 67 inches but the stroke of the piston would have been somewhat less, perhaps 60 inches. The diameter of the cylinder was about 16 inches, suggesting a low-pressure device. This was confirmed by looking at the incoming main which had spigot and faucet joints rather than the



Alnwick Castle lift. Cylinder with control rod above.

Photo: Tim Smith



The rack and pinion arrangement at Alnwick.

Photo: Tim Smith

flanged joints used on high-pressure pipes. There was no air vessel (surge vessel) on the incoming main, which would cause back-pressure problems should the lift valve be stopped quickly.

The valve operating lever was connected to a lever beside the lift cage by a horizontal rod across the top of the cylinder and a vertical rod in the lift shaft. The vertical rod passed through the cellar to the floor above where there would have been another lever to allow the lift to be operated from either cellar or ground floor.

In operation, moving the valve to its upper position would allow water into the cylinder, forcing the piston to the outer end. This in turn would move the rack, turning the pinion, gearing and winding drum, thus raising the lift to ground level. The control lever would then be moved to a neutral position. To lower the lift, the control valve would be moved so as to open the passage to the outflow pipe allowing the water in the cylinder to run to waste. The weight of the lift would cause it to descend by gravity, thus forcing

water out of the cylinder. The speed of both ascent and descent were determined by the size of the inlet and outlet pipes and how much the valves were opened by the operator. Thus the operator would have a certain degree of control on the movement of the lift and where it stopped.

The fact that this lift used a type of mechanism, the rack-and-pinion, first used in 1802 by Joseph Bramah and not the cylinder, ram and multiplying sheaves of Armstrong, seems strongly to suggest that it is not a product of W G Armstrong & Co. But just who did make it?

Please note the new mailing address for the Scottish Industrial Heritage Society.

**Chair and Treasurer
Robert C Rollo**

[mailto:rcrollo@btinternet.com]

The Mills Archive: A Resource for Industrial Archaeology

The Mills Archive Trust has recently published its third Research Publication, this time on the use of traditional mills in the English cement industry. This new, scholarly book reminded me about how much material we have on industrial mills among our two million-plus records. Established only in 2002, the Mills Archive and Library, based in Reading, has four professional staff, a library of several thousand volumes and an internet catalogue with more than 47,000 entries covering 184 collections.

Ron Cookson MBE,
Chairman, The Mills Archive Trust

Although research on mills (or molinology, if you prefer the continental term) did not feature in the Industrial Archaeology Research Framework published in IAR in May 2005, we now have sufficient well-organised material to start to build a research agenda for this sub-specialism.

Access to the Mills Archive's valuable virtual and physical resources is free, and the facility has attracted a lot of attention from researchers and enthusiasts with a particular interest in mills. We are not aware of an equivalent specialist library and archive in other countries, and we have considerable holdings of foreign material.

We do not compete with other smaller or more general archives either overseas or, more particularly, in the UK. There are strong arguments for retaining material close to its point of origin, although depositors often prefer to



Pair of very large standalone waterwheels with launders, Killhope Lead Mining Centre, Cowshill, County Durham

improve public accessibility by giving their collections to national, specialist archives who have the appropriate cataloguing and indexing skills essential for the public to discover material in which they are interested.

Our collections policy states: "The Mills Archive collects historical and contemporary material on mills and milling, including millwrighting and the place of the mill in social as well as technological and architectural history. There is a strong emphasis on traditional mills,

which includes mills and similar structures that are or were powered by wind, water, muscle or steam." We are an archive and library and not a museum. Our holdings reflect the collections of individuals, organisations and firms and in some cases comprise the record of a life's work of an individual.

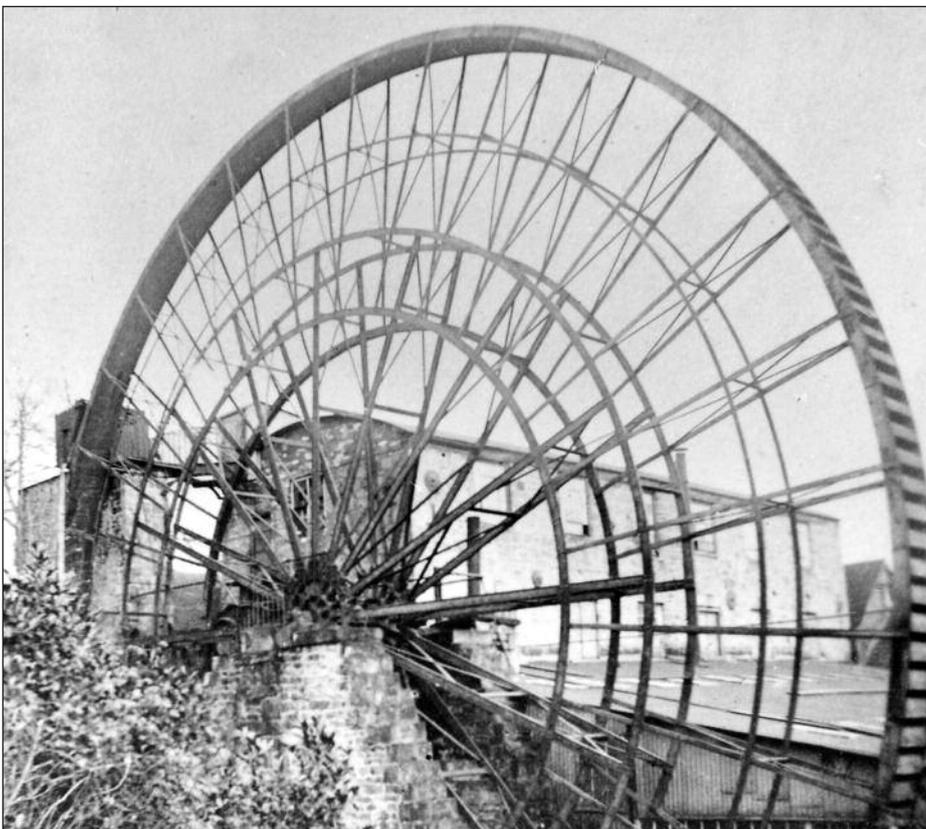
From Quern to Computer

We are now launching an initiative to build the world's first archive for roller flour milling; our milling heritage did not stop in the late nineteenth century. The rapid development of commercial, industrialised milling did not leave much room for the retention of historical records and much has been lost. Nevertheless there are sufficient aficionados of the development of modern flour milling to suggest we will still be able to establish a useful repository.

As part of this programme, we are launching a lottery-funded programme 'From Quern to Computer' covering the eight thousand years of flour milling history. This involves a massive cataloguing project and the construction of an interactive timeline telling a coherent story of the development of civilisation on the back of steady improvements in a specific industrial process. We are now keen to do more with our industrial mills to balance the amazing impetus we have achieved with corn milling.

The relevance to Industrial Archaeologists

Records of mills and milling are clearly part of the industrial archaeology discipline and we wish to develop better links with the AIA, its membership and with academics interested in any aspect of milling history and development. In particular, we would welcome thoughts on what aspects of industrial archaeology we should be collecting and preserving for the nation. We would like to explore the situation in industrial archaeology,



Sixty-foot Waterwheel at Flax Mill and Iron Foundry, Bourton, Dorset

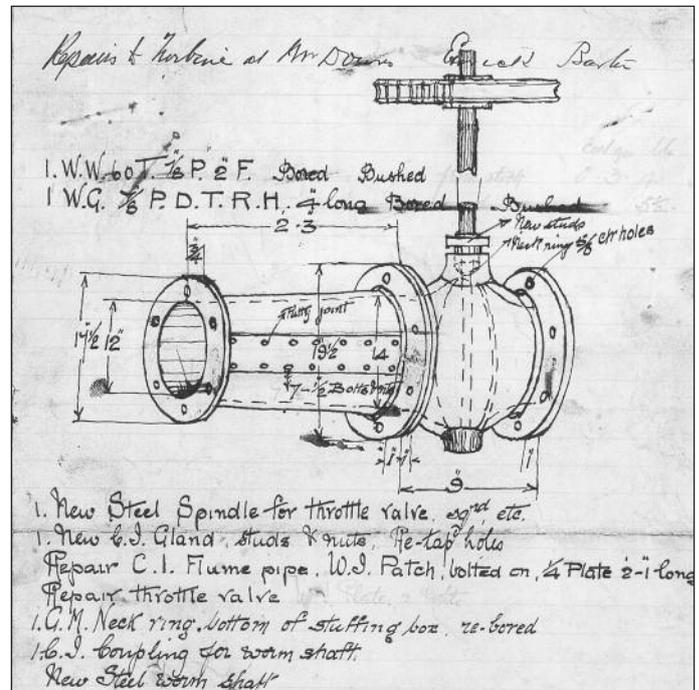
both generally and for example textile mills and similar industries. We don't want to tread on toes, but we would be very happy to be involved in discussion and to help where we can.

We have recently invested a large legacy left by Helen Major, the widow of Ken, in building a freely-available, archive-standards-based catalogue which is integrated into a new, intuitive website (millsarchive.org). We are already making the catalogue available for our heritage partners, who can feature their collections on their own websites, but using our catalogue server to host the images. We can also offer expertise and advice for those wishing to go their own way.

