INDUSTRIAL ARCHAEOLOGY NEWS

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THE BULLETIN OF THE ASSOCIATION FOR INDUSTRIAL ARCHAEOLOGY

FREE TO MEMBERS OF AIA

AIA in Hungary • Edison tubes • Chimneys continued
AI in Asia • 2018 Report

INDUSTRIAL ARCHAEOLOGY NEWS 190 Autumn 2019

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COVER PICTURE

AIA Spring Tour 2019 to Hungary

Fan type snow plough at the Railway History Park *photo Bill Barksfield*

This year's visit took us to another area once part of the soviet bloc and one which has had a long industrial history. Several sites visited during the tour invited thought about the way in which the Soviet regime perceived and treated Hungary relative to other satellite states. This would probably have been affected by the natural, scientific or manufacturing resources it offered, but possibly influenced by the only marginally unsuccessful uprising in 1956.

John Copping

Forty-four travellers, including a handful of new faces, mustered at the airport. Bill made the first of many headcounts before the group transferred by coach through Pest and over the mighty river to the Mercure hotel in Buda. Visitors studying the map of Hungary will note the eastward flowing Danube actually flows north-south through the country, much as the spine of an open book. The topology rises from the great Hungarian plain lower right to forest at top right and across to more mountainous land near the Austrian border top left.

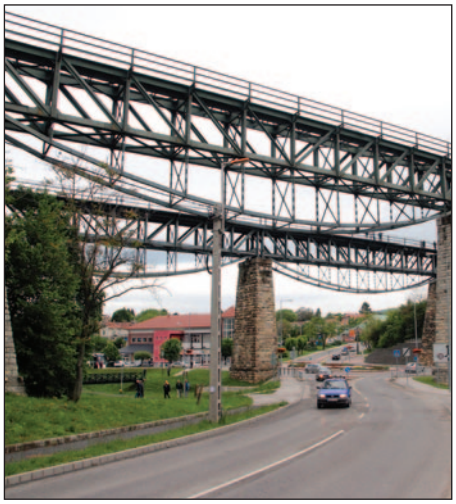
The Railway History Park, as other sites, appears in need of funding, so a third of the thirty-four station round-house, in generally good condition, is arranged as a hospitality venue. Meals may be taken in a fine dining car, apparently used on the Orient Express. It was built in 1912, so may possibly have been requisitioned to transport the Archduke's on his one-way ticket to Sarajevo two years later. Opposite, a sectioned spring-coupling having entwined coils of pentagonal section, invited discussion of the micro-movement of all elements of the springs as they became strained by compression. Outside, in the extensive marshalling yard, was a comprehensive range of rolling stock, including one very early engine, probably pre-first war, and a group of snowploughs of various designs, including one with a huge fan. Several of the group made a round trip on the turntable serving a fan of parked engines and distinctive carriages. In one of the sheds were standing, rather incongruously, a large 1930s saloon badged FAZ and a minuscule Fiat of the type filmed driving round the test track on the top of the company's renowned five-storey factory in Milan in the 1920s. A handful of distinctive engines are apparently capable of being put into steam and operated on the museum's occasional open days or no doubt for filming.

At the national open air 'Skanzen' museum at Szentendre, buildings from ten rural districts across the country – from hill country, riverside, wooded areas and from the great plain – have been re-erected on an undulating site above the Danube a little north of Budapest. The interpretation of heritage now typically offers three of the five senses – sight, sound, and touch, each village introducing itself with a braille map.

