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INDUSTRIAL ARCHAEOLOGY NEWS

The Newsletter of The Association for Industrial Archaeology

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Dr Tegwen Roberts: Communications Team, Social Media Officer, YMB Triumvirate

Dr Juan Cano Sanchiz: YMB

Maryann Soper: YMB Triumvirate

Geoff Wallis: Restoration Grant panel, YMB Triumvirate

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Cover story

Bembridge Windmill, on the Isle of Wight, in process of restoration. The photograph shows one of the stocks being lowered into the 'canister'. Dorothea Restoration's chief millwright, John Wallis, is working on a cherry picker with his millwright colleague Andrew Butt. See article on page 20 of this Issue.

Notes for contributors

There has been a gratifying response to my request for items for inclusion in IA News. Some guidance has been sought on how best to present material. The following notes may help:

IA News, being the main paper communication organ for the AIA, is issued quarterly. It covers all the Association's activities, including the work of AIA Council and the Young Members Board and that of our Affiliated Societies, together with both regional and international news,

Items for inclusion should be sent as **Word** documents.

Photographs accompanying a report should be sent as separate jpg files (for best quality printing), rather than being embedded in the text. Short captions should be provided.

The number of words will naturally depend on the nature of the report. Typically, a short news item could be up to 250 words. A large report could be up to 1,500 words.

If necessary a report will be edited to fit the space available. If an author feels that editing may detract from the substance of the report, please include a note to this effect.

For copyright reasons the origin of all reports must be credited and, where appropriate, the author's name and position included. Photographs, too, should indicate to whom credit should be given.

Photo archives

Several contributors have raised the question of what should be done with photo archives. Suggestions and examples to further this discussion would be most welcome. Please send your thoughts to the Editor.

For news about the AIA 2021 Annual Conference see page 19

AIA's Website and Social Media sites

Website: www.industrial-archaeology.org

Facebook: www.facebook.com/groups/wearetheaia

Twitter: [twitter.com@industrialarch](https://twitter.com/industrialarch)

Letter from our Chair

Dear Members

I am starting this letter to you on the first anniversary of the COVID-19 lockdown, but first I must thank Pat Bracegirdle on the appearance and quality of the first issue of IA News under her editorship.

A year ago, I would not have guessed that we would be continuing in lockdown, at least in England, although the rapid uptake of vaccination is improving our prospects after this summer and autumn. Unfortunately, the Government's Road Map for relaxing the lockdown came too late for the Summer Meeting planned for Liverpool and the University we had booked with cancelled all its bookings for the summer of 2020. John McGuinness and the local team in MIHS had done much work on the conference and we must thank them.

It is not just the Association that has been challenged by the effects of lockdown on IA in Britain. All the major industrial museums and sites such as steam railways and pumping stations have been closed for most of the last year. Staff have been furloughed, whilst regrettably others have been made redundant. Hundreds of organisations have been able to claim Government support from the c. £1,500M Culture Recovery Fund,

www.artscouncil.org.uk/publication/culture-recovery-fund-data

and the Heritage Stimulus Fund,

<https://historicengland.org.uk/whats-new/news/445-heritage-organisations-boosted-by-culture-recovery-fund>.

Although difficult at this stage to be accurate, I roughly calculate that less than £40M was awarded to organisations with an obvious IH nature, with the largest total going to Heritage Railways. Some funds did go to a few large regional IH museums such as Ironbridge. The arts and humanities appear to have fared better although probably not receiving all they would have wished for. Many small arts organisations appear to have received funding but I cannot see in the Funds' guidance support for many small IH sites such as watermills. I am aware that some local museums have been given emergency support by their local authority and maybe local charities. Did they not apply or is it that arts organisations who routinely apply for funding therefore know how to do raise money? We are very grateful to the anonymous donors who even in these difficult times have continued to fund AIA's restoration grants which I believe offer something that these large government funds do not.

Even when financial support has been achieved many sites will be suffering in other ways. A few sites appear to have closed permanently and others are struggling. Large items of equipment do not like standing still and buildings get damp if unused, steel artefacts rust and lubrication dries out, vandals have been reported to have damaged some sites. Volunteers, many of whom are retired, have been hesitant to come into empty sites and tearooms and bookstalls have not contributed to a site's finances.

Local and national IA societies have suffered too. Regional conferences such as SERIAC and the 2nd International Early Engines Conference were cancelled due to venues closing. Visits and walks were stopped and lecture series belatedly went virtual and, if we owned a computer, we have become zoomers. Whilst zoom lectures can offer the knowledge of a topic and report research, they are not social events giving an opportunity to chat over a post lecture drink and cajole members to take on necessary tasks. I have been surprised by the number of TV programmes with IH themes that are being shown, such as the Architecture that Railways Built and Abandoned Engineering. A few friends with no interest in IA have told me how fascinating they have found the repeats of Fred Dibnah series first broadcast in 1980-2003. I need to work on them to join the AIA. I remember visiting many of the places he filmed in the 1970s and 1980s and the lack of any H&S being required!

What have I found to do lockdown in London? Writing articles and papers has proved difficult since although internet sources are powerful I have not been able to visit archives to source and research materials. I've digitised, repaired and then catalogued over 10,000 IA slides from my pre-digital camera era i.e. 1970 to 2005. Early colour slide film is fading and for some my notes of where and dates the slides were taken is testing my memory. I still have another 10,000 slides to go! At about four minutes per slide that will only take about 400 hours. Then I could start on the B&W negatives. Many of my pictures are of buildings and works long gone. I am sure many of you have similar collections but what are we to do with our records?

Finally, I draw your attention to Historic England's draft strategy on IH - comments by July 7th. Details are given below. Please respond either on your personal behalf or that of bodies you can represent. On behalf of the AIA I will be gathering comments on the strategy and sending a detailed response.

I do not care to even guess what next year might hold but let us hope that we can have more 'normal' IA activities.

David Perrett

Historic England's draft Industrial Heritage Strategy

Historic England is seeking comments on its draft Industrial Heritage Strategy. This sets out the key priorities for England's internationally-important industrial heritage to be delivered by Historic England, mostly in partnership with others. The closing date for responses is 7th June 2021.

The draft strategy can be found at

<https://historicengland.org.uk/about/what-we-do/consultations/guidance-open-for-consultation>

Best Adaptive Re-use of an Industrial Building – AIA Award

Amber Patrick and Keith Falconer report:

Striking a balance between old and new

These awards are for building conversions that strike that tricky balance between the practicality of their new function and the readability of their old. The Association believes that Adaptive re-use of former factories and other buildings is an effective way to convey the importance of the industrial revolution in the United Kingdom. By celebrating and publicising good examples of conversion, we are confident that developers, planners, trusts and businesses will be encouraged to take up the challenge. The Award is the presentation of a handsome bronze plaque, much prized by its recipients.



Plaque on the Silk Mill, Frome

In 2020 there were no nominations for the award and this year there has now been a slight change in the name of the Award from 'Creative' to 'Adaptive', but emphasis and the criteria remain the same. The closing date for awards has also changed and is now 31st January and, to emphasise the Association's concerns over climate change, there will also be some additional criteria to highlight that the reuse of industrial buildings helps in that there is no energy wasted in demolition, nor in the production of new material.

With no entries received by 31st January 2021 we are now seeking nominations for the 2022 award. Hopefully with the roll out of Coronavirus vaccinations, there will be a return to some more normal activities, including AIA Panel visits to assess outstanding examples in the re-use of industrial buildings. The Association therefore would welcome entries (whether small or large) in the coming year for the 2022 award.

A short resume of the previous awards shows that the past winners have ranged widely in scale, original use and conversion. The award scheme was started in 2015 and the awards were announced with a flourish at the Conference in Manchester organised by English Heritage to celebrate the European Industrial and Technical Heritage Year of 2015.

To initiate the scheme the AIA made five awards, three for community-led projects and two for commercial projects. The end uses of the buildings ranges from an arts centre, to offices and residential apartments. Millend Mill, Gloucestershire was illustrative of 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.



Millend Mill, Eastington, Gloucestershire

The other awards that year were to the huge Fairfield Drawing Office, Govan, a Maltings in Lichfield, the Silk Mill in Frome, Somerset and the Grave Digger's Hut at Painswick, Gloucestershire.

Thereafter only a single annual award was made. The 2016 award was to the King Edward Mine Count House and Carpenters Workshop, Camborne, Cornwall, and the 2017 Plaque to Clementhorpe Maltings in York. The 2018 winner was to a railway building, the very large former Great North of Scotland Railway Carriage Works at Inverurie. This immense building was converted into 40 residential units and offices with the new Garioch Heritage centre and café occupying the end served by the preserved 20 ton overhead crane. (See IA News 187, p14).



Inverurie Carriage Works

The 2019 winner was a somewhat smaller railway building – the 1872 former railway engine shed which was converted into a HQ for the Students Union at the new Waterside Campus of the University of Northampton. As well as the office there is a café, games area and meeting spaces (see IA News 193, p21).

Photographs by Keith Falconer

Restoration Grant: Stroudwater swing bridge

Morgan Cowles, Heritage & Environment Manager, Wales and South West, Canal & River Trust, reports:

The Canal & River Trust is responsible for one of the world's greatest industrial heritage estates and the third largest collection of designated heritage assets in Great Britain. These include bridges, aqueducts, locks, mileposts, etc.

Many of our canals were built at the height of the industrial revolution and these historic waterways sites are like stepping into a living museum where you can touch all the exhibits.

One such site is at Saul Junction near Gloucester where the Stroudwater Canal (1779) meets the later Gloucester and Sharpness (1827) forming an unusual 'canal crossroads' feature.

The site contains numerous historic structures, including the lock, bridge-keeper's house and its adjacent swing bridge which was used to cross at the Junction of the two waterways.

The swing-bridge (built 1886) is the last of its kind still in place on the Stroudwater so has historical and rarity value. It replaced an earlier bridge here (c.1820) and may have re-used some of the earlier parts including the wrought iron balustrades. It is an important local element in the assemblage of historic structures at Saul Junction which is part of the 'Stroud Industrial Heritage Conservation Area'.

Over two centuries of exposure to the elements had taken their toll and the bridge was suffering from timber decay to principal beams and corroding ironwork. It was also out of alignment and could not be operated.



Swing bridge before restoration

Thanks to the support of the Association for Industrial Archaeology we were able to restore the bridge to its former glory and bring it back into operation. Work commenced in October 2020 by the appointed contractor RW Davis Boatyard at Saul Junction who specialise in the restoration of historic vessels. Works began with careful dismantling of the ironwork balustrading, handrails and tensioning rods which were set aside and cleaned of all corrosion and restored using a specialist paint system.

The deck cover was then removed to allow inspection of the previously concealed elements to assess the extent of repairs required to the main timber structure and turntable. Four main areas of timber decay were identified. Timber repairs were carried out using traditional carpentry scarf joints and retaining as much original fabric as possible.