From our point of view, we suggest that we are an appropriate place of deposit for IA material that relates to any type of mill, milling or the historical use of traditional power sources. In particular, we are keen to identify important records and collections that are otherwise likely to be lost or destroyed. We are very interested in establishing contact with those in the IA community who have original documents or images to offer, or have a research interest to pursue.

We are planning to develop some content-rich IA pages on our website, which will provide links to other relevant archives. In return, we encourage IA researchers to use our facilities and help us to develop our holdings of industrial mills.

(Right) Fragment of one of several hundred drawings from the Bodley Foundry; this one showing preliminary sketches for a turbine installation.



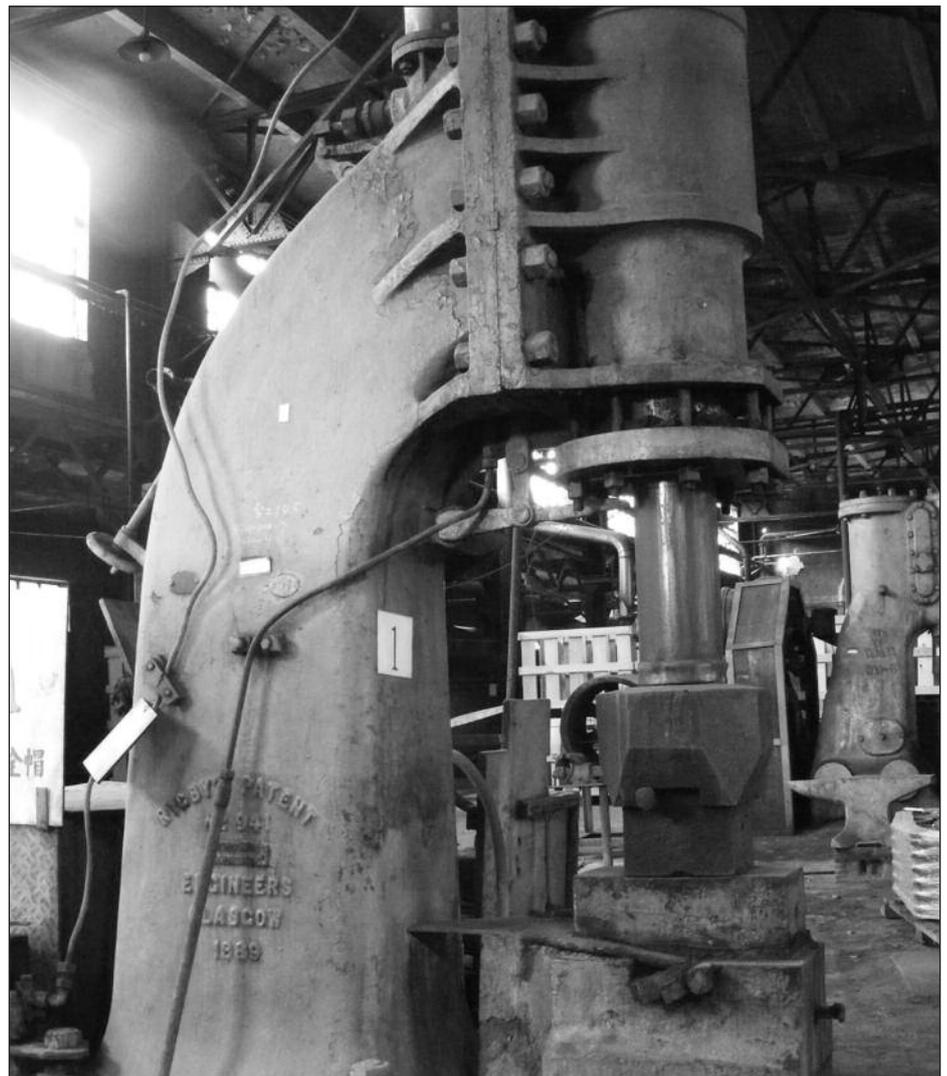
Listing the heritage: The STICK Machine Tools Project

The STICK Machine Tools Project, launched in December 2014 and funded by Museums and Galleries Scotland, builds upon the joint STICK/NMS 'Old Tools, New Uses' collections which reviewed domestic technology and hand tool collections in Scottish museums in 2011. The Scottish Transport & Industry Collection & Knowledge network (STICK) aims to promote care and enjoyment of technological and industrial collections. Through research, stewardship and advocacy, STICK encourages wider engagement with these collections across Scotland.

Daniela Wellnitz

The Machine Tools Project is undertaking an audit of historic machine tools across Scotland and, as part of the inventory, the project is recording not only which historic machine tools have survived in museum collections but relevant archives and ephemera. The master catalogue comprising metalworking, woodworking and stone-working machinery will be on the website www.scottishmachinetools.org. The project is also aiming to develop staff skills by compiling machine tools guidance for curators, including interpretation, collections development, collections management and conservation. This expert knowledge will be on the website too.

By using Scottish engineering collections, the project will engage with the local community, former operators and younger generations in order to contribute to the social recognition of engineering heritage. Eventually, the project aims to build links between Scotland's engineering past and present, to make Scottish engineering and machine tool collections more relevant and useful in today's world.



Rigby Patent Steam Hammer, Taipei Rail Works, Taiwan

Mark Watson

At its very beginning, the Machine Tools Project was all about compiling an online database of historic machinery. However, it soon turned out that this was not solely about writing a master catalogue. After having contacted over 50 institutions in Scotland and the UK, travelled across the country to meet curators and find machines, listened to museum volunteers and machine tool operators telling their personal machine tools story, delved into product catalogues and order books of Scottish machine tool makers in archives, taken photographs of treadle lathes, milling machines, power hammers, nibblers and box and pan folders in hidden storages and on illuminated displays, we had not just physically approached our subject. Slowly, we had begun to understand that machine tools are much more than just a technically efficient example of engineering design and expertise, hidden to the untrained eye of the museum professional.

Machine tools were shaped through the knowledge and expertise of the engineers who made them and the workers who operated them. Their heritage cannot be assessed without studying how they operated. This approach is relevant as it is only by using historic machine tools that we can learn more about the expertise with which they were made and used. Persistence and continuity – these are the keywords behind the catalogue. The one-year-old version of the database, listing 279 machine tools in 17 museum collections, does not claim to be complete. It identifies priorities and gaps of museums' collecting policies and the specialist knowledge of museum staff. It highlights challenges and requirements for the conservation of engineering objects. It poses questions about

future preservation. It gives us an idea about the condition of objects as well as their suitability for research and exhibition projects. It defines the challenges, limits and options for restoration and re-interpretation.

The inventory covers the technical essentials of a machine tool, its operation and related terms. After one year of project funding, the STICK master catalogue, related archive sources and guidance material are a good beginning for sharing the knowledge and creating a better understanding of historic machine tools. Object-based projects with higher engineering institutions, that have been initiated in the course of the year, are just a first step towards 'making things work' for the industrial museum sector in Scotland in order to preserve collections and related heritage.

Collaborating with university departments of engineering and museum studies during the project is a start in teaching the engineers and curators of the future. Capturing expert knowledge by learning from museum volunteers and former operators of machine tools is just a beginning in preserving and recording traditional engineering skills. Supported by the AIA Travel bursary as well as the AIM training grant, we presented the project at the XVI International TICCIH Congress 2015 'Industrial Heritage in the Twenty-First Century, New Challenges' in Lille, France. The conference served as an international platform to raise awareness of Scottish machine tool heritage, build up networks, and share knowledge. Potential future collaboration was established with multidisciplinary partners in Japan, Italy and Canada which could lead to an international perspective on Scottish engineering heritage.

Many Scottish machine tools have survived in museums and historic landscapes across the globe. Accordingly, the Machine Tools project, in cooperation with the Department of Science and Technology at the National Museums Scotland, plans to examine the technological, economic and social legacy of engineering practices established by Scottish engineers and engineering firms abroad. The concept of using Scotland's engineering past could also develop an approach to research and show how the international dimension of Scottish engineering expertise has been transmitted and preserved. By analysing the 'Scottishness' within the technical and operational identity of historic machine tools, the STICK approach could encourage similar projects in other European countries.

In conclusion, STICK aims to:

Extend the master catalogue by adding more Scottish machine tool collections and archives, private collections, relevant businesses and sites;

Capture traditional engineering skills for teaching the engineers of the future;

Engage with museum volunteers and former operators to share knowledge about historic machine tools and engineering practices;

Create collaborative networks for further research on Scottish engineering heritage.