Windmill at the Skanzen Museum photo Bill Barksfield

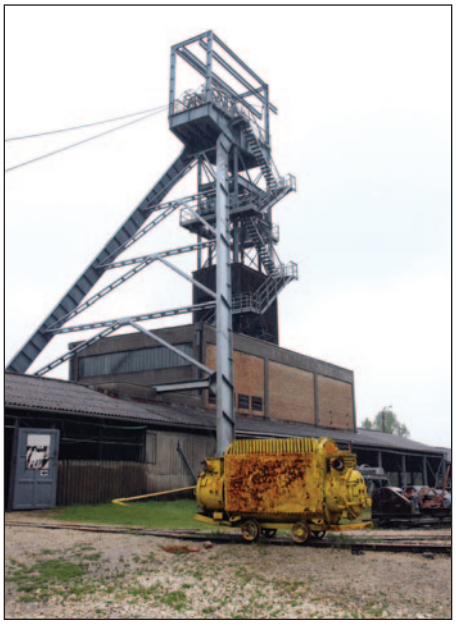
Taste would be difficult, but atmosphere may be much embellished by smell. This was certainly true in the case of the farmyard, occupied by two huge long-horned Hungarian blue cattle and a flock of unicorn-horned goats. Unfortunately, the stream through the site is small so the otherwise fine watermill lacks a plausible water supply and consequently looks rather sad. One of the areas is taped off which shows how rapidly erosion of vernacular buildings can advance.

The Director, in the comprehensive guidebook, describes the philosophy underlying the strategy for the development of what he describes as a museum. Most will be familiar with the heritage policy of minimal intervention for important standing listed buildings. Given the need to move the buildings and the fact that Hungary started after western countries, they followed the intent to present an impression of the day-to-day and festive life of different groups of the Hungarian-speaking peoples, each at a chosen period between the late C18 and the early C20. That explains the inclusion of churches, mills, shops, schools and a fire-station, plus gravestones and a Calvary etc. Around the croft are grouped byres for stock, farm-workers cottages, barns and outbuildings, some presented as if in use this morning, but some with disintegrating roof or structure, as they would no doubt have been. The houses are intentionally re-erected without extensions or improvements that would have been made since the period for which they are presented. All domestic buildings are deliberately presented with furniture, fittings, equipment and artefacts to illustrate the day-to-day life, reflecting also such things as family size, religion, social position and age, so the issues for the occupants can be easily understood. The strategy is to present life as it was.



Railway viaducts at Biatorbágy photo Bill Barksfield

A stop by a busy roundabout at Biatorbágy permitted a study of the two single-track rail bridges above. Built a few years apart in the 1890s, they perhaps reflect the growth of the rail system during the high period of the joint empire. The consensus was that the bracing trusses below the track were needed to accommodate the heavier electric and diesel engines that gradually displaced lighter steam locomotives. One traveller drew attention to the stress likely to be transmitted longitudinally from the iron frame into the abutment if a heavy train needed to brake heavily while crossing the bridge.



Pithead gear at the Oroszlány mine photo Bill Barksfield

The first of two energy sites built in the era of Soviet control, the lignite mine at Oroszlány was a small double-shafted mine, conspicuously different from the enormous open-cast workings visited in Saxony a year previously. A mock-up mine in the lobby at the entrance to the original offices offered good headroom, but a hanging board at around shoulder height demonstrated the real height of the working spaces below. There was a fine display of mining equipment.

On the wall in the manager's office was a depiction of the Last Supper, each character apparently being a likeness to a member of the management team of the day. It seemed that the Soviets allowed the mine to be run as a local business 'co-operative' from its opening in 1984 until 2001, a decade or more after the fall of the Soviet Union. In response to questions about the nature of Soviet control, the guides left the impression that, providing one did not rock the boat, the locals were left to run the place much in their own way. The impression was gained from the guides - of the older generation - that they looked back on the Soviet era as less threatening than the more challenging socio-political environment of the present day.

Along a ridge at Tés are the remaining two of an original four stone-built windmills, reminiscent of those tilted at by Sancho Panza. Needed because of the lack of suitable watercourses nearby, the first was built around 1840, the second of the remaining two in 1920s. It surprised some that both the building and the mechanism are almost identical, until it was registered that familiarity and knowledge of what works, rather than productivity, was key to the successive generations of craftsmen millers. Each mill has three spars offering six sails, each furnished with wooden boards, with apparent facility to add canvas on the extended arms in light winds. The sails are turned into the wind by the miller and his assistant rotating the shingled cap on its circular track by hand from small platforms on opposite sides of the top floor. At the advent of the Soviet era, the mills were taken out of private ownership and put into a co-operative. We were told that one miller who chose not to be co-operative was killed. The nearby traditional smithy presents numerous tools and the range of equipment used by smiths and cartwrights, including a two-man plane, five-inch-square and some four feet long.