Timber decay to main pivot beam

An interesting discovery was made during the work where an additional ballast cradle had been found to be introduced at some point later in the bridge's history. Numerous corroded GWR rails had been added subsequent to the original construction. The GWR rails were also removed to the workshop for rust treatment prior to re-installation to serve as physical record.

A new oak handle needed to be crafted and fitted to the existing mechanism to operate the swing bridge and turntable repaired. Finally came the reassembly of the newly painted ironwork to the timber frame and final adjustments made to realign the bridge and ballast balanced.



AIA logo on the fully restored swing bridge

Photographs by Morgan Cowles

Beam engines in the UK

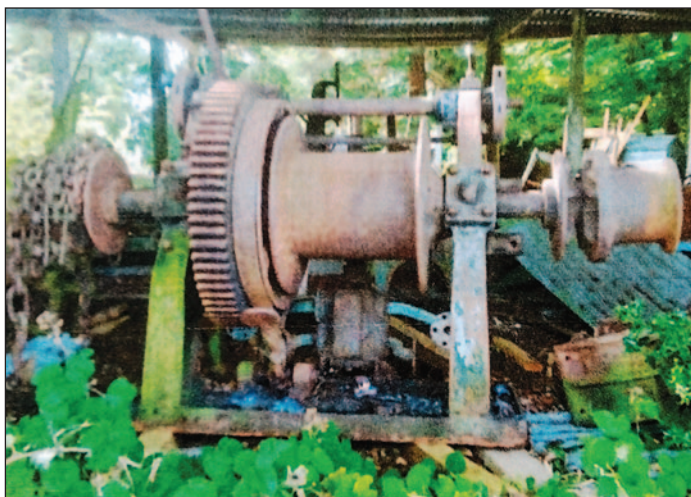
Geograph has published an article by Chris Allen which lists most of the 170 beam engines in the UK. The majority of these can be seen by the public, sometimes only on request. The link is at <https://www.geograph.org.uk/article/Beam-Engines-in-the-UK>.

Restoration Grant: Hollycombe steam winch

A grant for the restoration of a Clarke, Chapman & Co steam winch was made to the Hollycombe Steam Collection, near Liphook, Hampshire, in 2018. This was reported in *IA News*, Summer Issue 189, page 10.

Robert Gambrell, Hollycombe Trustee, now reports:

The process of restoring the winch has been interesting and time consuming, throwing up all sorts of engineering challenges. I can now report the winch is complete and finished after what has been a very strange year.



Winch awaiting restoration

A massive thank you is due to Rheidol Engineering. Their young team was inspirational, with dedication to detail and amazing enthusiasm. Once Covid-19 restrictions had eased their work was able to continue.

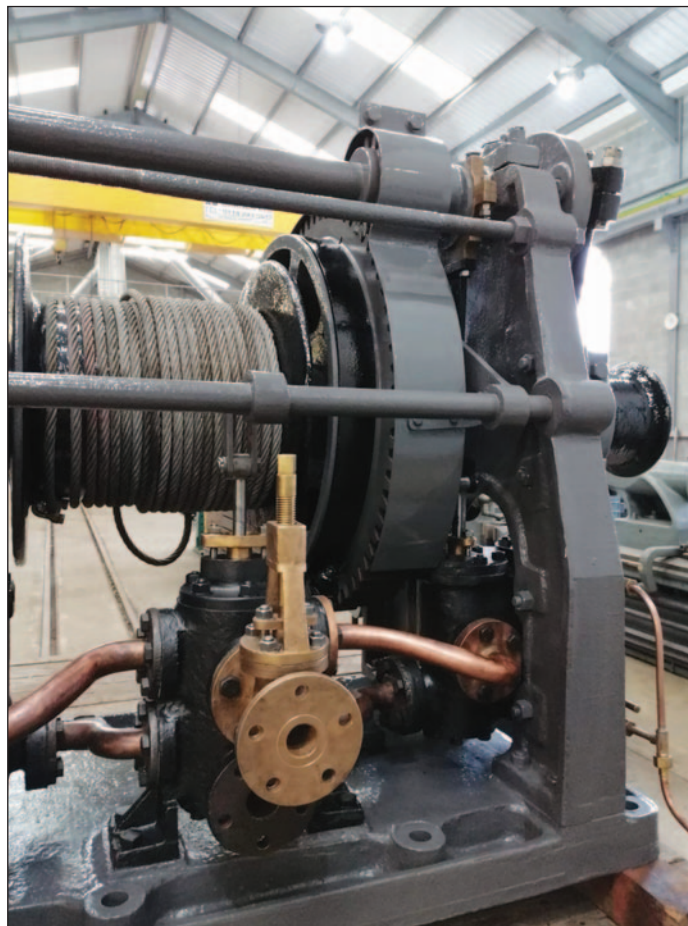
It is always more expensive to conserve and repair an old, and long neglected, item such as our steam winch, but every component that could be, was reused.

The works have included: shot blasting all the components; priming and painting; fitting new pistons and valves; re-boring cylinders; re-machining slide bars; replacing wire rope; annealing and cleaning steam pipes together with replacing piston and valve rings. The regulator valve, including a new spindle, was fully rebuilt, as was the main steam valve. Cylinders were re-mounted and all small motion repaired and re-bushed with expansion links and die blocks re-manufactured. The main bearings were repaired; winch drum clutch rebuilt and new little ends added. New safety guards were fitted.

The original brass drain cocks were refurbished, and one new copper pipe fitted. All other pipes were cleaned and polished, cylinder glands were re-bushed and the replacement main bearing fitted and bolted.

Once all of this work was complete the winch was timed and tested on air.

A lot of hard graft!



The winch in course of restoration



Fully restored and awaiting transit

The final job was a coat of varnish to protect the paintwork. The winch will be a central part in our sawmill restoration project and will be displayed initially in our main entrance to promote the project until the new mill building is complete. It will then be connected to the overhead log haul and the internal tramway system. Visitors will see huge logs easily hauled onto the rack saw.

Once the world returns to normal and Hollycombe opens again it will be one of the first things our visitors see.

Restoration Grant: Sudbury gasworks

Progress on the restoration of the retort house of Sudbury Gasworks, Derbyshire. Report by Lucy Godfrey, Project Manager

An updated Condition Survey in 2020 revealed recent degradation to various areas of the gasworks building (west gable end cap damage and cracks to the east wall above the door), which are likely to have occurred during bad weather (combined with the overhanging trees – now cut back).

The most concerning area of potential damage, however, related to the retort house roof. The tiles are on iron laths, on a series of iron trusses, and there is a raised central vent. The roof vent had slipped down the roof, along with a number of tiles, and was being held on the roof by becoming trapped in the temporary tarpaulin, which covers the whole roof area.

The tarpaulin had, effectively, created a 'holding bag' and fortunately, it had a lath pinning its lower edge, which is why it was managing to hold the vent. There was concern around the rest of the roof tiles slipping and causing damage to the roof below.

The Structural Engineer felt that the action to address the roof was required sooner than the current programme allowed and recommended that the planned work to carefully strip the tiles and laths commenced ASAP (i.e. outside of the main contract).

As a consequence, permission was sought from both the Local Authority and the National Lottery Heritage Fund to undertake these urgent works. As this is work that would have formed part of the main contract, permission was granted and Bonsers, a local conservation building company, worked for five days in December to complete the task.

Work undertaken by Bonsers Restoration, December 2020



Bird cage scaffold in place

Bonsers began by erecting an internal bird cage scaffold in the former retort house, and then carefully stripped the tiles and checked the condition of the laths at each point.

As expected, the roof tiles had slipped following deterioration of the ridge. Many tiles were unsecured, with the laths having lost their original nails due to corrosion.



Roof tiles on unsecured laths

The tiles have all been stored and stacked for re-use and will help to inform the repair, refurbishment and recovering strategy. The loose metal laths have also been carefully removed and retained.

This is a significant example of a 'fireproof' roof construction and warrants significant conservation efforts to conserve it.



The final stack of tiles, which are being stored in the old coal store

During the main contract, these tiles will be cleaned. Heritage roofer, Richard Jordan, has visited the site with his apprenticeship team and is looking to prepare a paper detailing the significance of the roof.

Restoration Grant: Aerospace Bristol

Progress report by Martha Lewington, Development Manager, Aerospace Bristol

The grant was awarded for the restoration of a Bristol freighter. The aircraft has now been transported from storage in the Brabazon hangar to its new home in the WW11 hangar on the museum site.



The Bristol Freighter in transit



In the WW11 hangar

Now in place in the newly completed workshop, it is ready to be conserved and enjoyed by visitors once normality returns.

Photographs courtesy of Aerospace Bristol

Refurbishment of the Seacombe ferry terminal, Birkenhead

Ian Miller, Heritage Management Director, Greater Manchester Archaeological Advisory Service, reports:

Merseytravel has recently secured planning and listed building consent to carry out the refurbishment of the Seacombe Ferry Terminal on the River Mersey near Birkenhead. The ferry terminal was constructed originally in the late 1870s in response to an increased demand for an improved passenger ferry service across the River Mersey. It has remained in constant use since, and is now one of a small number of inland passenger ferries in England still in operation. The terminal buildings and

infrastructure were improved and remodelled in several episodes during the 20th century, with the most significant alterations being implemented in 1930-33 when the current terminal building and omnibus terminus were constructed. Despite these alterations, the terminal and its component structures were afforded statutory designation as a Grade II listed building in 1991 in recognition of their architectural importance and historic interest (List Entry Number 1258535).

The consented scheme allows for the removal, refurbishment and re-installation of the pontoon, refurbishment works for the booms, the removal of the two existing bridges that link the terminal building to the landing pontoon and their replacement with two new bridges, and the installation of new pontoon fixed gangways. The principal impact on the historic structure will be the replacement of the two link bridges, as these are the principal surviving structural elements that date to the 1870s, but are severely corroded and have been deemed beyond economic repair.

The works were preceded by a comprehensive archaeological survey that was focused on the two link bridges. This highlighted the use of technological advances of the second half of the 19th century in the construction of the original terminal. The use of riveted wrought iron plates in the fabric of the bridges, for instance, may well reflect the relatively early adoption of the hot-riveting process to manufacturing iron bridges. The use of concrete in the pier columns and the use of asphalt for the bridge decks further reflects the technical innovations in materials in the second half of the 19th century. The survey also concluded that the sub-structure of corrugated wrought-iron panels of the 1870s terminal pier was retained for use supporting the rebuilt 1930s terminal building. A large section of the sea wall also dates from the 1870s, including a set of well-made steps between the terminal building and the foreshore. Other elements of anchorage, bearings, and possibly even the alarm bell on the present pontoon have been re-used or remodelled within later elements of the terminal.