For further information about the project or to actively contribute to STICK, please visit the website www.scottishmachinetools.org and contact us at contact@scottishmachinetools.org

AIA NEWS

AIA Creative Reuse Award 2015

The Association for Industrial Archaeology has celebrated the European Industrial and Technical Heritage Year 2015 (EITHY 2015) with the launch of the AIA Creative Re-use Award. Five awards have been made in this first year to industrial buildings which have been successfully re-used. The awards were announced by the AIA Chairman on 1 December at the evening reception of the Reviving Places by Reusing Industrial Heritage Conference held in Manchester. The Conference was organised by the Prince's Regeneration Trust, Historic England and the Heritage Lottery Fund with partner input from the AIA, and was complementary to the AIA Seminar on Valuing and Sustaining Britain's Industrial Heritage held in Brighton in September. Together, they comprised the main UK contribution to EITHY 2015, the campaign initiated by E-FAITH. Three of the Creative Re-use Awards are for projects with a strong community focus and two are for commercial projects. The end use of the buildings ranges from an arts centre and craft studios, to offices and residential apartments.

The greatest challenge for re-use from the point of view of sheer scale was the **Fairfield**



Fairfield Drawing Office, John Keppe 1891, before conversion.

Photo: Pauline Megan © Historic Scotland

Drawing Office, perhaps the finest of all the shipyard drawing offices. They were designed by John Keppe and constructed between 1889 and 1891. Glasgow and the Clyde were synonymous with shipbuilding and the starting point for vessel construction was in the design and the drawings. In 2001 the then tenant, BAE, decided to erect demountable CAD drawing offices elsewhere and for eight years the building was empty. Then Govan Workspace took the risk of embarking on repairs to the shell before all funding was in place for the creation of lettable business space, and work started in 2011.

Govan Workspace, which is a community organisation with a social mission, converted the drawing office into start up workspaces with a top lit area. Attention was paid to reversibility, in suspending elegant mezzanines from the roof rather than butted against walls and windows. The conversion is exemplary – it beautifully observes both the industrial and the opulent character of the building. It even retains the boardroom with its historic light fittings, portraits and wash-room. A heritage interpretation area opened in 2014 and by spring of 2015 the business space was fully let. The restored exterior now reflects the pride the community has in its industrial heritage. "For Govan Workspace the completion of Fairfield does not mark the end of the project, but the start of a long-lasting and sustainable community endeavour to create employment and to encourage local people in activities related to their heritage" (Govan Workspace Annual Review 2014).

A contrast in size is the tiny **Grave Diggers' Hut** in the church yard at Painswick, Gloucestershire. The churchyard is best known for its yew trees and chest tombs but when mortality rates were much higher than today the digging of graves was essential and hard work. This hut was for the men who dug those graves and was probably last used as such in the late 1860s. Since then it has had a variety of other uses but with the refurbishment of the tombs in 2007-8 a new use became imperative. Although there were small grants from both Stroud District Council and the parish council the majority of the funds were raised by local people. The refurbishment was carried out and the building is now used very successfully as a tourist information centre which, too, is run by a group of volunteers and opened on 1 April 2015. (The lead person is Churchwarden Christine Campbell and the site developer is Jason Bullingham).

The third project with a strong community focus was the **Silk Mill, Frome**, Somerset. Built as a silk mill in the late eighteenth century and enlarged in 1823 the silk mill had a brief period of prosperity when crepe silk became especially fashionable during Queen Victoria's period of mourning. Textile production ceased in 1926 and the building was taken over by an engineering firm which operated it until 1977. Thereafter it was only partially used and became increasingly derelict. It was declared a Listed Building at Risk and in 2005 was acquired by the Moore family. They proceeded on a design and build phased



Fairfield Drawing Office, The hall and stairs.

Photo: Louisa Hamm © Historic Environment Scotland 2015.



Millend Mill before conversion

Photo: Steve Mills

conversion with voluntary input and it was recognised as an English Heritage Angel in 2013. The Silk Mill is now fully opened with 24 art and craft studios, and an exhibition room cum concert space. It is now a key venue for community events in the Frome Festival.

These three sites all had considerable community involvement while the next two are purely commercial, but good creative examples, of re-use.

The first is **Millend Mill**, Eastington, near Stonehouse, Gloucestershire. It was built in 1818

as a water powered woollen cloth mill but was later a corn mill, a maltings and a store, but by the 1980s it was disused and decaying. In 2009 it was purchased for residential conversion by Grantbourne Ltd who were intent on preserving shape and form. The conversion design was by architect Didier Ryan of Undercurrent Architects. Given its essentially rural location but with good communications (the M5), the obvious viable option for Millend Mill was conversion to high quality apartments reinstating features reflecting the original water powered character of the mill.

This was achieved by installing a new waterwheel capable of generating several kilowatts of power.

Finally, there is **The Maltings**, Birmingham Road, Lichfield. It was built in 1891 for the Lichfield City Brewery. The Birmingham Road Maltings remained in use as a floor maltings for Wolverhampton and Dudley (Bank's) Brewery until 2005. The total development of this large site was for 16 dwellings and 25 apartments in the malthouse as well as some affordable housing. The developers were Mar City Developments Limited. The plans were by Brownhill, Hayward Brown with valuable input from Lichfield District Council planning department. The final proposals meant that the malthouse would be seen clearly from the original entrance. However, whilst the conversion of the main floors of the maltings to apartments presented few problems, the treatment of the interior of the kilns was more problematic. The solution was to create a unique entrance hall with the outlets for the hot air from the furnace forming the ceiling.

Amber Patrick and Keith Falconer



The stairs at Millend Mill

Photo: Steve Mills



The Grave Diggers' Hut at Painswick

Photo: Amber Patrick

Council Meeting Discussions

The fourth and final Council meeting of 2015 was held in Coalbrookdale on 30 and 31 October. Among the matters discussed were:

- All Party Parliamentary Group on Industrial Heritage (APPG IH)
- Heritage Angels Awards
- Treasurer's report
- Membership report
- Future conferences
- The new web-site
- Affiliated societies
- AIA Practical Days
- Endangered sites
- I.A. Review
- Field Visits
- Awards

The 13 October APPG IH meeting was chaired by David Anderson MP who unfortunately had to announce his need to retire owing to new responsibilities. He also had to announce withdrawal of secretarial support by NCMME following the retirement of Margaret Faull. Council approved making the offer to provide the secretariat through Tony Crosby, our former chairman.

Heritage Angels Award, the winner of the 'Historic England Followers' and Telegraph Readers' Favourite' was the Newman Brothers Coffin Works, a project which had been managed by new council member Kate Dickson.

The Treasurer, John Jones, reported that he anticipated a substantial but planned deficit, largely because of subsidising the accommodation at the Sussex conference in September. That subsidy had been approved in advance.

The Membership Report presented by Bruce Hedge showed total membership at the



Millend Mill - installing the water wheel

Photo: LizsPhotos



Frome Silk Mill

Photo: Keith Falconer

end of September as 537, versus a 2014 end-end number of 546.

Conference Secretary, John McGuinness, reported on feedback from those attending the Sussex conference. Comments had mostly had been positive, but there was negative feedback regarding travel directions, about early deliveries on the campus site and the prevalence of chicken on the menus.

Future conferences planned are at the following locations:

Telford 8 – 14 September 2016

South East Midlands 24 – 31 August 2017

Caithness 22 – 28 June 2018

Somerset 2019 – dates and venue to be determined

John Stengelhofen produced his last gazetteer for the Sussex conference. John has produced the conference gazetteers for many years, often against almost impossible deadlines and his efforts were gratefully acknowledged by the council.

A new web-site has been developed, approved and now gone live, see www.industrial-archaeology.org, comments are invited on the web-site itself.

Affiliated Societies – the council agreed that a short PowerPoint presentation should be produced for Lynne Walker, the Affiliated Societies Officer, to use at any Society meeting to explain what the Association does.

AIA Practical Days – an AIA Practical Day on advocacy, 'Speaking up for Industrial

Heritage', is being organised by Tegwen Roberts for 23 April 2016 in Coalbrookdale. There will also be another practical day on blast furnaces in October 2016.

Endangered sites – Amber Patrick reported that comments have been made on 12 cases and that we have objected to the wholesale demolition of the buildings at the former Victorian Railway Maintenance depot at Wolverton, near Milton Keynes. We gave our active support to the conversion to residential of the Clementhorpe Maltings in York and to the substantial application on three and a bit malthouses and transit shed at Bakers Quay, Gloucester.

The Association has been asked for assistance and support in respect of two listings, the headstocks at Hatfield Colliery, Doncaster and for the listing of Hornsey No 1 gasholder, Haringay.

With regard to previous cases, we have been notified that the application in respect of Quantum Clothing, Sutton-in-Ashfield, Nottinghamshire, was disallowed but has gone to appeal; further representations, with additional information have been made.

IA Review – the issue of the paper thickness has been taken up with the publishers.

Field Visits – Bill Barksfield outlined the 2016 programme which included an AIA Spring Tour to Romania, 16 – 22 May and a Country House Comfort & Convenience Tour covering Oxfordshire, Buckinghamshire and Surrey in June.

Awards – the five winners of the new Best Creative Re-use of an Industrial Building Award will be announced at the Prince's Regeneration Trust/Historic England conference to be held in Manchester on 1- 2 December. Note the change of name from Adaptive Re-use Award.

The Initiative Award 2015, chosen by those attending the conference, went by a clear majority to Coultershaw Heritage Site. A clear majority, that is, of the five people who took the trouble to vote.