On Thursday, while half the group visited the Paks nuclear plant, Sue Constable led an architectural walking tour of Budapest for the rest of us and Malcolm Tucker has contributed this account. We began beside the fast-flowing Danube, close to the neo-Gothic Houses of Parliament with their copper-clad roofs and dome. Here, a poignant line of shoes, modelled in cast iron, commemorated where Jews were lined up against the river and shot by Nazi-sympathising militia during 1944-5. Various massive, stuccoed buildings hereabouts included the former Stock Exchange of 1905, while the former Post Office Savings Bank had colourful majolica tiles featuring bees. Others were adorned with sculpture, such as the c.1913 offices of the former Hoffherr-Schrantz-Clayton-Shuttleworth engineering company, mixing agricultural scenes and cogwheels.

The Western Railway Station of 1874-7 had a wide Polonceau-trussed roof and cast-iron columns, erected by Eiffel's of Paris. The Hungarians were pioneers of electric traction and we saw some of Budapest's many street tramways, trolley buses, four metro lines and a rack railway. Metro Line 1 opened in 1896, the first in continental Europe. Within very shallow cut-and-cover tunnels, the roof is carried on steel stanchions with sculptural cast-iron heads. The motors are placed between the cars to save headroom. Around the quality shopping street Vaci utca, we saw very fine examples of 1900s Art Nouveau. The Parisi Udvar hotel displayed elaborate ironwork. Despite widespread renovations, occasionally we observed severely decayed stucco facings.

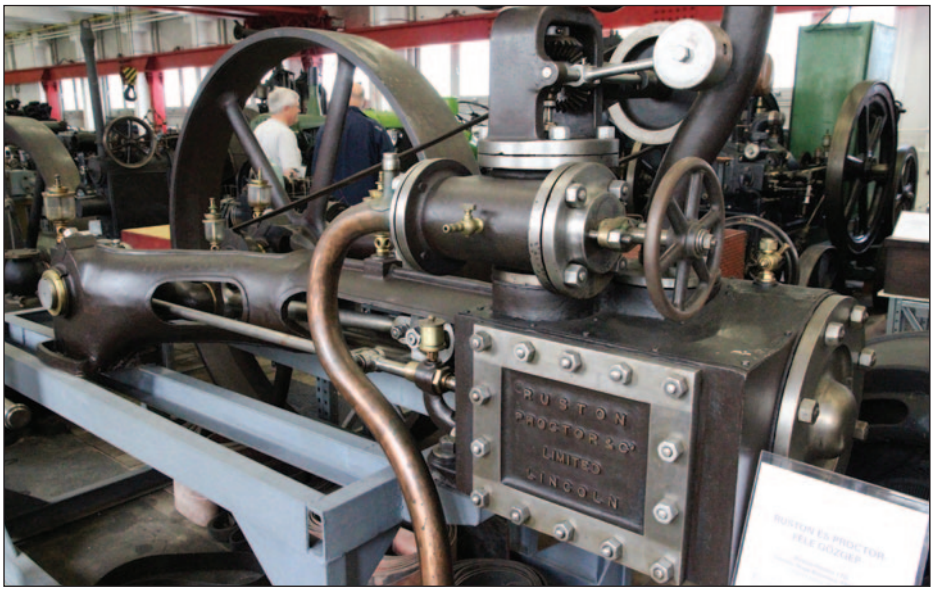
We were impressed by the Central Market Hall of 1893-6, the grandest of several in the city.

It has a steel frame and brightly coloured Zsolnay roofing tiles. Next to the river we came to the "Whale" shopping and entertainment centre, a couple of 2-storey corn stores of 1881 transformed in 2013 by superimposing a curvaceous grid shell roof. Nothing was visible of Budapest's once extensive steam-powered roller mills. We passed the extensive former Customs House of 1874 and crossed the Freedom Bridge, opened in 1896 and restored after WW2 destruction. This has balanced-cantilever steel trusses configured like a stiffened and self-anchored suspension bridge, with prominent finials topped by mythical birds. On the west bank we visited a thermal bathing establishment and passed another.