The refurbishment works are currently being undertaken by G&W Marine Ltd of Bromborough, and it is hoped that they will be completed in summer 2021, securing the continued use of the ferry for the rest of the 21st century and beyond.



Drone photograph of the ferry terminal, courtesy of Chris Wild of Salford Archaeology

Evolving to meet new challenges

TICCIH President, Dr Miles Oglethorpe, writes:

AIA members who know me will be aware that I wasn't expecting or particularly wanting to be elected TICCIH President back in September 2018. However, pressure was applied, and when the time came, the effect of my crushing electoral victory was only slightly diluted by the fact that I was the only candidate. No doubt one of the reasons for the lack of competition was fear of having to live up to expectations fuelled by the previous presidents' achievements, notably those of Professor Pat Martin and Eusebi Casanelles.

So, almost by chance, the TICCIH Presidency now sits in the UK. It's taken me a while to get my head round my new responsibilities, not least because my immediate predecessor served three terms and set up a highly efficient secretariat at his own institution, Michigan Technical University. Indeed, this has been so effective that it remains there and will do for the foreseeable future, brilliantly anchored by Daniel Schneider.

Fairly early on in my term it became clear that we were entering a new phase. Stephen Hughes, our long-serving Secretary General stepped down, and after a brief period of understandable panic, we were incredibly fortunate that Dr Marion Steiner (now based in Valparaiso, Chile) offered to take over. Together with the Board, our Editor James Douet and Daniel, we have since set about modernising key aspects of the organisation.

At the heart of these changes has been membership. In the past, many countries, such as the UK, enrolled with TICCIH indirectly via institutional membership (as was the case with the AIA). Although effective at the time, it meant that we never knew individually who many of our members were. Today, in the aftermath of a digital revolution that has been turbo-charged by the pandemic, there are far more benefits to be gained by individual membership. Equally, the ability to disseminate far more widely via email and the web has resulted in lower overheads and much greater global penetration. The future is therefore unequivocally digital.

For these reasons, we are now focusing much more on individual subscriptions, with members being invited to register with the new members' directory and share their expertise accordingly. Perhaps even more important is that we have introduced a new subscription system based on ability to pay. This ranges from \$10 to 40\$, the normal rate being \$30 for those who can afford it (but you can pay more if you feel the urge!). Student rates vary similarly, based on \$5 or \$10, and there is a special rate for ICOMOS members of \$10, which stems from our agreement with them in London in 2000. Plastic payments on line have never been easier.

One of the key drivers behind the new subscription system has been the uncomfortable truth that TICCIH has for decades been poorly represented in some important parts of the world, notably Africa and Asia, especially compared to the Americas and Europe. We are therefore striving to establish a base in what are new countries for us, recent

examples being Pakistan, Nigeria, Serbia, the Philippines and Indonesia. We have much work to do, but we are making progress.

As for TICCIH now having a president based in Edinburgh, we have yet to seriously explore ways in which this might bring benefits both to Scotland and the UK as a whole. There is definitely a need for dialogue with AIA Council, but the good news is that there is more time for us to achieve this than expected. The next elections and major TICCIH Congress (i.e. the end of my term) was supposed to be in Montreal, Canada in September this year. Thanks to the pandemic, we have had to postpone this by a year, so it will now take place from August 28th to September 3rd 2022 (*Industrial heritage reloaded. New territories, changing culturescapes | Chaire de recherche du Canada en patrimoine urbain | UQAM*). This means that there will be a new call for papers, and many people who thought the chance to attend had melted away may still have the opportunity to attend. So, I look forward to seeing some of you there, and also hope that you will find our new subscription system sufficiently alluring and affordable to sign up and register with us.

Running historic engines safely

An article by B. Chalançon, G. Rapp, A. Roda-Buch and L. Brambilla, which appeared in the TICCHI Bulletin, April 2020, reproduced here by kind permission of the Project Leader, Laura Bramilla

Introduction

Conservators have to manage specific challenges when dealing with industrial and technical heritage. The one we decided to focus on, with this research project entitled Acoustic Emission Monitoring of Historical Vehicles (ACUME_HV), is related to the functionality of historical vehicles.

The aim of the project is to develop a diagnostic tool to help the persons in charge of historical vehicles (conservators, technicians, mechanics ...) during the condition report and the maintenance of the engines. The ancient vehicles can be conserved static or functional. In this second option, historical vehicles could be started or used more or less often, depending on the purpose of the museum or private collection. However, heritage institutions have always the responsibility to maintain the vehicle in a safe state for the artefact itself as well as for the driver, passengers and for the public.

In order to fulfill these requirements, traditionally the restorer completely dismantles the engine or proceeds with some preliminary tests to evaluate its condition state. Starting an engine after a long time of stopping without any diagnostic is not recommended due to the risk of breakdowns. Depending on the use of the vehicle, i.e. if not started for a long time, it is possible to encounter several problems such as, just to cite some examples, the presence of corrosion products, bad sealing of valves or gaps in contact pairs. The maintenance is mainly dependent on the competency and the feeling of the persons in charge. Moreover, it can be a time-consuming process and lead to more problems if not detected on time.

To get a more precise and not only human-dependent method to assess the state of an engine, we wanted to explore the advantage of acoustic emission (AE) methods [ref 1, 2]. The principle of this technique is to register acoustic waves generated by the rapid release of a localized stress energy inside the material, e.g. impacts or cracks formation. AE allows the detection, localization and characterization of a damage. It is generated mostly by material failure, friction, cavitation and collisions. In engines, AE signals come from the contact pairs, i.e. gears, camshaft, crankshaft, valves, connecting rod and piston, and also from the combustion process. The AE sensors placed in contact with an engine measure the transmission of the impacts inside the materials in the form of waves. The sensors are relayed by their preamplifiers to a computer allowing to register and post-process the acquired data.

The technique comes from the industrial fields, e.g. for controlling pieces of metal in spatial engines. It is used already in some fields of the cultural heritage, such as for the monitoring of cracks in buildings or infestation within wooden musical instruments [4]. In this project, we developed a protocol to adapt the AE technique to historical engines' monitoring.

Experimental

The research turned around three main parts. First, we needed to find a proper way to fix the sensor on the engine and to determine the best locations to register the AE signals. The second part consisted of cold tests, aiming at registering the acoustic signature of the engine when moved by hand. Thirdly, we tested the engine in running condition, with also the combustion process. The first two parts will be briefly described in the next paragraphs.



Fig 1. Renault AG1 on the circuit of the MNAM. © MNAM 2014

We chose to work on Renault AG1 vehicles (Figure 1), mostly known as the *Taxi de la Marne* of WWI [3]. The engine, with its two cylinders, is a basic one to start the AE study. The Musée National de l'Automobile de Mulhouse (MNAM) has three engines of this type. In this manner, we had the possibility to test several engines with different conservation states. The first step of the project was to establish a protocol for the measurements. The sensors (Figure 2) need to be in contact with the surface to monitor, in this case the external part of the engine, in order to record

any changes occurring inside the materials. As the surface of an engine is not perfectly smooth, we need a kind of gel, called a couplant, to obtain a good signal. The couplant allows the signal to pass from the surface to the AE sensor. It needs to resist both cold and hot temperatures, to stay on the surface horizontally and vertically, and to be completely safe for the surface of the engine, which could be partially covered with oil-based paint. This means that the couplant should not generate corrosion on the bare-metal parts nor modify the surfaces' aspect and the paint. We tested several solutions, from industrial AE couplant, gels and grease to obtain the expected result. Finally, we decided to use a common grease, from the brand Miocar®. It leaves no stains on the painted surfaces and has a good viscosity for our purpose. Moreover, it is a common product available in many workshops with no risk to pollute the surface with alien components.

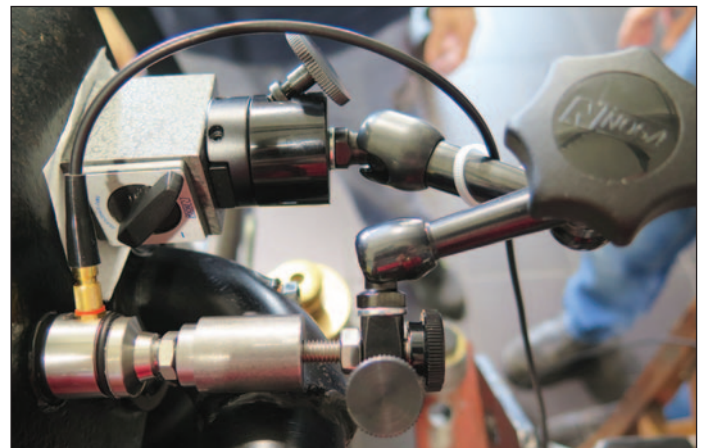


Fig 2. AE sensor mounted on the engine. © HE-Arc CR 2019

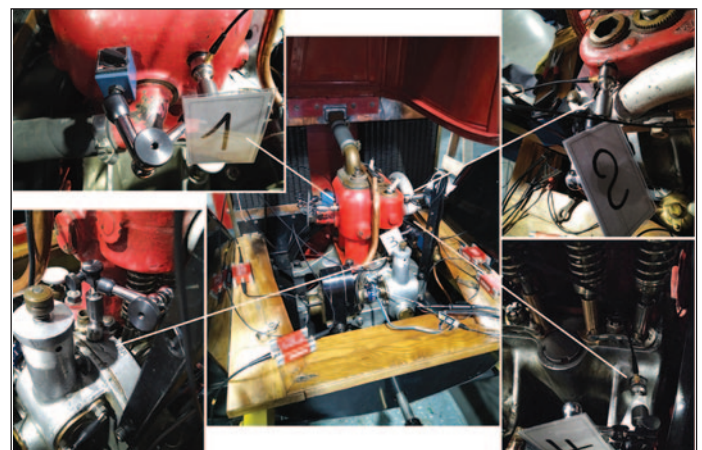


Fig 3. Location of the sensors on the engine. © HE- Arc CR 2019

To obtain useful signals, we tested several positions the four AE sensors, in order to get the best signal from different AE sources inside the engine. The sensors need to be close to the contact pairs and location of the possible breakdowns. Even if the dimensions of the sensors are pretty small (less than 2cm of diameter) we encountered also some spatial constraints due to the shape of the engine and the car structure. The best positions for the sensors (Figure 3) on this kind of engine are one on the cylinder block close to the first cylinder, one close to the cylinder's valves, another one on the crankcase on the

cover of the gears of the cam system and the last one on the crankcase leg. Another important point is to use a position sensor, mounted on the magneto drive shaft, to register the speed and the position of the internal pieces. These data are useful to correlate the position of the moving parts and the origins of the AE signals as well as to measure the speed for each position of the engine. The speed needs to be constant in order to compare the results. During the cold test phase, we registered the acoustic signature of an engine, bought by the MNAM as spare parts, mounted on a bench test.