Bruce Hedge

Endangered Sites Officer's Year-end Report

2015 was a busy one for listed building and planning application referrals considered by the AIA. Most of the potential cases come from the CBA's casework data base but some have come from individuals, local societies, occasionally directly from local authorities, and more recently via twitter. Comments have been made on 27 cases out of approximately 110 potential ones. Sometimes the AIA makes an outright objection but often it is a comment and good applications are supported. The cases range geographically from Northumberland, an urban ropery at Hexham, to mine engine houses in Cornwall.

A number of cases are worth mentioning and these range from the relatively modern such as and the BBC's first television studio, where we made a partial objection, to late eighteenth century cases such as Kirk Mill. In the event the Alexandra Palace application was allowed but

our comments were noted in the press! As ever, textile mills feature regularly and applications of note include Murray's Mill, Manchester, where there was a canal basin in the central area, an unusual feature. Originally it had been an innovative method of connecting the mill with the Rochdale canal. The proposal, as is often the case, was for conversion to residential. Another interesting textile mill was Delph Mill in Oldham where total demolition was proposed. The interest here lay in the mill having two (vertical) rows of windows to each floor which could make conversion/re-use more difficult. Finally the above mentioned Kirk Mill, at Malt Kiln Brow needs to be mentioned as it was one of the best surviving examples of an Arkwright-type mill in Lancashire.

Other applications have included another modern example of the Shredded Wheat factory at Welwyn, Hertfordshire. Then there have been a number of applications relating to railway infrastructure. In London this has mainly been for underground ticket offices (owing to their closure) but these have mainly been in respect of 1980s changes, the removal of which have improved the station's looks if not the availability of tickets for passengers. Around the country the applications have ranged from bridge parapets, to the Railway and Carriage Works at Wolverton, near Milton Keynes. The site is in the Wolverton conservation area and the proposal was for almost complete demolition of the historically important site buildings. The AIA objected following the lead of the Victorian Society. Another interesting railway related application was for a former Railway Goods Shed in Sutton Coldfield. The conversion is to residential but the proposals included the retention of the canopies and the old rails! This could well be an entry for

the Creative Reuse Award when the work is complete.

The Herbert Morris Crane Factory in Leicestershire was another application for wholesale demolition. It was notified to us via twitter. Unfortunately twitter notifications are often too late but this one was not. Neither, fortunately, was the one in respect of the Royal Worcester Porcelain Works. Both involved demolition – complete in the case of Herbert Morris and substantial in the case of the Royal Worcester Porcelain Works.

A large application was received in respect of the maltings, provender mill, maltsters' cottages and a railway transit shed in Gloucester docks. Unfortunately the provender mill had been substantially fire damaged before the application could be determined. However, the application does include an interesting proposal to allow light into two of the maltings which are only separated by a narrow yard. An atrium is inserted between the two buildings by partly demolishing the walls to the yard, the external footprint remaining the same together with the majority of the fenestration – another possible entry for the Creative Reuse Award if the development goes ahead.

The Hawkins boot and shoe factory in Northampton was an application associated with the clothing industry. (I felt I had a personal interest as my first walking boots were made by Hawkins). Another clothing industry related application was in respect of the hat factory, the Britannia Works, Coleshill Road, Atherston in Warwickshire. It was the last survivor of three hat factories. The site is bounded on one side by the Coventry canal and the specialised nature of some of the buildings, makes conversion or re-use particularly difficult. However, the Association

noted the proposed demolition included buildings which were both interesting and of importance to the site's development. The Association did not object to the application in principle, but did object to the complete removal of the three buildings – the two courtyard ranges and the canteen. Appropriate recording was recommended. Another clothing related application and one received directly from the local authority was for the Quantum Clothing Factory in North Street, Huthwaite, Sutton in Ashfield, Nottinghamshire. It was for the demolition of the former factory built between 1907 and 1910 for the CWS (Co-operative Wholesale Society of Manchester).

Finally, mention should be made of the Welsh case at the Cwm Works, Windsor Gardens, Beddau, Pontypridd. The application was for the demolition of the listed grade II* timber south cooling tower which has already virtually completely collapsed. The Association supported the comments of the CBA and in particular their advice to the Rhondda Cynon Taf County Borough Council that every effort should be made to maintain the surviving north tower in good condition.

Amber Patrick

Appeal for old records

The Council is conscious that there are gaps in the early records of the Association and is anxious that these should be filled. If any members have records, particularly from the 1970s and 80s, please could you contact David de Haan, secretary@industrial-archaeology.org or John Powell, our librarian and archivist, at the Ironbridge Gorge Museum, Coalbrookdale, Telford, TF8 7DX.

LETTERS

Post Industrial Archaeology? – A response to Bob Carr.

Robert Carr in *IA News 175* (page 21) asks "Is there a cut off date for industrial archaeology?" For some unexplainable reason some people interested in industrial archaeology wish to establish a limit to the subject, by seeking to limit the scope of both industry and archaeology as well as a time limit. Industry is not limited to the manufacturing industries, let alone those of any specific period. Further archaeology should not be limited to what can be found in the ground or even on the ground.

To suggest that "In the UK industry was petering out from the 1970s", is a remark which cannot be taken seriously. It is without question that much traditional industry has moved to less developed countries but this does not mean there is no manufacturing, let alone other industry, being carried out in this country. It is also true that much of modern industry does not leave much archaeology in the ground.

It is interesting to note that several other articles in the same issue of *AI news* in various ways answer Robert's question by demonstrating

that IA, like history, has just started a new era. Of major significance is the article on Dounreay. This is manifestly an industry which was just taking off in the 1970s. What is less obvious is the oblique reference to the developments in the demolition industry. It could be argued that a destructive rather than a constructive industry should be excluded from IA. However, like it or not, this is an industry which has become so much more professional and technically based in the decades since 1970. Malcolm Tucker's note in the *GLIAS Newsletter* December 2015 reminds us that the study of refuse destructors is not new; however, I would suggest that the new industry of recycling will soon be an equally relevant field of study for industrial historians and archaeologists.

Roger Ford's report on the Sussex conference refers to Andy Sutton's member's contribution relating to cellular communications, again manifestly a post 1970s industry. Roger then adds that Alan described how mobile phone masts and rooftop sites have evolved from 1985 to the present day. He then makes the comment "a curiously elastic definition of archaeology". I wonder how long it will be before we are considering the industrial archaeology of outer

space as communication satellites become out of date and redundant?

Robert asks, "Should industrial archaeology include topics such as the Brynmawr rubber factory?" Indirectly this asks the question, "what is it in an industrial building that warrants its preservation?" Very few of our preserved industrial buildings actually reflect the industrial processes that were carried on in them. Good examples are New Lanark and Masson Mill, neither of which provides any indication of the industry that was carried out there. Much the same can be said of any other preserved textile mill. Indeed, when considered alongside the preserved HMV building at Hayes the only discernible difference is the nature and method of their construction and consequently they more represent a history of construction methods than the industries that they were built for. Brynmawr was an iconic building using novel construction techniques and therefore was a landmark in construction technology, but it did not reflect the manufacturing processes of rubber flooring.

So what is industrial archaeology? It must be much more than a few preserved building shells or ill-defined foundations frequently comprising

decades of development of the work site. Surely it must be anything that enables researchers to understand the technology, the techniques, the organisation and the nature of the relevant industry. Too often we read archaeological reports which cannot interpret the excavated remains without recourse to documented sources. Surely the purpose of the excavation is to extend knowledge rather than to find remains which can only be explained by existing documents and knowledge.

Quite rightly, when the IA movement started 50 years ago the urgency was to identify the major sites which represented the start of the Industrial Revolution and seek to preserve the most significant and important. However, the urgent need has changed. In recent years has the AIA lost its way in not seeking to preserve the important archaeology of the last 100 or so years by ensuring that the records, photographs, ephemera and perhaps most important memories of those involved are securely kept for posterity, as the National Trust seeks 'for everyone for ever'? Industries without tangible remains have shown the lead; the construction and whaling industries have both, in a limited, way sought to record the experiences of those involved in those industries, but much more needs to be done.

I would again implore every member of the association to record the processes used by their companies, the changes they have seen during their career and to ensure that any related documents are preserved for future researchers. The AIA for its part must campaign for suitable storage facilities to be made available, a goal I would suggest that is far more important than the need to save from demolition but not from complete transformation yet another mill or works of the Victorian era.

John McGuinness

Post-Industrial Archaeology?

I suspect that my good friend Robert Carr was writing tongue-in-cheek when he asked "is there a cut-off date for industrial archaeology?". (IA News175) My answer is very firmly "no!", and there won't be – unless and until our successors are living in some form of post-industrial society, from whatever cause. Meanwhile, most nations of the world are industrialised to a greater or lesser extent, with the remainder it seems also aspiring to that status.

It's certainly true that those whose writings stimulated my early interest in UK IA about half a century ago – such as Kenneth Hudson, Michael Rix, Angus Buchanan and Arthur Raistrick – encouraged us to identify, study, record, and sometimes preserve the physical evidence of what for convenience was called the Industrial Revolution. This was characterised by the use of coal as energy source, iron as the basic material, steam for power, and manual labour (both physical and clerical) – increasingly concentrated in large places of work. This focus was quite understandable and proper, as technical developments were already displacing much original industry. Consequently the 'monuments' of this period such as collieries, iron- and

steelworks, steam engines, and multi-storey textile mills were likewise under threat, and thus in urgent need of study. Indeed, many have now vanished, although a welcome number have survived, either preserved or adapted for re-use.