We made our way to the Chain Bridge, built 1841-8 to the design of William Tierney Clark and the first of Budapest's permanent bridges. The ironwork was renewed for greater strength and widened in 1914-15, keeping the original decorative details but adding disfiguring stiffening trusses. Blown up on 18 Jan 1945, it was restored in 1949 using partly recovered ironwork and the original masonry towers, the subject of a detailed article in the Proceedings of the Institution of Civil Engineers by Sandor P Vaci V (Vol 168 June 2015). It is followed by a tunnel of 1853-6 beneath the river bluff, where a stone-sculpted zero marks the reference point for Hungary's roads . We ascended the bluff by a funicular railway of 1870.

From Castle Hill in Buda, with its Gothic-revival Matthias Church and patriotic mounted statue of King Matthias Corvinus , we enjoyed a panoramic view over Pest.

The Paks nuclear plant, though built in the same decade, could obviously not be more different as an energy source than a lignite mine. It must have been one of the most strategic resources set up by the USSR in any of the satellite states. Its location in a relatively lowly-populated area offered an inexhaustible supply of cooling water from the Danube. It is said that apprehension about the risk of nuclear, which might logically be greatest among those living closest, in fact increases in proportion to distance from the site, no doubt reflecting the reducing exposure to understanding of the issues and protective measures. It may be to offer that understanding that the site is nowadays operated as a major visitor attraction. The visitor centre is impressive, well laid out and with excellent visual interpretation, supplemented by a recorded commentary on numerous topics in alternative languages, accessible at the press of a button. One topic came clearly into perspective while looking down from a high viewing point down towards the reactor far below. That commentary was about the plan, currently being developed, to extend the site's life from the thirty years originally planned, and already reached, to fifty years. The benefits in terms of avoiding a huge capital spend with the associated environmental implications, seem to pall into insignificance relative to the merits of avoiding the challenges of mopping up of such a site. The key and absolute strategic demand for that plan is that the site's assessment risk profile over two further decades is no worse than it has been over the last thirty years. Unfortunately no photographs were allowed around the site.



Ruston Proctor engine at the Technical study stores *photo Bill Barksfield*

The long journey back was broken with a visit to a third form of energy plant, possibly older even than lignite. The rebuilt floating watermill at Ráckeve was based on a hulk, crushed by winter ice, when it was realised that it was the last remaining example. There being few tributaries with the head or flow to power a conventional mill, use was made of boats with paddlewheels driving milling equipment. Tethered to the bank, these provided a guaranteed supply of power, albeit influenced by the flow of the river. The carpenters present admired the quality of build of the shipwrights. Items from the original being highlighted as such. Only at the close of the visit did the members of the co-operative which initiated the project open a hatch in the floor to show the electric motor now powering the grindstones and feeding backwards to turn the two paddlewheels, which provided an undeniably effective delusion.