We know the state of this engine thanks to a complete condition report carried out prior to the first measurements. We turned the engine by hand, with a handle fixed on the crankshaft. We made several sets of tests in order to compare the results, i.e. with and without sparks plugs, or by introducing a controlled default such as a play between connecting rod and crankshaft. During this phase, we also tested a Renault AG1 (Inv. 2209) (Figure 4) from the collection and the Renault AG1 (Inv.7003) used for the animation and show within the museum.



Fig 4. Acoustic emission test performed on a Renault AG1.
© HE Arc CR 2019

During these tests, we highlighted a problem concerning the signal that we identified as the compression in the second cylinder (Figure 5).

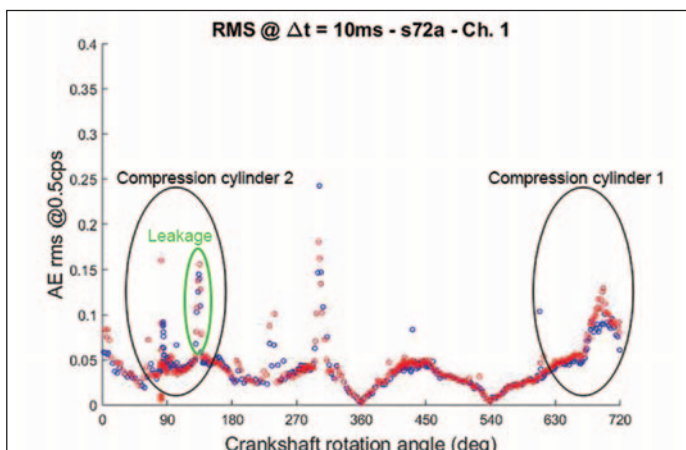


Fig 5. Cold test on a Renault AG1 Inv 2209. Good signal for cylinder 1 and low signal for cylinder 2 indicating a malfunction.
© HE Arc 2019

The discovery of this anomaly was done by comparing the two signals with sparkplugs of the bench test engine and the Renault AG1 (Inv. 2209). After a sealing test performed on the second cylinder, we detected a leak in the intake valve causing a loss in compression. This problem was not detected during the regular maintenance of the vehicle. Now the museum is aware about the presence of this malfunction and it has consequentially adapted the next maintenance program of this car.

Conclusion

At the end of the project, we obtained interesting results, compiled in a previous article [5]. We could acquire repeatable measurements and even detect a problem at an early stage on one of the vehicles tested. We have developed a non-intrusive protocol to perform the measurements of acoustic emission on a 2-cylinders type of engine. Currently, further tests are needed. We plan to test other types of engines, in order to create a database useful for conservation and restoration professionals.

This technique could become a useful tool to decide on the reactivation of an engine. In a collection, the recording of AE signals could become part of the maintenance protocol of the vehicles. Last but not least, a comparison of this database between two maintenances could be used to detect malfunctions at an early stage due to the frequency detection range of the method, more efficient than human ear.

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Covid-19 – A positive outcome

How Societies coped during the Covid-19 lockdown

Greenwich Industrial History Society *report by Mary Mills*

All local society talks on Zoom? Like a lot of local history groups Greenwich Industrial History Society has substituted electronic means of communication over the past few months and are pleasantly surprised at how successful it has been. The Society was set up in 1998 and has had nine talks each year ever since. We had our audience of regulars and, depending on the subject, a scattering of other people. The weather was always a factor. There have always been problems with access for the elderly and disabled with little nearby parking – a reason why one important speaker refused to come.

Zoom, and similar electronic software, has changed all that – no more worries about the weather or parking, or indeed much else. It is also a lot cheaper than hall hire! The real change, however, has been in the audience and the speakers. People who want to access the talks have to book – we pay for 100 places. Each time we have been capacity-booked long before the event, and of course people who book do not need to be local. It also means we gather their email addresses, perfectly legally, so we can promote further events.

In Greenwich we have several industrial history subjects with world-wide interest and the widest of these is our manufacture of subsea cables and our research on the subject. Our first speaker on Zoom was Alan Burkitt-Gray on the role of Greenwich in the international telecoms revolution. This attracted an international audience – including of course the ever helpful Bill Burns who runs <https://atlantic-cable.com/> from New York. A few months later Stewart Ash on the India cable and John Pender attracted cable enthusiasts from all round the country. On a more local subject Mary Mills on the industries of the Greenwich Peninsula attracted listeners from Canada and Australia, as did David Whittaker speaking on 17th and 18th century chalk and gravel extraction in West Greenwich.

Use of Zoom has also widened our choice of speakers. A recent meeting featured Professor Chris Binnie who gave his talk from his home in Somerset. He spoke on his work for the new Thames Tideway Tunnel and also about his great-grandfather, Alexander Binnie, the engineer for the Blackwall Tunnel, along with much else. Each talk has been recorded, and is then put on YouTube for public consumption. We are getting large audiences for these.

Many, many other societies are using Zoom and we can't be the only ones thinking of doing it permanently. Of course we are losing people who refuse to use a computer – but they are increasingly a tiny minority and societies like ours need to reach a wider audience.

Gloucestershire Society for Industrial Archaeology *report by Amber Patrick*

The last normal GSIA event was their monthly meeting on 27th February 2020 at Cheltenham. Their next meeting was scheduled for 25th March and was due to be held in Stroud. It did not take place as the first lockdown intervened. Nothing was ever to be the same during 2020. Two sets of walks led by our Secretary, Dr Ray Wilson, with a limited number of socially

distanced attendees was managed in the summer around Alney Island, Gloucester.

Like so many societies, GSIA's meetings went online with Zoom meetings for the committee and lectures. Most communication with members is also via email and a Google group. Those who do not use the internet are contacted by phone or post, but fortunately there are not many people in that category. GSIA's first Zoom lecture was given by Dr Ray Wilson and was an introduction entitled Gloucestershire's Industrial Heritage. Then followed Mills of the Lower Frome – Eastington and Stonehouse Area, given by our chairman Steve Mills. Finally there was a set of two videos; one on Fromebridge Mill as it was before conversion, and one on the Lewis & Hole foundry at Dudbridge just before it closed. The site was subsequently cleared and became Sainsbury's supermarket. Both the videos were shot by late GSIA member Alan Garnett. This last event prompted our chairman, Steve Mills to write a piece on suspension water wheels and rim gearing with a photo of one at Fromebridge Mill, Whitminster which featured in the first video.

Probably the most important development has been the establishment of what will be called Notes and Queries which in due course will be available on the Society's website. These go out via the Google group email and will in due course form the Notes and Queries on the Society's website. So far Steve Mills has provided short pieces of text with appropriate illustrations on the following: The Pin Mill at Bodnant Gardens (September 2020); Newent (Gloucestershire) Glassworks (September) Waller & Son gas exhausters, a long way from home – in Dunedin, New Zealand (October 2020); Suspension water wheels and rim gearing (January 2021); Castle Meads power station, Gloucester (February 2021); and The Castle Meads fireless loco (March 2021).

There have been a number of other ways in which the Society has remained in contact with its members, including a quiz asking members to identify six sites, some of which had featured in walks in previous years, such as the Llanthony Swing Bridge which had featured in an Alney Island walk in 2018.

Despite lockdowns and lifts and re-impositions GSIA has continued to receive requests for information on a variety of matters and objects. Images were often supplied in respect of the latter but that did not always mean their use could be identified!

Normally GSIA members do volunteering work at the Gloucestershire Archives on industrial material but with various lockdowns and restricted numbers in the search room this was substantially limited in 2020. However, GSIA was left a large collection of negatives from Lionel Walrond's estate. Lionel was a founder member of GSIA and a committee member for many years. He was also a prolific photographer and took photographs of his local area of Stroud. Not all were of industrial archaeology subjects. Members of the Society were asked to identify sites appropriate to Gloucestershire's industrial archaeology and to type up captions. All the negatives were black and white and dated from the 1970s onwards, so it was an invaluable record of the county's industries. By the end of January 2021, 5,000 captions had been typed up and over 2,300 of Lionel's photographs were online on a test website which Steve Blake, chairman of the Gloucestershire Local History Association had kindly allowed GSIA to use some of the ample spare capacity on GlosDocs: <https://glosdocs.org.uk/walrondn>

Manchester Region Industrial Archaeology Society report by Tony Wright

With the 2020 rapidly changing and dangerous world we found ourselves in - we set our stall out early and assumed things would not be for the short term. A number of our members have public health backgrounds and all have a keen interest in history. (Although not pessimistic enough to imagine actually living through plague times!).

As with other Societies we have members who have access to, and are particularly interested in, the Internet and Social Media services. (They are rewarding but can take up so much of your time!). And others who are not and do not want to be. In this age we feel that the Society is richer for both these points of view. To cater for our non-digital members we have continued the MRIAS Newsletter and maintained contact by telephone – but this is on a personal member to member basis – with societies of 100 members or less there are personal friendships as well as wider roles. Nothing formal has been set up.

To continue the existence of the Society beyond 2021 we have reduced the annual membership fee by 75% for existing members for one year only, (2021). I have yet to come across another organisation having done this. We have long-standing members since near the formation of the Society who value the aims of the Society, as do all members.

For our digital members we have maintained our Website, our Facebook page and increased contact by email. We have introduced a series of regular MRIAS informal essays throughout the Pandemic that have been well received. All sent by email e.g. 'A Visit to the Bog Mine and Village, the Long Mynd, Shropshire'; 'Cumbrian Mine Engines' and 'Covid-19, Valette and the Hansom Cab'. Some of the essays will be included in the Newsletter sent to all members.

For the whole membership, as well as the 75% reduction in membership fees to keep the Society 'ticking over', we have been able to cancel all trips and visits etc., and re-arrange our lecture venue in Manchester at no cost to members. Our next Newsletter, due out in May, will set out our re-scheduled Autumn 2021 and 2022 lecture dates (all being well!).

Part of the MRIAS Committee have met using Zoom in 2021 but this is not ideal. Some Committee Members do not have access to the Internet or only limited access. Although becoming a common form of communication, Zoom is not well liked so far. MRIAS are setting up a number of on-line talks to tide us over to the usual meetings later in the year.

MRIAS is now handling sales of 'Walking the Bridgewater: Exploring Manchester's First Canal' 2nd Edition, originally published by the Centre for Applied Archaeology, University of Salford'. Limited stock.

Our first walk of the year is scheduled for Thu 22-07-2021, 2pm, **Walking Tour of Oldham Town Centre. Steve Roman.** Oldham King Street Metrolink stop (OL8 1EU) at 2pm.

Our first meeting in October (delayed by one year) is Thu 14-10-2021 at 2pm, **Alcock and Brown – the Manchester Men**



who made the World's First Nonstop Transatlantic Flight. Tony Wright. The Castlefield Hotel, Liverpool Road, Manchester M3 43R.