Now we are into what some might call the Second Industrial Revolution, with coal supplanted by oil, natural gas, nuclear, or renewable energy sources; iron arguably by the silicon chip; steam by electricity; and manual labour by computer systems and (still in its infancy) robotics. The rate of technical development is ever increasing, so that already we have 'industrial monuments' of this period, such as early nuclear power stations and mainframe computers. The nature of many of these, the pressures for site re-use, the relatively short useful lifespans, and the frequent introduction of new models, mean that the industrial archaeologist and the industrial historian face a task on a daunting scale if they are to furnish a reliable and comprehensive account of industrial activity in our present era. The abundance of documentary records can ease that task, but also make it much more time-consuming. And so it is likely to continue to be.

Indeed, unless you take the narrow view of the late Arthur Raistrick that the scope of IA is limited to the study of strictly industrial activity (mining, manufacture, etc) the reality is that we are still living in what is very much an industrial and an industrialised society, characterised by aggregation and centralised control/management of production, distribution and exchange, not just of Raistrick's subjects, but of education, health, public utilities, housing provision and maintenance, social services, local and national administration, entertainment, sport, etc, etc.

Evidence for this comes in the Government's Standard Industrial Classification of Economic Activities. This offers 21 categories of activity, of which 'Section C Manufacturing' is but one, 'Section F Construction' another. Other sections cover what might seem to be distinctly un-

industrial activities like 'Agriculture, Forestry and Fishing', 'Financial and insurance activities', 'Education', 'Human health and social work activities', and 'Arts, entertainment and recreation'. We are often told that service industries are now the backbone of our national economy, and the SIC seems to bear this out.

The fact surely is that we are still living in an industrial society, and so long as that is the case then industrial – not post-industrial – archaeology remains as our relevant field of study!

Michael Bussell

The Wrong Lightning

I fear an error has crept into the report on the visit to Tangmere War Museum - the article refers to a Lockheed Lightning, which would be the P38 twin boom long range fighter (not yet the Lockheed Martin F35). I think it should refer to the British Aircraft (formerly English Electric) Lightning F53 built for the Royal Saudi Air Force but displayed as an F6 of the RAF. If there really is a P38 I must visit again but I can find no reference to that on the museum website.

Vaughan Pomeroy

A very curious roof truss

On a recent visit to Queens Mill in Castleford, Yorkshire, (formerly Allinson's wholemeal flour mill), where internal storage bins have now been cleared away; I was intrigued by the roof construction which incorporates large cast iron knee brackets in the roof trusses. They appear to be original construction (ignore the later reinforcing gusset plates). It looks to be an improvement on the more common queen post truss used in mills as it provides a much wider way through, almost the full width of the floor.

I have never met this type of roof before. I am wondering whether any of your readers can provide other examples,

John Boucher



Roof trusses at Queens Mill, Castleford, Yorkshire.

Photo: John Boucher

George Stephenson honoured – but Snibston Museum closed.

On 9 December 2015, a Green Plaque commemorating George Stephenson's tenure of Alton Grange, Ravenstone, Leicestershire, was unveiled by a former chairman of Leicestershire County Council. The house is now occupied by Chris Pratt and his family, who nominated the house for this award. George lived in this house from 1832-8 while building, with his son Robert, the Leicester-Swannington Railway as well as working mines in the vicinity. The unveiling ceremony was attended by representatives of several organisations, including members of the Stephenson Locomotive Society and the Society of Mechanical Engineers.

Leicestershire Industrial History Society has done a great deal of research on the history and archaeology of this railway and has worked hard to ensure public access to Glenfield Tunnel. Opened in 1832, it was one of the first railway tunnels to be used by steam locomotives. The tunnel was closed in the 1960s but tours inside are now conducted by volunteers from the society at regular intervals and have proved very popular – search lihs.org.

The Stephensons saw how successful William Stenson's coal mine at Long Lane (Whitwick Colliery) had been, and decided that the area had potential. George and his partners sank Snibston No.1 pit near Stenson's mine in 1831, followed by Snibston No.2 mine two years later. Despite achieving record-breaking output in the twentieth century, Snibston Colliery was closed in December 1983. The site was redeveloped as a museum and discovery park and opened to the



The interior of Glenfield Tunnel (before concrete rings were installed to support ground above) Photo: Keith Rose

public in 1992. It proved very popular with the public, particularly children who were able to understand the scale of past industry as the museum could display large artefacts such as locomotives, mining equipment and so on. The colliery buildings were scheduled in 1999 and Snibston colliery was judged to be one of four sites in England which best represented the coal mining industry since the 1890s. Readers of IA News may remember the wonderful cover on IA News 157, Summer 2011, showing the Snibston Colliery headstocks illuminated as part of Transform, a visual arts project.

Despite this, and in the face of massive protests, the County Council voted (by a very

small majority) to close the museum in 2015 and the area is to be developed as housing. The future of the mine buildings themselves is uncertain. So, despite our gratitude to Chris Pratt for nominating Alton Grange for the Green Plaque, it does seem ironic that the County Council can close a major museum yet celebrate the engineer commemorated in that museum less than six months later.

*Marilyn Palmer, Vice-President,
Leicestershire Industrial History Society*

A breath of hot air in Hereford

In October the Waterworks Museum in Hereford became the centre for one day of the realm of hot-air engines in the UK. These enigmatic machines had their heyday in the 1890s and were developed from the original ideas of the Rev Robert Stirling, a Scottish clergyman, and are often referred to as Stirling engines in his honour.

Each year the Waterworks Museum works collaboratively with the Stirling Engine Society to bring a range of hot-air engines, including some of the latest experimental models, to Hereford for display to the public. There are Stirling engine enthusiasts all over the country and some travel from as far as East Anglia and Cornwall to display their latest engines in the exhibition.

The engines shown range from large models working from solar energy (or heat lamps if the sun is not shining!) through small engines powering model vehicles to incredible examples which work purely from the heat in the palm of your hand.

Next year will see the bicentenary of the first patent taken out by the Rev Robert Stirling in 1816. The national celebrations of this seminal event will be focussed on Hereford. The Waterworks Museum will host the event on 9 October, working closely with the Stirling Engine Society, which will include new displays, video presentations and models operated by visitors. The culmination will be the largest gathering of full-size hot-air engines ever in Britain, all on working display. Everyone who owns a full-size hot-air engine is cordially invited to join this historic event. Please make contact through julianjwood@talktalk.net.

The Waterworks Museum in Hereford is unique in having on permanent display two full-size Victorian hot-air engines, various model engines and two historic experimental Stirling engine power generators developed at Harwell. It has become a centre of excellence for the display, explanation and presentation of Stirling engines to the public.

Rossendale – a Valley of Destruction

Rossendale is turning into a 'valley of destruction', a civic trust member has claimed.

Peter Wood has warned that the borough is losing its heritage at 'an alarming rate' - saying 15 industrial buildings with significant heritage value have been partially pulled down or demolished over the last ten years.



Members of the committee of Leicestershire Industrial History Society at the unveiling of plaque. Left to right, Chris Hossack (Chairman), Marilyn Palmer (Vice-Chairman, also representing AIA), David Lyne (Secretary).

Peter Wood, who is a member of Rossendale Civic Trust, said: "We have lost two thirds of the industrial heritage in the twentieth century, and whatever is left is precious.

"Rossendale was one of the cradles of the Industrial Revolution and became known as The Golden Valley due to the immense wealth created here. It gives Rossendale a wonderful resource to develop into a tourist industry.

"One of the reasons we are losing so many of those mills at the moment is the business rates on those properties, which mean that the first option is always to demolish the buildings.

"Unfortunately demolition of our heritage is all too easy when there are other viable options which could be explored."

The list of buildings demolished or facing demolition includes: Rossendale Hospital, Reeds Holme Works, Mile End Mill in Waterfoot, Albion Mills in Rawtenstall, Bell Street Mill in Haslingden, Acre Mill in Stacksteads, Irwell Mills in Bacup, Rawtenstall Bus and Trams Depot, Albion Mills in Waterfoot, Bacup Gas Offices, Orama Mill in Whitworth, Greensnook Farm, Facit Mill in Whitworth, Kearns Mill in Cowpe, and Forest Mills in Bacup.

Rossendale council recently approved a compulsory purchase of Albert Mill in Whitworth, which will now be demolished and sold on to a housing developer.

Peter Wood's comments follow recent calls for the Bacup's old market hall to be refurbished and brought back to life.

Council Leader Alyson Barnes said: "It is the council's intention to put together a list of important buildings in the borough, and the Civic Trust have indicated that they would be happy to work with us on this. Clearly it would make sense to then look at what buildings can realistically be preserved and what can't, and then to put a plan in place that would start to address some of the issues."

Rossendale Free Press

Ditherington Mill – Shrewsbury Flaxmill Maltings

An event was held in November 2015 to mark the completion of the latest phase of the restoration of Shrewsbury Flaxmill Maltings (better known to many readers as Ditherington Flax Mill). This project, partly funded by the Heritage Lottery Fund, has seen the stabilisation and conservation of the historic buildings on the site, three of which are listed Grade I, the demolition of the twentieth century concrete grain silos and the restoration of the original office and stable buildings to create a Visitor Centre and offices for the Friends of the Flaxmill Maltings. The Visitor Centre was formally opened by Duncan Wilson, Chief Executive of Historic England, which owns the site, and Alan Mosley, Chairman of the Friends. Amongst the other speakers at the event was AIA Vice-President Sir Neil Cossons, who was Chairman of English Heritage when it took ownership of the site in 2005. Work is now proceeding to develop plans for the full restoration of the site, including

the iconic 1797 Spinning Mill, the world's first fully iron-framed multi-storey building.

The visitor centre is open on Saturdays through the winter and on Fridays, Saturdays and Sundays from 31 March to 29 October 2016; admission is free. For more information, see www.flaxmill-maltings.co.uk. A tour of the site, including access to some historic buildings not normally open to the public, is one of the visits included in the AIA's annual conference in Telford in September 2016. The Rolt Memorial Lecture at this conference will be given by John Yates, on the subject of this hugely important site. John was English Heritage's Principal Buildings Inspector for the West Midlands for many years and played a crucial role in facilitating a long succession of initiatives which have finally succeeded in safeguarding the site.

Ian West

Springhead pumping station in Willerby gets a £2.5m facelift

A Grade II landmark, it was originally constructed in 1862 to supply most of Hull's drinking water.

The station's original beam pumping engine was mothballed in the early 1950s, but remains at the site. More modern pumps still extract water from underground boreholes before it is transferred to the Keldgate treatment works in

Cottingham, which supplies 25 million litres of water every day.

Last used as a museum by Yorkshire Water, the station has been closed to the public for several years. As a result, it has become a target for numerous thefts and acts of vandalism. In particular, numerous slate tiles have been removed from the roof.

York-based building renovation specialists William Birch and Sons are carrying out the restoration project on behalf of Yorkshire Water. They started work to ensure the building was weather resistant and watertight at the end of September. Contractors are expected to remain onsite until the project is finished next summer.

Hull Daily Mail

Thanks to Chris Hodrien for bringing this to our attention

Sir George Bruce

Sir George Bruce (c1550-1625) has been inducted into the Scottish Engineering Hall of Fame.

After the Reformation of 1560, the lands and properties of Culross Abbey passed to the Colville family. George Bruce's cousin, Alexander Colville, was appointed as Commendator of the Abbey. In 1575, he granted the 25 year-old George Bruce a lease to restore and operate the colliery at Culross, which by this time had fallen into disuse.



Official opening of the Flaxmill Maltings Visitor Centre, November 2015; left to right are Duncan Wilson, Mayor of Shrewsbury, Alan Mosley, Chairman, Friends of the Flaxmill Maltings, Lady Mayoress of Shrewsbury, Sir Neil Cossons and Tim Johnson, Project Director for Historic England. The tool they are using is a flax breaker.

Photo: Friends of the Flaxmill Maltings

Bruce was ostensibly chosen 'for his great knowledge and skill in machinery such like as no other man has in these days; and for his being the likeliest person to re-establish again the Colliery of Culross.'

The Hall of Fame Chairman Gordon Masterton claimed: "Sir George Bruce's application of technical ingenuity on a large scale to release the embedded value of natural resources was the mark of a true engineer. All the more astonishing given that his industrial complex in Culross demonstrated skills in civil, mechanical and mining engineering in 1580, some 150 years before the Industrial Revolution. His achievement deserves to be much better known and appreciated in Scotland's story. This was innovation and enterprise writ large – in the sixteenth century. We hope Sir George Bruce and the still surviving archaeological relics of his work get much more attention and protection now that he's inducted into the Scottish Engineering Hall of Fame."

Brickworks uncovered in Kent

A Victorian brickworks has been uncovered by contractors widening the A21 between Tonbridge and Pembury in Kent. Oxford Archaeological have been working at the site on Castle Hill. Town history groups have not been permitted to visit and are calling for access to the site to find out more.

A Highways Agency spokesman said initial archaeological investigations at the site had been completed, but said it is not yet clear what will happen to the discovery when construction work continues, or if they will survive the road widening.

"There is no decision on that at this stage," he added. "Historic England and Kent County Council are also involved. It is a busy construction

site, so unfortunately we cannot allow local groups to visit. The last thing we want to do is suspend the work and add a delay to the roadworks."

Revolutionary Players

History West Midlands has developed a website – Revolutionary Players.

The *Revolutionary Players* were the men and women whose ideas, innovations, industry and achievement shaped the Industrial Revolution in the English Midlands and the world beyond from 1700 to 1830.

They each shared a passion for knowledge and a hunger to apply this new-found wisdom to science, technology, business, art and philosophy at a time of dramatic change.

Revolutionary Players provides the opportunity to explore the lives of these fascinating characters, their times and the places where they lived, through digitised prints, paintings, drawings, objects, buildings, letters, maps, plans, newspapers and other printed materials.

Queen Street Mill under severe threat

Half of East Lancashire's libraries and two of its flagship museums face closure under the County Council cuts plan.

Burnley's Queen Street Mill and Helmshore Textile Museum will lose all funding from March 31 meaning they will shut their doors unless other groups can find the cash to keep them open.

The proposals follow the announcement in August that the council will need to save an additional £262m by April 2020, to tackle a funding gap caused by reduced government funding.

Tondu ironworks has been put up for sale

Strenuous efforts are being made to save the site which is regarded as one of the most important in Wales

Tondu Ironworks first went into production in 1836 and closed in 1896. The strategic location of the site ensured its continuing use as a wagon repair works. In 1946 the site became the West Wales headquarters for the National Coal Board, a role it served until closure in 1986. Extant structures include charging bank and lift, former blowing engine house, 56 beehive coking ovens and calcining kilns, as well as a later drift mine entrance. Part of the site is a 'scheduled monument', whilst the buildings /structures are additionally a mix of grade II and grade II* listed buildings. The former ironworks and associated company village (including managers' houses, terraces and a rare surviving truck shop), are also a designated conservation area. The truck shop, beehive coke ovens and calcining kilns are particularly rare and outstanding features. As a result, the works and its associated village are deservedly dubbed "the best preserved Victorian ironworks in Wales".

Groundwork Bridgend and Neath, Port Talbot, which was declared insolvent in November 2014, had stabilised the scheduled remains and transformed the blowing engine house into offices. The surroundings comprise a heritage park for visitors and schoolchildren, with excellent facilities for disabled people, families with small children, cyclists and those wishing to learn more about the importance of the iron making industry in Wales. The site includes skate ramp, wooden play area, purpose-built education ('resource') centre and walkways accessing the coke ovens and a timber board walkway over some of the important archaeological features. The site, which is a designated an 'Anchor Point' for the European Route of Industrial Heritage, is a nodal point on the local cycle route network, including the Celtic Trail.

The structures on site, which covers nearly 12 acres, that are for sale include:

- Refurbished Engine House office building
- Resource Centre (previously used for youth training)
- Remains of hot blast stoves, coke ovens, calcining kilns, blast furnace floor and a drift mine
- Several sculpted landscape objects including parts of the former Ironworks plant and machinery Wooden play area structures
- Fenced compound incorporating various containers and storage sheds

The advertised guide price is £400,000.

Worryingly, the sales particulars note that 'there is no statutory obligation to maintain the structures to a prescribed standard'.

Many thanks to Rob Kinchin-Smith for bringing this to my notice.

Maryann Soper



Uncovered brickworks, Tonbridge, Kent

Photo: Martin Garwood

Flood Damaged Bridges

The storms in December and early January have greatly damaged or destroyed a number of bridges. As would be expected the majority of these are stone bridges but a number of iron and steel bridges have also suffered. For pictures of these and a great deal of other information search – The Happy Pontist.



Brundholme Bridge near Keswick Photo: Floodpics



Tadcaster

More volunteers to boost canal restoration projects in 2016

The Waterway Recovery Group will offer 35 canal camps at 16 different sites in 2016, providing places for up to 580 volunteers to help restore some of the country's best-loved waterways.

The camps, typically each a week long and housed in village halls, have become well-known over the years as rewarding opportunities for experienced volunteers to share their expertise and for newer enthusiasts to learn valuable practical skills.

WRG volunteers provide the catalyst for significant progress on canal restoration projects in a relatively short space of time. The intensive canal camps support the year-round restoration work of local canal societies and trusts across England and Wales. Fifteen different waterways will benefit from WRG canal camps in 2016 and the group aims to increase the amount of volunteer time devoted to restoration projects by more than 10 percent compared to 2015.

Consult www.wrg.org.uk for a full list of available dates and locations as well as the 2016 Canal Camps brochure.