The postcard scheduled to be given to attendees of our MRIAS lecture in October 2020 is shown here. Normal postcard format on the rear; name and address on the right hand side, and space for writing on the left. Across the bottom of the card: "8th October 2020. The Castlefield Hotel, Manchester. 'Alcock and Brown – The Manchester Men Who Made the World's First Non-Stop Transatlantic Flight'. A presentation by Tony Wright."

We are now optimistic that this card will be circulated on the 14th October 2021 during a real audience live talk!

Somerset Industrial Archaeology Society report by Peter Daniel

Like other similar groups SIAS has had to amend the way it operates since March 2020. Normal activities rely on physical meetings, visits and fieldwork. As much as possible has now gone online although there are still some gaps. Our revised arrangements include: Committee and sub-committee meetings, including AGMs, are all via zoom and have been since spring 2020.

The winter series of lectures and talks have all been via zoom since September 2020. Whilst we miss meeting people face-to-face it has had some benefits; we have been able to use speakers from outside our area and we have been able to involve members who don't live within easy travel distance of our normal meeting location. These benefits have encouraged us to think of a mixed programme of physical meetings and zoom, even when we get back to normal. 'Attendances' have crept up and recent meetings have had well over 50 signed in devices (some with two people). Summer visits were all cancelled in 2020. We are planning a couple of outdoor walkabouts in late summer 2021, with some others possible if safety and regulations allow.

To compensate for the curtailed programme we have provided bonus supplements to our thrice-yearly Bulletins. In August 2020 we provided all members with a copy of the AIA Somerset Conference Tour Notes, and in December 2020 we provided a 40 page supplement based on photographs of Bridgwater and its Docks area in around 1960. We have another supplement lined up for our next edition.

We have also been adding information to the website including the first batch with any effect on membership numbers since our year runs from April 1st, but early indications are encouraging since we had 77 renewals by 13th March – before the year starts.

However, some things are not possible. Some fieldwork was planned but couldn't be carried out, and the stop/start opening of the Somerset Record Office has delayed a couple of articles/publications. We are also conscious that doing most things online 'disenfranchises' those that don't have the internet or suitable broadband, and for their sake will be glad when we can all meet again, whenever that may be.

News from the Royal Arsenal

Report by Ian Bull and Robert Carr

Despite the Covid-19 virus restrictions some outdoor industrial archaeological work has been taking place at the Royal Arsenal site in Woolwich in connection with a slipway which was used to send large guns to be tested to Shoeburyness.



The slipway at Woolwich Arsenal after clearance of dense vegetation, February 2021

In the earlier days of the Arsenal guns were tried out by firing a shot eastwards onto the adjacent marshes. Later on larger guns necessitated an alternative method of testing.

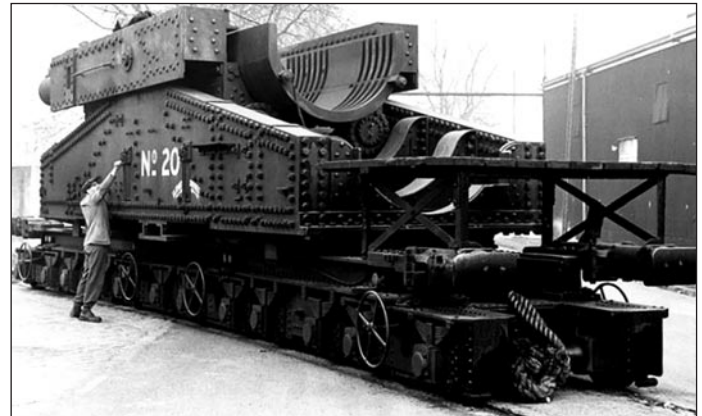
As early as the mid-1850s the increasing range of guns outstripped the length of the test ranges at Woolwich. The solution was for the Royal Arsenal's Gun Factory to purchase a substantial amount of coastal land north of Shoeburyness in Essex as a replacement range. Guns to be tested were taken from Woolwich downriver on the Thames to Shoeburyness on-board ship or barge and by 1871 these weapons had reached a weight of 31 to 35 tons.

In 1874 the Arsenal produced a revolutionary gun of 81 tons, by far the world's most powerful. The method of transporting this behemoth within the Arsenal and to Shoeburyness for testing was to mount it on a new form of railway vehicle known as a 'Proof Sleigh'. These dual-purpose wagons also acted as mobile firing-points for guns under test.

From then until the early 1950s proof sleighs mounted with gun barrels were winched at low tide, down a railed slipway/ramp leading into the Thames. At the base of the slip was a gridiron on which a roll-on roll-off barge equipped with onboard railway lines was resting. The sleigh would roll onto the barge, be secured, and the incoming tide would then lift the laden vessel off the gridiron. The re-floated barge would be towed by tug to Essex where the operation was reversed by winching the sleigh up a railed ramp and onto the Shoeburyness railway system. Following testing the gun would be returned to Woolwich by the same process.

Guns and proof sleighs would become ever larger and by the 1930s might weigh together some 250 tons. The roll-on roll-off system was used for all manner of railway vehicles, for example the railway locomotives at Shoeburyness were routinely brought to Woolwich for

overhaul. The operation ceased with the obsolescence of battleships, so the need for very large guns vanished with them.



Proof sleigh No 20. This was the last and largest and probably dates from the early 1920s. Photographed c1952

The last British battleship HMS Vanguard was built during the war by John Brown & Company of Clydebank, and launched in November 1944. Vanguard was fitted with well-tried BL 15-inch Mk I guns which were made in the period 1912-1918 for HMS Courageous and HMS Glorious. When these battle cruisers were converted into aircraft carriers in the 1920s the guns became spare and were put in store. In naval service Vanguard's role was essentially ceremonial and the ship was scrapped in 1960. A total of 186 BL 15-inch Mk I naval guns were made. Woolwich contributed 33. Two 100 ton BL 15-inch Mk I guns are on display outside the Imperial War Museum in Lambeth, south London.

The current slipway/ramp at Woolwich is believed to date from the late 1880s and is constructed from a wood imported from Oregon which has proved to be extremely durable. One of the two ro-ro barges still survives in a ruinous state in an Essex creek. Proof sleigh No. 11 also survives and is displayed by the Royal Armouries, with an 18 inch Howitzer mounted, at Fort Nelson in Hampshire. The last two 81 ton guns are at Admiralty Pier Turret, Dover, where they have been since new. Shoeburyness Ranges remain one of the UK's most important military testing facilities. People who live in Margate can hear the explosions across the water. There is no public access to the Shoeburyness site and the Admiralty Pier Turret at Dover is not open to the public.

The Arsenal's unlisted roll-on roll-off railway slipway and gridiron are splendid survivors but access has been very difficult for many years owing to dense vegetation. In 2020 a community group began clearing the area and despite the pandemic restrictions have already made considerable inroads – access is now easy and rewarding. The wooden structure is in remarkable condition considering 130 years of periodic immersions and most of the rail fixings remain in place. The steel flood-gates at the top of the slip have been revealed and perhaps 20 or 30 yards of the original palisade fencing around the site can now be inspected closely. Some of the fencing retains the stanchions that once supported electrified barbed wire.

Photographs copyright of Royal Arsenal Woolwich Historical Society

Reinterpretation of the Benthall limestone tramways

Report by Steve Dewhirst, AIA Dorothea Award judge and member of Broseley Local History Society

The 1987 the Nuffield Archaeological Survey for Benthall and Broseley Wood by Catherine Clark and Judith Alfrey is a comprehensive survey of the Parish of Benthall, Shropshire, which includes a detailed analysis of the limestone quarries, tramways and inclines. With Lidar images now being available, additional features are visible, making it possible to re-interpret the physical remains of these industrial remains.

There was significant extraction of fluxing during the 18th century by the Coalbrookdale Company and later by ironworks at Willey, Benthall and Broseley. The last working for fluxing stone was between 1833 and 1840 by James Thomson for the Lightmoor ironworks. Limestone continued to be extracted at Pattons Rock and burnt in a bank of kilns by the Severn until 1865. This quarry was re-worked in the 1930s and a new incline construed on a different alignment. There was also a separate tramway to limekilns which had been associated with the Benthall Ironworks. This concern closed around 1854, but a tramway cutting and an occupation bridge remain.

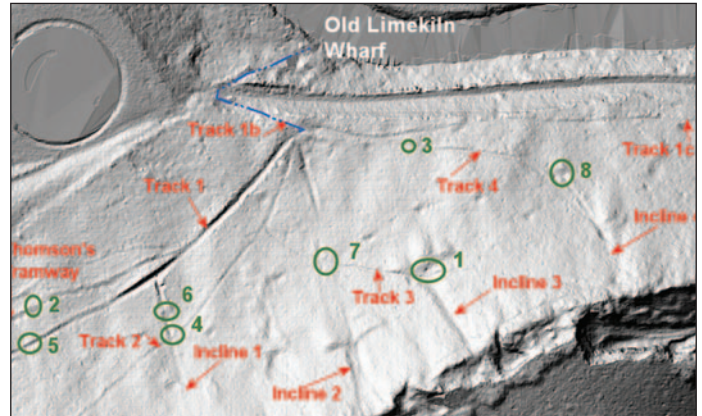
The quarries at the northern end of Benthall Edge are at the top of a steep scarp and relatively close to the river Severn. In order to transport limestone to the river, it was necessary to construct inclines; however, quarries further to the west were accessed via convention tramways with a gradual descent to the river wharf. Although some inclines were identified in the Nuffield Report, the Lidar images have revealed a further four. On-site investigation of Thomson's Tramway has also revealed the remains of broken plateway rails (an example is below) and a short blocked up tunnel to the quarry. The tramways and inclines date from the early 18th century until the mid-19th and would probably have originated as wooden railways, later being converted to iron railways by fixing iron rails to the top of the wooden rails. Finally, there were plateways using 'L' shaped rails of the type found along the route of Thomson's Tramway.



Benthall tramway plate

With the help of Worcester University, it is hoped that it will be possible to put together a project to investigate possible early railways and inclines along Benthall Edge. This would start with limited excavations to see if any traces of the tramways can be found. Should this prove successful, the aim is to put

together a community project sponsored by the Local History Society together with the Severn Gorge Countryside Trust and National Trust to conduct further investigation and interpret the remains of the inclines, tracks, tramways and quarries.



Lidar image of the area

The river Severn can be seen at the top of the picture and just below it the route of the Severn Valley Railway. In the 1960s part of the line was covered by Ironbridge B power station, and the large circle was one of the now-demolished cooling towers. The Lidar shows four inclines probably dating between the mid-18th century and the 1820s. Tracks 1 and 4 are probably railways, and Tracks 2 and 3 may be packhorse ways. Track 1c is the old route, possibly medieval, along the Benthall Edge, which lead to Buildwas and Much Wenlock. Track 1b is a route to the Old Limekiln Wharf and the location of Benthall Edge Ferry. In the bottom left-hand corner can be seen the quarries which run westwards along the top of Benthall Edge.