Editor required

Since the tragic death of Christine Ball last year, we have been without an Editor for SYIHS Publications. Not only was Christine the SYIHS Secretary, she was also Archivist and Publications Editor. I took over being Secretary, from being President and we had a volunteer to take over the Archivist role, but so far have been unable to find someone in the Society willing and with the necessary skills to become our Editor. We had three publications in the pipeline at the time of Christine's death, including a study of the Barnsley Linen Industry by Harold Taylor who has sadly recently died before seeing his research in print.

Is there anyone who would be prepared to discuss arrangements to undertake this work or could any Society recommend an Editor that they have used for their own publications.

Margaret Tylee

Chair, Industrial History Section,
Yorkshire Archaeological Society
Secretary, South Yorkshire Industrial History Society

Celebrating James Watt's birthday and Scottish innovation

The birthday of James Watt, and 250 years since his invention of the condensing steam engine was commemorated on 19 January at Holyrood.

The reception in the Scottish Parliament was among several events held to begin the Scottish Government's Year of Innovation, Architecture and Design 2016 and is organised by the Celebrating James Watt Steering Group and the Friends of Kinneil.

Watt was born in Greenock on 19 January 1736. He first had the idea for his condensing steam engine – his most famous of many inventions – whilst walking on Glasgow Green in the Spring of 1765. By January 1766 he had begun to develop it in partnership with the businessman Dr John Roebuck of Kinneil House, Bo'ness, co-founder of the Carron Iron Company. Watt eventually patented the idea in 1769, with Roebuck holding a two-thirds share.



Watt's cottage near Kinneil House, where he tested his prototype steam engine.

Image: The Friends of Kinneil and Falkirk Community Trust



The World's Second Iron Bridge?

The bridge is situated on the west bank of the River Trent in the grounds of recently re-developed Trentham Garden. Beneath the footings of the present bridge are the footings of what may be the world's second oldest iron bridge. Designed by Thomas Farnolls Pritchard, it was built here in 1794. It was commissioned by the 2nd Lord Gower who, as owner of the Lilleshall Estate, controlled a large part of the Coalbrookdale coalfields and ironworks. Sadly, it is believed that the designer lived to see neither this nor the first cast iron bridge of Thomas Telford completed.

Meanwhile in Germany

To see what can be done with a World Heritage Site—Search -

Zollverein World Heritage Site Flyer

You may be impressed

Driven by Water An Exmoor Water-power Heritage Weekend 1 - 3 April 2016

Enjoy a spring break staying in a lovely country house hotel in the heart of Exmoor National Park and exploring the area's heritage of mills and other water-driven places and machinery. Based at Simonsbath House Hotel, we will visit six beautiful and historic water-powered mills (including two of the last remaining water-driven sawmills in the country, as well as a working flour mill); learn about the challenges of restoring and managing these wonderful places; ride on a water-powered railway and visit a modern a hydro-power generation site, while also helping to support conservation work at historic mills (a proportion of the cost of the weekend will go towards restoration work by volunteers). Full board with two nights' accommodation in the hotel and including all entrance fees, transport and other charges. For more information please contact Simonsbath House Hotel, Simonsbath, Exmoor, Somerset. TA24 7SH; Tel: 01643 831259; Email: enquiries@simonsbathhousehotel.co.uk

THE 6th INTERNATIONAL EARLY RAILWAYS CONFERENCE



NEWCASTLE-upon-TYNE NORTH EAST ENGLAND 16th – 19th June 2016

The 6th International Early Railways Conference will be held in the City of Newcastle. 'Early railways' are taken as relating to forms of the pre-main line railway, often described as waggonways, plateways, tramroads or industrial railways. The topics of the papers will be wide-ranging: from national and regional studies to those of individual lines; the analysis of archaeological investigations; far-reaching themes of finance, administration, usage, technology and engineering; and with dates from the medieval period to the later nineteenth century.

CONFERENCE ENQUIRIES:

early.railways.conference@gmail.com

FURTHER INFORMATION and UPDATES:

www.earlyrailways.org.uk



40th ANNUAL LONG WEEKEND 29th April to 2nd May 2016 CARLISLE

Industrial Archaeology in Northern Cumbria (with optional trip on Settle to Carlisle railway)

Location: In 2016 we will celebrate 40 years of the Long Weekend and once again we will be exploring a new area: Northern Cumbria and the city of Carlisle. A major railway centre since 1846, the city has been home to Carr's Biscuits since 1831 and is currently an important location for Pirelli Tyres.

For more details and booking form please contact Malcolm at malcolm.verity1@btinternet.com or 01928 724804.

3rd International congress on industrial heritage,

Reuse of industrial sites a challenge for heritage conservation. 17 to 19 June 2016

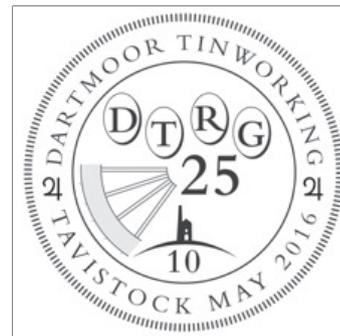
Universidade Lusíada de Lisboa

The de-industrialization phenomenon of recent decades has created a large number of vacant industrial sites for which it is necessary to find a solution other than demolition.

Their restoration and re-use are possible and appropriate measures that can avoid such loss and destruction, with advantages for the preservation of historical memory, the urban equilibrium and regeneration of economically depressed areas.

As main theme, this 3rd Congress proposes the presentation of practical examples and methodological reflections in the field of re-use of industrial sites, as well as approaches in other subject areas, such as Heritage, Archaeology, Museology and Industrial Tourism.

For more details use internet link available on the AIA website



Celebrating the Tinworking Landscape of Dartmoor in its European Context – Prehistory to 20th Century

Tavistock, Devon

6-11 May 2016

The first international conference exploring the tinworking landscape of Dartmoor in a European context, is to be held in Tavistock from 6-11 May 2016. It marks 25 years of the Dartmoor Tinworking Research Group, and 10 years of the UNESCO World Heritage designation of the Cornwall & West Devon Mining Landscape. Twelve lectures (including speakers from Czech Republic, France, Germany and Iberia, as well as Britain), four evening events and three full days of field trips, will make this a truly memorable and important occasion for anyone interested in Dartmoor's history and archaeology. Delegates will receive a Conference Booklet and a special medallion crafted in tin.

All bookings must be received by 30 April 2016. The full Conference Programme and details about booking are now available on the DTRG website:

www.dtrg.org.uk

Local Society and other periodicals received

Abstracts will appear in *Industrial Archaeology Review*.

Bristol Industrial Archaeological Society Bulletin (no date or issue number)

Cumbria Industrial History Society Bulletin, 93, December 2015

Dorset Industrial Archaeology Society Bulletin 44, January 2016

Greater London Industrial Archaeology Society Newsletter, 280, October 2015; December 2015

Hampshire Industrial Archaeology Society Focus on Industrial Archaeology, 85, December 2015

Histelec News: Newsletter of the South Western Electricity Historical Society, 61, December 2015

Historic Gas Times, 85, December 2015

ICE Panel for Historical Engineering Works Newsletter, 147 September 2015

Midland Wind and Watermills Group Newsletter, 113, December 2015

North East Derbyshire Industrial Archaeology Society Newsletter, 60, November 2015

Northamptonshire Industrial Archaeology Group Newsletter, 136, Autumn 2015

Scottish Industrial Heritage Society Bulletin, 77, December 2015

Somerset Industrial Archaeological Society Bulletin, 130, December 2015

South West Wales Industrial Archaeology Society Bulletin, 124, October 2015

Surrey Industrial History Group Newsletter, 208, November 2015

Sussex Industrial Archaeology Society Newsletter, 168, October 2015

Sussex Industrial History, 45, 2015

Sussex Mills Group Newsletter, 168, October 2015

Trevithick Society Journal, 42, 2015

Yorkshire Archaeological Society Industrial History Section Newsletter, 95, Autumn 2015

WaterWords: News from the Waterworks Museum, Hereford, Autumn 2015

Welsh Mines Society Newsletter, 73, Autumn 2015

Books

A History of the County of Durham Volume V: Sunderland. Boydell & Brewer, the local history publisher, is offering a 25% discount to members of the AIA on the recently released Victoria County History volume. *A History of the County of Durham Volume V: Sunderland*, edited by Gillian Cookson, begins at the time of Bede and the heyday of the Wearmouth monastery and moves on to explore the coal trade which transformed the town and how in the nineteenth century Wearside became the world's greatest shipbuilder. The discount will make the price £71.25 for members (instead of £95.00 RRP).

Orders can be placed by phone on 01394 610600, by fax on 01394 610316, by email at trading@boydell.co.uk or on-line at www.boydellandbrewer.com. Postage is £4.00 in the UK, £7.50 per book (up to a maximum of £30.00) to mainland Europe and £13.50 per book outside Europe. Please quote the offer code **15781** to ensure that the discount is given. The offer ends **31 March 2016**.

30 Years of Mobile Phones in the UK by Nigel Linge and Andy Sutton, 96pp, 100 illus, ISBN 978-1-4456-5108-8, Amberley Press pbk £14.99.

This book charts the rise of one of the most remarkable items of personal technology to have been developed in the last 30 years. The authors explore the origins of the mobile phone and the early models. They

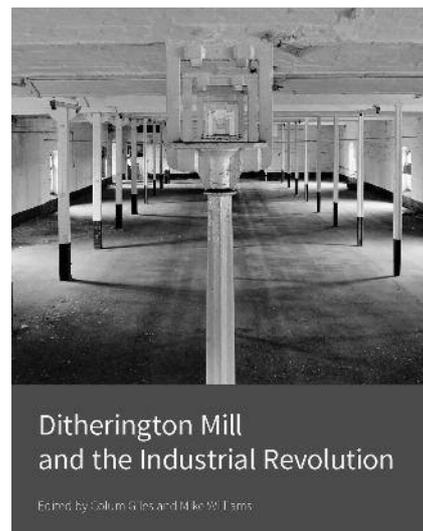
analyse the background developments, such as the licensing of new networks, the emergence of data services and the development of text messaging and the integration with the web.

Alongside this the authors explore the design and technical changes to the handsets including the integration of cameras and the emergence of apps.

The book ranges from 1G through to the current 4G networks and looks ahead to 5G and likely developments during the next 30 years.

Ditherington Mill and the Industrial Revolution edited by Colum Giles and Mike Williams, 158pp, ISBN978-1-84802-118-1 available via the Historic England online bookshop, £50.

This is the most comprehensive statement on a textile mill to be published by Historic England, and builds on previous research by English Heritage, RCHME, the Ironbridge Institute and a wide range of other sources. As the first building with an internal iron frame, Ditherington Mill has long been recognised to be of international significance. To fully examine the historical context of the mill the book includes contributions from a team of specialist authors, including Barrie Trinder, Ron Fitzgerald, Tom Swailes, Paul Belford, Ian West, Colum Giles and Mike Williams, with a concluding chapter on the conservation of the mill by Historic England inspector John Yates.



Ditherington Mill was arguably the most advanced factory built in a period of accelerated innovation in the textile industries. Its iron internal structure was a bold first step in the long development of iron- and later steel-framed buildings, but it was also experimental. Some details of the design were further developed later but others were superseded within a few years and were not seen in later mills. The mill is also one of the earliest surviving factories to be built entirely for steam power, depending on water from the adjacent Shrewsbury Canal which was built at the same time. The survival of such a pioneering building is unusual and highly fortuitous, and is largely due to the conversion of the site into a maltings in the 1890s. The conversion preserved the exteriors of the main buildings but enclosed much of the historic iron frames within new concrete floors.

The book makes full use of previous research but also includes recent new findings. Conservation and survey at the site following its acquisition by English Heritage and partners in 2005 has enabled a closer examination of the original iron frame, built between 1796 and 1800, together with evidence of the steam power system and early arrangement of the machinery. Surveys of newly-exposed parts of the frame indicate that it was designed for a particular power transmission system and machinery layout, in addition to providing a "fireproof" structure for an exceptionally large mill. A review of this book will appear in *Industrial Archaeology Review* in due course.

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Thomas Newcomen.

The latest annual Journal of the Trevithick Society (No. 42, 2015) carries a major 64-page research article (268 Ref's!) on the history of the Newcomen engine in the Cornish mines by James Greener, 'Thomas Newcomen and His Great Work'. The 180 page, 7 article journal is available to non-members for £12 (inc postage).

Payment should be by cheque to the Trevithick Society. Send orders to: Kingsley Rickard (TS Journal), 6 Seton Gardens, Camborne, TR14 7JS.

1 – 3 April 2016

DRIVEN BY WATER

An Exmoor Water-power weekend
See page 21

16 April 2016

**SOUTH WEST & WALES
REGIONAL IA CONFERENCE**

Hosted by the Gloucestershire IA Society at Dursley.
Information from:
secretary@gsia.org.uk

23 April 2016

**AIA PRACTICAL DAY
SPEAKING UP FOR
INDUSTRIAL ARCHAEOLOGY**

Information and booking – David de Haan, secretary @ industrial archaeology.org. See page 3

23 April 2016

SERIAC

Holy Cross Preparatory School
Kingston upon Thames
Hosted by Surrey Industrial History Group
Information www.sihg.org.uk

**29 April – 2 May 2016
INDUSTRIAL ARCHAEOLOGY
IN NORTHERN CUMBRIA**

Merseyside IH Society 40th Annual long weekend. See page 22

6 – 11 May 2016

**A CELEBRATION OF THE TIN
WORKING LANDSCAPE OF
DARTMOOR IN ITS
EUROPEAN CONTEXT
PREHISTORY TO THE 20TH
CENTURY**

See page 22

14 May 2016

EMIAAC 90

The Ashby Canal
Hosted by RCHS East Midlands Group at Moira, Derbyshire
Information from:
wild141@talktalk.net

16 – 22 May 2016

**AIA SPRING TOUR TO
ROMANIA**

Details from Heritage of Industry
info@heritageofindustry.co.uk

2 – 5 June 2016

**SIA 45TH ANNUAL
CONFERENCE**

Kansas City, Missouri, USA

16 – 19 June 2016

**6TH INTERNATIONAL EARLY
RAILWAYS CONFERENCE**

Newcastle-upon-Tyne
See page 22

17 – 19 June 2016

**REUSE OF INDUSTRIAL SITES
A CHALLENGE FOR
HERITAGE CONSERVATION**

Universidade Luisiada de Lisbon
See page 22

26 – 30 July 2016

**ICOHTEC SYMPOSIUM 2016
TECHNOLOGY, INNOVATION,
AND SUSTAINABILITY:
HISTORICAL AND
CONTEMPORARY
NARRATIVES**

Porto, Portugal details:
www.icohtec.org

6 – 11 September 2016

**INTERNATIONAL MINING
HISTORY CONFERENCE**

Linares, Spain
www.mining2016linares.com

9 – 14 September 2016

**AIA ANNUAL CONFERENCE,
TELFORD**

The Association's AGM and annual conference. Full details and a booking form are enclosed with this edition

9 October 2016

**BICENTENARY CELEBRATION
OF THE STIRLING ENGINE**

Waterworks Museum Hereford

29 October 2016

**ROADS AND TRANSPORT
CONFERENCE**

Devizes Town Hall
hello@wiltshiremuseum.org.uk

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



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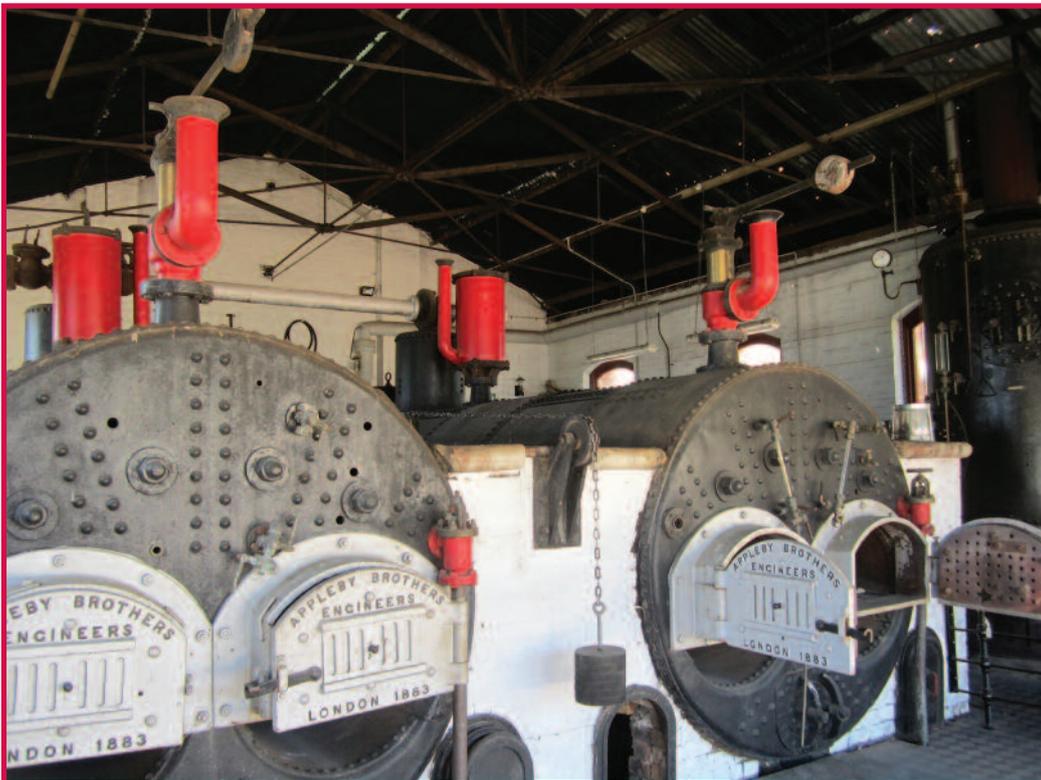
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Final copy dates are as follows:

- 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.

The views expressed in this bulletin are not necessarily those of the Association for Industrial Archaeology.



1885 Galloway Boilers at Goulburn pumping station – see page xx

Photo Chris Barney