Points of potential interest

1. Incline 3 – Bottom of incline and platform. Track 3 is now a footpath but is relatively narrow and may have been a packhorse way. At the bottom of incline 3 is a platform constructed from spoil and may have been where the stone was stored before being loaded onto packhorses.
2. Thomson's Tramway – track bed of plateway as shown on lease of 1833. It was on this route that the plate rail fragment was discovered.
3. Track 4 from Incline 4 – possible tramway. Unlike other tracks, this has not been used as a footpath, so it has remained undisturbed since abandonment.
4. Incline 1 – where it is crossed by Track 2, which is a possible packhorse way.
5. Track 1 – This is well-engineered with shallow cuttings and an even gradient, suggesting it was a tramway but there is no documentary record of this.
6. Incline 1 – This is difficult to interpret as where the incline joins the track it is 2 metres above the track. The incline and cutting may be from different periods, or there may have been some method of tipping stone into wagons on Track 1.
7. Incline 1 – where it is crossed by Track 2, which is a possible packhorse way.
8. The base of Incline 4.

Photographs by Steve Dewhirst

100 years of the K1 telephone box

Andy Sutton, Principal Network Architect, Architecture and Technology, BT, and Nigel Linge, Professor of Telecommunications, University of Salford, report:

In 1884 the Postmaster General of the day, Henry Fawcett, introduced two measures which would revolutionise telecommunications within Great Britain; he granted permission for telephone companies to build trunk lines connecting cities, and to establish public call offices. The public call office was the forerunner of the telephone box. Following the consolidation of most of the UK's telephone companies in 1912 came a desire to standardise the design of public call offices. The design for what became known as Kiosk number 1, or more commonly K1, was completed by 1920 (the First World War caused the significant lead time as the project was placed on hold for the duration) with volume deployment of the UK's first standardised telephone kiosk starting in 1921.



Fig 1. Drawing of concrete type Kiosk No 1

By the time the K1 design was approved, concrete had become more affordable than wood, therefore the design consisted of three sections of reinforced concrete and a wooden door. The K1 kiosk measured 3 feet square and 8 feet 8 inches tall with a sentry-box styling. The door and two adjacent sides were half glazed, while the rear of the kiosk was necessarily of solid construction for fixing of the telephone equipment

and to allow the kiosk to be installed against a wall. The design of the K1 was topped off with a smooth pyramidal roof and orb finial; the first version was known as the mark 234 and initially cost £35 per kiosk, the cost dropped to just £13 as volumes increased.

A minor modification to the K1 design was introduced in 1922 with the K1 mark 235, the main difference being the introduction of metal window frames instead of wooden ones as used on the mark 234. In 1927 the glazing panels in the sides and doors were increased to create the mark 236. Over this time, the roof design also underwent a variety of changes involving a combination of a wrought iron finial and Telephone signs.

Gaining permission to deploy kiosks proved more troublesome than one may imagine. Many local authorities were reluctant to deploy kiosks unless they blended in with



Fig 2. K1 (mark 235)



Fig 3. K1 (mark 236)

their environment; such attitudes not only constrained the number of kiosks, especially in London, but also lead to what is possibly the most bizarre looking kiosks of all time. In 1925 Eastbourne Corporation wanted two kiosks to be installed, one close to the entrance to Redoubt Bowling Green and the other at Hampden Park. Both locations were close to a bowling pavilion and café, both of which had thatched roofs. As a result of this the two K1 kiosks were delivered with thatched roofs. They were certainly unique kiosks.

Fig 4. A thatched K1



Despite the efforts put into the design of the K1 it was not particularly well liked, especially by the Metropolitan Boroughs of London who proposed several alternative designs of their own. While none of the alternative designs were accepted this action did prompt the Postmaster General to task the Royal Fine Arts Commission to hold a design competition in May 1924 to design an alternative kiosk. The winner of that competition was a design by Giles Gilbert Scott. Scott's winning design became Britain's second standardised kiosk, the K2, Britain's first red telephone box.

Figs 1 & 4 – courtesy of BT Archives

Figs 2 & 3 – National Collection of Telephone Kiosks at Avoncroft Museum of Historic Buildings

Posthumous award for Anne Andrews

In Issue 195 of IA News we reported the death of Anne Andrews, Editor of the award-winning SIAS Journal. Tony Parkes now reports:



Dr Anne Andrews, who died in 2020, has been honoured by the British Association for Local History and is to receive a posthumous award for Personal Achievement in Local History. The award is to be made at the 2021 Local History Day on Saturday 12th June 2021, which will be an on-line event.

Anne was active as a local historian in Staffordshire for over 20 years, distinguishing herself in many ways. She was the organiser of the Tixall and Ingestre Local History Society and wrote a four-volume history of the parish of Tixall, the last volume of which was published just before her death.

With her husband Jim Andrews, Anne organised the Staffordshire Industrial History Society and edited their newsletter. At a national level she was also active in the Association for Industrial Archaeology.

Locally she was a founder member of FOSSA, the Friends of Staffordshire and Stoke on Trent Archives, and was a member of the Friends of the William Salt Library, contributing enthusiastically to both organisations.

Her talents were extensive; as part of the WW1 commemorations, she designed and constructed a WW1 forward dressing station, opened to the public at Ingestre, and she also campaigned for the restoration of the Orangery at Ingestre and for other restoration work at the same site.

Her interests were widespread, and she could be a formidable campaigner, engaging with the HS2 heritage and archaeology group regarding the proposed route of HS2 in Staffordshire from Handsacre to Madeley, and organising a workshop with HS2 and other local heritage groups at Tixall to decide on the short list for small grants for local heritage projects. She also gave evidence to an HS2 enquiry on the route.

Her enthusiasm for local history is much missed as she gave many talks to local groups, wrote papers for Staffordshire publications and organised and manned stands at local history fairs. The nomination for the award was made by Mithra Tonking, Chair of the William Salt Trust and seconded by Richard Totty, Chair of the Friends of Staffordshire and Stoke on Trent Archives, and Margaret George, Chair of the Staffordshire Heritage Group.

Making a Posthumous Award is a new departure for the British Association of Local History. We are delighted that

they have chosen to do this but very much regret that the award is posthumous, and that Anne is not with us to receive and enjoy it.

Industrial Heritage Support Officer's report

Dr Mike Nevell, IHSO for England reports:

At the beginning of January 2021, a third national lockdown across Britain was announced due to the Covid-19 pandemic. This saw all industrial archaeology and heritage sites closed again and many staff put back into furlough. Nevertheless, the IHSO project has continued its online roll-out of regional meetings with zoom seminars for the Cornwall & Devon, North East, and South West IHNs being held in January, February, and March. Many sites continue to adapt to lockdown by providing online meetings for volunteers, and improved website resources for teachers and the public. The number of sites calling for online donations has risen to 69 (based on 60% survey of online websites for c. 600 industrial heritage sites in England), and the number of sites with online resources (shops, tours, school resources) has risen to 46 (based on 60% survey of online websites).

In terms of Government support in England, 131 industrial archaeology and heritage sites and museums have now received funding worth over £34million. In addition, three industrial heritage sites received £5million from the Heritage Capital Kickstart fund in February 2021: Beamish Museum, Black County Living Museum, and North Yorkshire Moors Historic Railway. As the sector looks to re-open as the pandemic eases, Historic England have issued further advice on the impact of Relative Humidity in heritage properties and the Council for British Archaeology have revised their guidance for archaeology societies. The wet winter has reminded many industrial site owners of the perils of having an industrial site by running water, with several water mills flooded over the winter. Fortunately, the temporary flood defences deployed at Ironbridge in December 2020 prevented yet another round of flooding. Another way in which the effects of climate change are impacting our sector is the increasing difficulty of securing appropriate coal supplies to run steam locomotives and stationary steam engines. This has been highlighted by recent research by the Heritage Railway Association. In the short term, overseas supplies at an increased cost can be used, but longer term the industrial heritage sector may need to think about alternative forms of supply.

Finally, Jonathan Lloyd retired as the UK representative for the European Route of Industrial Heritage (ERIH) in February (see page 19). He has been replaced by Mike Nevell in England, John Rodger in Wales, and Mark Watson in Scotland. The IHSO and ERIH projects in England have long worked together so bringing them together at Ironbridge is a logical next step.

I.A. Recordings and lockdown

Peter Eggleston and Kelvin Lake report:

As a group that likes to be out and about recording a wide range of crafts industries and activities, the introduction of the various lockdowns and tiers has seriously curtailed our activity. Just concentrating on the 18 months prior to March 2020, we had recorded the first cruise of the restored MV Daniel Adamson, underground exploration at Eardington Forge by members of the Shropshire caving & Mining Club, and updated our 'archive' with return visits to a number of mining sites in the Forest of Dean. We returned to Cannop Stone Works to record the modern machinery that has replaced the original stone saws and the new techniques employed in the quarry to extract the stone, allowing us to add a new section to our "Forest of Dean Stone Firms" DVD. We had also squeezed in a week in Slovakia recording numerous industrial sites, including historic gold mines at Hodruša-Hámre, Europe's only Opal mine, Solivar salt mine, and the fascinating Cigel' Brown Coal mine with its electric trolley system (planned to become the Upper Nitra Open Air Mining Museum).



Electric trolley locomotive at the main train platform, Cigel' Brown coal mine - Baňa Cigel', Sebedražie, Slovakia

Closer to home we've visited the Nottingham sand mines, Dudley tunnel, industrial sites in Dorset, and explored Watson's shaft at Tankerville mine (Shropshire) with an underwater camera we built ourselves.

As part of a continuing project we have been recording the amazing progress made by the Shrewsbury & Newport Canal Society around Berwick wharf and tunnel on the Shrewsbury canal. The clearing of dense vegetation and huge fallen trees from the towpath and canal bed had been going well. Little did we know when recording the work party on 7th March 2020 that it would be the last for over a year!

Sitting at home twiddling our thumbs wasn't an option, so we turned to our archives. While we have released some of our video recordings as DVD 'Productions' or 'Compilations', those are only the tip of the archive. A number of fascinating recordings are relatively short but deserve a wider audience, so we decided to put them online as free-to-watch 'Snippets'. They can be seen, along with details about them, on our 'Snippets' page at <https://www.iarecordings.org/snippets/snippets.php>. More are added from time to time.



Shrewsbury & Newport Canal Society along with Waterways Recovery Group (WRG) and National Trust Archaeologists working on clearing the canal at Berwick Wharf, Shrewsbury Canal, Attingham, Shropshire. 12/10/2019

If you are feeling the urge to take a canal trip you might be interested in 'London to London by Canal' in 5 minutes 20 seconds. Inspired by the famous 1953 BBC time-lapse film of a train journey from London to Brighton in 4 minutes, we thought we ought to try the same for a canal! It was recorded in 1979 on 16mm film with an old instrumentation camera taking one frame per minute. We had some problems with it, but it gives a fascinating glimpse into the canal environment of the 1970s – almost every industrial building seen in central London has since been demolished or converted to flats!

Many of the shorter Snippets have also been posted on Twitter at https://twitter.com/i_recordings - although Twitter doesn't seem to like two of them: Caulking the wooden flyboat Saturn (the last surviving 'Shroppie Fly' boat) by members of the Saturn project, and the winch descent by members of the Shropshire Caving & Mining Club of Ramsdens shaft at the Bog mine. Twitter showed a message: "The following media includes potentially sensitive content". We leave it up to you to decide what the problem might be, as we can't understand it at all!

When two national conferences we had hoped to attend last year were cancelled, we put up relevant Snippets at the appropriate times to commemorate them.

The National Association of Mining History Organisations (NAMHO) Conference was due to be held in Cornwall last April. In honour of that we produced five Snippets (numbers 7-11) showing sights that would have been seen during the Conference, plus some of our recordings at working Cornish mines.

The International Early Engines Conference 2020 (IEEC2) would have been held at the Black Country Living Museum. The first conference in 2017 at Elsecar heritage Centre had been very enjoyable, so we put together four snippets (19-22) recapping on that and featuring the BCLM Newcomen engine and Bratch steam pumping engines. Hopefully the conference will go ahead in October this year.

Lockdown has also allowed us to make a more concerted effort to digitise the thousands of colour slides, prints and black & white negatives that we've taken over the years.

Sadly, some of our older slides have faded and are proving very difficult to digitise – the perils of using cheap film at the time! Luckily we have not had the same problem with Kodachrome, which we switched to as soon as we could afford it.

While digitising the slides they are also being meta-tagged with descriptions, keywords and locations. Using the excellent online National Library of Scotland side-by-side map viewer it is proving possible to get a grid reference for the images and thus add a 'GPS' tag to the image EXIF data. It's time consuming, but we weren't going out anyway!

Comparing the newly digitised images with views on Google Maps/Street view is proving quite an eye-opener. The changes in some areas are dramatic, huge factories swept away and replaced by housing, canal-side warehouses now upmarket apartments. However in some areas heavily overgrown towpaths now seem to be popular footpaths, with waterway features conserved. It has led to a growing 'to-do' list of sites to re-visit!

One question which has often raised its head, is what to do with all these images? County archives tend to only want images that relate to their county, so what can you do with an image archive recorded on a range of media, covering a wide range of industrial sites and activities, not just in Britain but around the world? We won't be the only ones to be in this position, so perhaps it is something for the wider I.A. community to consider seriously.

Photographs courtesy of I.A. Recordings

“Non-operational steam engines are little more than heaps of scrap iron”

Tony Tomkins, Environmental Adviser to HRA UK, has been working to find a coal with the best technical specification. This, he reports, is currently available from a brand new mine in Siberia and has 'a performance sheet that approaches impeccable'.

A company based in Liege, Belgium, have experience of working with the Russians and would be willing to work with the UK. Once users in the UK can determine what is needed, a delivered UK price could be asked for. About 30,000 tonnes per year are used in the UK, so the possibility of bringing coal in by ship to the east coast and distributing from there, could be explored. Import tax and the high rate of VAT will, he says, also need to be discussed.

Source – Communication from Tony Tomkins

Steve Oates, chief executive of the Heritage Railway Association, confirms that the coal supply dilemma facing heritage railways remains unresolved. Heritage railways require high quality 50-125 mm bituminous coal. This will now have to be brought in from overseas. This, he says, will call for knowledge, expertise and substantial cash flow. "It will substantially increase costs to heritage railways. It's a major challenge".

Source – 'Shropshire Star' February 2021

Colin Tyson's article in *The Old Glory*, March 2021, is more downbeat – "The future is very much uncertain and could be more damaging for operators than any global pandemic".

Communicated by David Viner

The **E-FAITH** meeting, March 2021, had European railways as the single topic of discussion, this being the European year of the rail. It was reported that because of the Green Deal, steam locomotives are under threat and there are countries where coal burning locomotives on heritage lines have to pay a special tax, for example in France.

Reported by Robert Carr. AIA's link with E-FAITH

ERIH news

The European Route of Industrial Heritage, in its February Newsletter, reported that Jonathan Lloyd had, after two decades, passed the baton as ERIH's UK representative to three successors. John Rodger, deeply involved with the Blaenavon Industrial Landscape World Heritage Site, will be ERIH's representative for Wales. Mark Watson, Deputy Head of Industrial Heritage at Historic Environment Scotland, now represents the network in Scotland. The position of the ERIH coordinator for England has been filled by Dr Mike Nevell, an industrial and landscape archaeologist who helped to set up the first ERIH regional routes in England and today, as Industrial Heritage Support Officer, supports England's industrial heritage sites and the organisations that run them.

AIA Annual Conference update

As large face-to-face meetings are still in doubt for this autumn, dates have been finalised for a series of Zoom sessions, all of which will be free, but pre-booking will be essential. Links for booking though Eventbrite will be posted on the website and circulated through e-News.

If you are not yet signed up for e-news you can find the link on page 11 of this issue of IA News.

7th August and 14th September: Merseyside Industrial History Society have organised two half-day morning sessions from 10.30am to 12.30am on aspects of Merseyside's industrial heritage. Open to everyone.

18th September: The Seminar will be on 'The effect of the pandemic on the UK's industrial heritage' to be held at 10.30am on Saturday morning. That afternoon there will be a second session at 2.30pm, including Questions & Answers for discussions from those attending. Open to everyone.

25th September: At 2.00pm on Saturday afternoon there will be announcements about future talks, visits and plans for the 2022 conference, followed at 2.30pm by the AGM. This is a closed session, only available to AIA members.

25th September: A second session will follow shortly after the AGM, beginning at 3.30pm. Open to anyone, this is for the Rolt Lecture, given by Dr Cassie Newland of Bath Spa University, on 'The Tools of Empire? Decolonising Imperial Telegraphy'. Open to everyone.

Bembridge windmill receives new stocks and sweeps

Geoff Wallis, one of the founders of Dorothea Restoration Engineers Ltd, which sponsors the AIA Dorothea Award, member of AIA Council and a professional millwright reports:

The last surviving windmill on the Isle of Wight has been restored by the National Trust this year.

An important landmark on the Island, Bembridge Windmill and the landscape in which it sits, has changed little since Turner painted it in 1795. Built in the early 1700s, the Windmill served its community for over 200 years. Poignantly, milling stopped and never resumed when the men left the Island to fight in the Great War.

The mill has been a wartime shelter, a Home Guard HQ, and has faced dereliction. It was rescued and given to the National Trust in 1961, so 2021 marks its 60th anniversary in the Trust's care. Restoration was achieved despite the pandemic and partly because of it, having received just over £10,000 from the Government's Culture Recovery Fund.

The old stocks were supplied by Dorothea Restorations in 1980 so had been on the Mill for 40 years. Extensive longitudinal shaking (shrinkage cracks) had developed as expected, but decay appeared to be limited to small patches around the sweep-fixings, a tribute to the longevity of un-painted Douglas Fir. It is understood that they will be cut up to make furniture. However, the sweeps had started to decay so were taken down for safety in 2019.

New stocks and sweeps were made from fresh-sawn Douglas Fir at the workshops of Dorothea Restorations and installed 1-5th March 2021.

The team was led by John and Geoff Wallis, assisted by Andrew Butt and Arian Mico who had made the new parts in Dorothea's Hartcliffe workshop, Bristol.

A mobile elevated working platform (MEWP or 'cherry-picker') provided access whilst a rough-terrain crane sited adjacent the Mill hoisted in the components over a two-day period.

During rigging of the crane it was interesting to see the amount of deflection in the jib. During use the jib is designed to flex perceptibly but its sections nevertheless slide smoothly through each other, controlled from a portable terminal carried by the driver. The days when we had to erect sweeps with a manual winch have well and truly passed. Whilst the manual method was fun and required more careful planning, modern equipment makes the operation quicker, easier, and safer.



Rigging the crane

The stocks were wedged into the poll-end of the cast iron wind-shaft using seasoned English Oak folding wedges, secured by 16mm zinc-plated studding running through each outer pair of wedges. This allows for the wedges to be tightened in future years as the stocks dry out and shrink.

Each sweep was fitted in turn with the stock pointing downwards and then rotated 180 degrees to the top and secured by steel ropes to a conveniently-placed tree that may possibly have been planted for the purpose in the eighteenth century.

The crane's monitor showed that the stocks weighed 260 and 350 Kg, whilst the sweeps were 150-160 Kg each. The rotating assembly including the cast iron wind-shaft and wooden brake-wheel therefore weigh about 2 tonnes, carried on a simple bronze neck-bearing which runs freely without wear, provided it is kept greased.



A rough-terrain crane hoisted the components



Stocks and Sweeps in place



The stocks are wedged into the windshaft

The inner pair of sweeps is mounted close to the cap's front wall, so their in-board ends were constructed with less twist than the outer pair. Nevertheless, despite a slight loss of efficiency, in light winds the sails will turn with no sail-cloth, provided the millstones are disconnected. The sweeps required no balancing and were easily rotated by hand on completion.

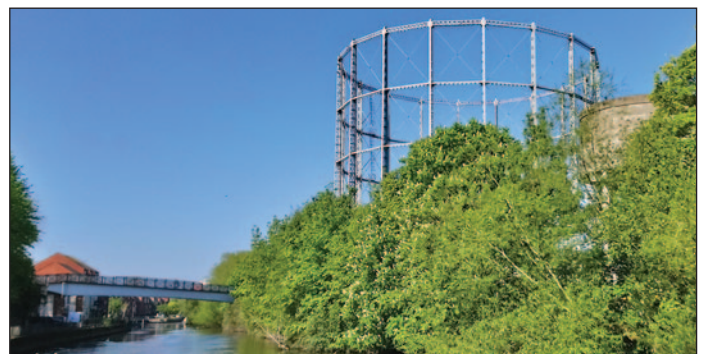
The whole operation was finished within budget ahead of schedule, and featured on BBC TV's South Today programme.

Most importantly, the team thoroughly enjoyed the work on Bembridge Windmill, and are proud of what they have achieved for the National Trust on this lovely eighteenth century country mill.

Photographs copyright of Geoff Wallis and Dorothea Restorations

Reading's iconic gasholder – still standing

Report by Jo Alexander-Jones of Berkshire Industrial Archaeology Group



Reading was one of the early provincial towns to adopt a public gas supply, with the Reading Gas Light Company lighting the town's streets in 1819 only seven years after the pioneering Gas Light & Coke Company in London started.

The town ended up with two companies supplying gas, the one mentioned above and the Reading Union Gas Company, before it became obvious that this was unsustainable and an 1862 Act of Parliament merged them in to the Reading Gas Company. At this time the gas company had two operational gasworks; one in the town centre where the Oracle shopping centre now sits and one out to the east of the town, in an area called Kings Mead, bounded by the railway and the Kennet & Avon canal. By the late 1880s the Kings Mead gasworks had taken over all production and continued to operate in to the 1980s as part of Southern Gas.

So why provide an update now? With only the one gas holder remaining on a small derelict section of the Kings Mead site, Reading Borough Council finally approved a demolition order on it in January 2021 to make way for 130 new-build homes. Before the final approval local pressure had amended the original plans to ensure that a heritage record be made before the dismantling of the gas holder starts, which will include a photographic record. Also, that the heritage documents be passed to Berkshire Archaeology, our local archaeological advice service, so that they are made public. BIAG has been asked many times why the gas holder's demolition could not be stopped on heritage grounds, and, while the site has a place in the hearts of many local residents, it was built late in to the time of gasworks, in 1916, and is not of a sufficiently unique construction to warrant a listing. Equally, when asked why the site could not follow the model of King's Cross, where the flats are built inside the holder, the answer is simple – housing prices in Reading may seem astronomical, but the cost of such a development could not be justified and still be profitable for the developers. So, the best we could achieve is a formal record for posterity along with an article on our website detailing the history of the Reading gas companies and of those in other towns in the county.

Interestingly, while local protestors and gas enthusiasts have been unable to hold back the inevitable tide of development, nature has fought back in its own way. Just days before the dismantling was due to start in early March a pair of peregrine falcons took up residence around the gas holder site, being seen perched atop its iron girder structure. As the falcons are a protected species there now needs to be an independent survey carried out to determine if the pair are nesting and, if they are, for how long the demolition has to stop. It may be just a short reprieve, but for those of us who will miss the 'old girl' it is a welcome one.



Photograph by Leslee Baron

Extracts from the AIA Annual Report for 2020

David de Haan, Honorary Secretary, has prepared this much abbreviated note for IA News. The full report will be presented to Council in June and once approved it will be circulated to members with the AGM papers and also uploaded onto the AIA website.

Council meetings

In 2020 the Council met five times: face-to-face in March, but given the restrictions caused by Covid-19 the other four meetings had to be held by Zoom. Extracts of the meetings were posted on the AIA website and reported in *IA News*. Championed by Geoff Wallis to encourage younger people to join the Association, a Young Members Board (YMB) was established during the summer with its own remit and budget.

Annual conference

Due to the pandemic we had to postpone our annual conference which was due to be held in Liverpool. Every effort was made by John McGuinness to re-schedule the conference by twelve months to August 2021, but it was not to be.

Social media

With face-to-face meetings impossible, the AIA kept in contact through emails and social media with its members, Affiliated Societies and interested parties. A quarterly e-bulletin compiled by Ian West was circulated to 699 email addresses. There were 2,040 members on our Facebook page and 3,364 followers on Twitter.

Publications

Industrial Archaeology Review was edited by Dr Ian West and Ian Miller with Professor Marilyn Palmer as Reviews Editor. Vol 42.1 was delivered in May, but Vol 42.2 was delayed due to Covid-19 and was circulated early in 2021. Four issues of *IA News* were edited by Chris Barney in 2020, but at the end of the year he handed over the editorship to Dr Patricia Bracegirdle after nine years. Council members made a suitable presentation to record their thanks to him.

Awards and grants

Five awards were made in 2020: one for the Peter Neaverson Award for Outstanding Scholarship, two Publication Awards and two Research Grants. Twelve Restoration Grants were made totalling £146,697.

Financial statements

The net surplus for 2020 amounted to £12,455, with £10,123 attributable to restricted funds, £nil to designated funds and a surplus of £2,332 attributable to unrestricted funds.

Changes on Council

The AGM was moved to 11th October and had to be a Zoom affair this year, for which there were 71 postal and virtual votes for the resolutions. David Perrett replaced Michael Nevell as Chairman at the AGM, and Zoe Arthurs, Patricia Bracegirdle, Chris Barney, Robert Carr and Tony Crosby were elected to the Council. Bruce Hedge retired from the committee but was co-opted as the Honorary Archivist.

Newsletters / Bulletins received

Many thanks to our Affiliated Societies and other Industrial Heritage Groups who continue to send us copies of their Newsletters, Bulletins and Journals. They are much appreciated and are kept in the Ironbridge Library. Extracts from them are published in IA Review.

Newsletters and Bulletins

Cotswold Canals Trust No 191 *Spring 2021*
Cumbria Industrial History Society No 109, *April 2021*
Greater London Industrial Archaeology Society No 312, *Feb 2021* / No 313, *April 2021*
Hampshire I A Society No 95, *Feb 2021*
Lancashire Local History Federation No 34, *Feb 2021*
Leicestershire Industrial History Society Vol 8, *Spring 2021*
Lichfield Water Works Trust, *March 2021* / *April 2021*
Museum of East Anglian Life, *2020*
National Piers Society Issue 138, *Winter 2020*
Scottish Industrial Heritage Society No 84, *Jan 2021*
South West Wales I A Society No 140, *Feb 2021*
Suffolk I A Society No 152, *Feb 2021*
Sussex I A Society No 189, *Jan 2021*
Sussex Mills Group No 189, *Jan 2021*
TICCIH Bulletin No 88 *2nd Quarter 2020*
Yorkshire Archaeology & Historical Society, Industrial History Section No 11.1, *Spring 2021*

Journals

Hampshire I A Society Journal No 29, *2021*
London's Industrial Archaeology No19, *2021*
Irish Railway Record Society Journal Vol 29 no 204, *Feb 2021*
Ancient Monuments Society Transactions Vol 65, *2021*

A warm welcome to the following new AIA members

Philippa Barry, Dublin
Tanya Carr, Ramsgate
Institute for Cultural Heritage, University of Science & Technology, Beijing (Affiliated Society)
Phoebe Coughlan, Leeds
David Cross, Lichfield
Neil Davies, Todmorden
Christopher Fennell, Chicago, USA
Friends of the Flaxmill Maltings, Shrewsbury
Luke Griffiths, Seaham
Jose Manuel Lopes Cordeiro, Braga, Portugal
John Manley, St Germans, Cornwall
Iain and Mary Miles, Lower Durston, Taunton
Hilary Orange, Fleet, Hampshire
Mark Sargeant, Felixstowe
Christopher Shiell, Bangor, Northern Ireland
Michael Skues, Leconfield, Beverley
Victoria Stevens, Reading
Sarah Tibble, Aylesbury
Graham Wallace, Devizes
Steve Westwood, St Neots

Some dates for your diary

TICCIH Congress: New dates for XV111 Congress: 28th August – 3rd September 2022, Montreal, Canada

ERIH Annual Conference and General Assembly: 6th – 8th October 2021, likely to be hosted by the Industrial Museum, Ghent, Belgium

International Early Engines Conference: Black Country Living Museum, 8th -10th October 2021.
Contact: admin@earlyengines.org

WANHS Annual Conference, Devizes Town Hall, Sat 23rd October. The theme is 'Building Materials'. Contact www.wiltshiremuseum.org.uk

Industrial Archaeology News

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Editor: Patricia H Bracegirdle. The views expressed in this newsletter are not necessarily those of the Association for Industrial Archaeology.

My sincere thanks to David de Haan for his invaluable help and support during the preparation of this issue of IA News. PHB

Published by the Association for Industrial Archaeology. Contributions, news and press releases should be sent to Dr Patricia Bracegirdle, 4 Column House Gardens, Preston Street, Shrewsbury, SY2 5GY, Tel 01743 366415 (with voicemail), or by email to ianews@industrial-archaeology.org

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 to encourage improved standards of recording, research, conservation and publication. It aims to assist and support regional and specialist 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 a twice yearly Review and quarterly Newsletter.

Further details about the AIA may be obtained from the Liaison Officer, 7 St Michael's Close, Madeley, Telford, Shropshire, TF7 5SD. Tel 01952 416026 (with voicemail), or by emailing secretary@industrial-archaeology.org.

The Back Page,

An introduction to workers in the field

Ian West, AIA Council member, Co-editor of *IA Review* and Editor of *e-News*.

Zoe Arthurs, Secretary of the AIA Young Members Board



Although I had been interested in industrial archaeology for most of my adult life, my formal involvement did not begin until 2002 when, after a 30-year career in the gas industry, I enrolled on the MA course in the subject at Ironbridge. A PhD at the University of Leicester followed, studying the impact of artificial lighting in early factories, with the now AIA President Marilyn Palmer as my supervisor. Since 2009, Marilyn and I have been collaborating on a project studying the impact of historic technology on country houses.

I was asked to join AIA's Council in 2005, initially to develop its health and safety policy, and, with access to a university library, I was the obvious person to take on the role of compiling the abstracts for *Industrial Archaeology Review* after Peter Neaverson's death. I have co-ordinated the Peter Neaverson Award for Outstanding Scholarship and the Travel Bursary since their inception in 2007. For the past eight years, I have been one of the co-editors of *Industrial Archaeology Review*, which I believe may be my most lasting contribution to AIA's activities, and recently, I also took on the role of co-ordinating our external communications.

This interest in industrial archaeology was a major factor in me and my wife Gill deciding to move to the Ironbridge area, where you may find both of us in various volunteer guide roles (once the museums re-open); you might even find me playing tunes on the Iron Bridge!

This photo was taken under the arches of Coalbrookdale Viaduct just a few hundred yards from Abraham Darby's Old Furnace. Having grown up a stone's throw from the World Heritage Site of Ironbridge, industrial archaeology has been ever-present throughout my daily life.

I have been the Secretary of the AIA Young Members Board since its formation in Spring 2020, helping manage events such as strategy days, our Christmas event with the Ditherington Flaxmill Maltings and more recently a brand new event by the YMB entitled 'How to get Published and Make an Impact', due to go ahead on 23rd April this year. I have been elected to the AIA Council, which is essential in ensuring common objectives between the AIA and the YMB. With support from the social media team, I also run the YMB Twitter page. Through this we have been able to network with organisations such as Taylor & Francis, The Society for Post-Medieval Archaeology and the Association of Heritage Engineers. We hope that by reaching out to the vast network of industrial heritage organisations and offering to share the skills of the YMB, we can build a more sustainable industry for many years to come.

The icing on the cake – I have recently gained employment with Clwyd-Powys Archaeological Trust as a Curatorial Assistant, where I have been working on a Cadw-funded HER enhancement project looking at Water Supply Infrastructure from 18th to 20th C. Using 1st and 2nd edition OS maps, LIDAR and aerial photography I have been able to capture the location of industrial material heritage related to water supply and drainage.