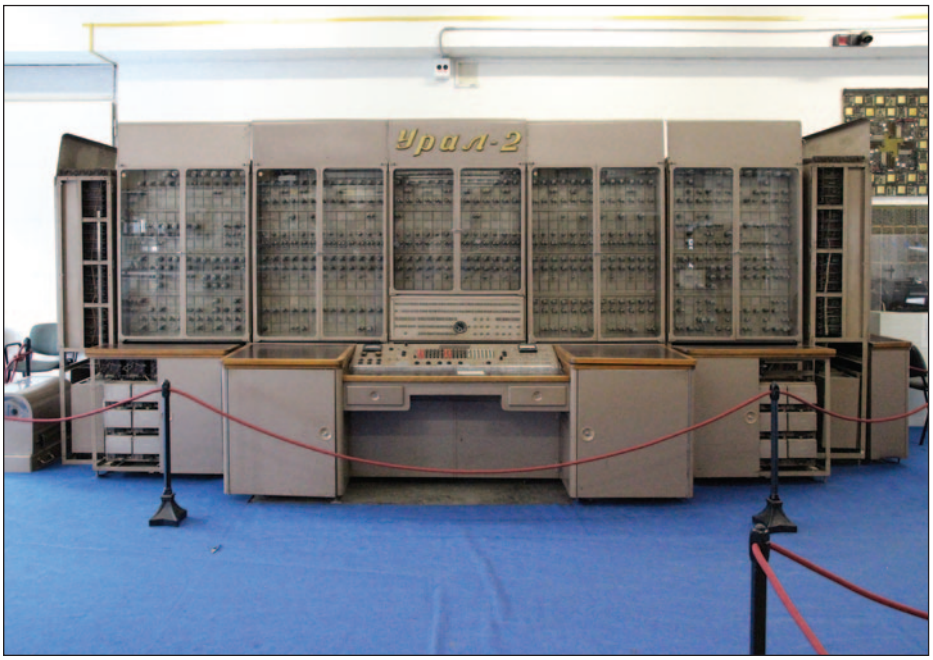

The Boat Mill at Ráckeve *photo Sally Barksfield*

A sunny start to the last day offered a sense of direction not discernible on the earlier misty bus journeys. Our first stop was the 'Technical Study Stores' in Budapest, an ERIH site, where the range of artefacts displayed was amazing. No-one present could fail to recognise articles from their home or workplace. The Russian computer of 1958, standing the size of the wall of a small room, has perhaps hundreds of thermionic valves. American and British brands, for instance Clayton Shuttleworth, appeared among the European and Soviet. Some discussion occurred about the function, design challenges and manufacturing problems needed for a series of reciprocating cylinders oscillating within a cylinder shaped like an O-ring. Having thought about the form of piston rings the conclusion was reached that the product was unlikely to have gone into production. Having each seen perhaps one percent of the sixteen thousand items in store, it

was time to move on although some of the party would have happily stayed all day.

The Ganz Foundry Collection, another ERIH site, has been arranged to serve as a museum, with numerous cast products as well as demonstrating the processes involved. The tour notes fully describe the short but fruitful life of Abraham Ganz, Swiss traveller, multi-skilled craftsman, innovator and businessman. By adapting and improving production methods, including some world-leading processes, he was able to exploit the growing markets, particularly the railways, of the middle decades of the C19. The building has the smoked wooden roof structure and rough walls one might expect of a site of its era and purpose. Internally there are the furnaces, casting moulds and handling equipment needed to produce the product. The only thing that seemed missing was the hazardous atmosphere and distinctive smell some of the group remember from early exposure to the industry. It was apparently those features that obliged the eventual closure of the plant due to pressure from the residents of the streets surrounding the works. Those studying the cast artefacts presented in the museum were impressed by the precision of casting, for instance the lined, stippled and cross-hatched sections of a tricolour flag, measuring barely a centimetre square, cast into the decorative panel on a stove door.

Having passed the Moorish-style synagogue, said to be the largest in Europe, and several obviously Jewish shops, we entered a former transformer station which is now the Electro-Technical Museum. The group was missing its usual architect, but members remarked on the design of the building with its distinctive 1930s Bauhaus-style staircase design and tiling. Most equipment was attractively presented within well-illuminated wood-framed enclosures the size of large Victorian wardrobes. A further distinctive synagogue was evident further down the road and someone quietly offered the reminder that Hungary was the home of the largest number of Jews killed during the Holocaust.



Ural 2 computer, 1962, at the Technical study stores *photo Bill Barksfield*

Thanks are due as usual to Bill and Sue, but on this occasion particularly to Agnes, whose fluent Hungarian was clearly appreciated by many site hosts. The willingness of a couple of fellow-travellers to report on particular sites or aspects is also appreciated. Another good trip. The food was fine throughout and, with apologies, no-one went short.

The children run the railway

Young staff on the Pioneer railway *photo John Copping*

Railways operated by children developed in the USSR and by the collapse of communism there were more than 50 in existence, many of which still operate. The longest, with seven miles of 30 inch gauge line runs through lovely wooded hills on the outskirts of Budapest. It was opened in 1948 to serve a children's camp at Csilleberc. There are nine stations with names such as 'Beautiful Princess Station' and a fascinating museum.

Geoff Wallis

The railway rises 774 feet with a challenging maximum gradient of 1:31 , making close control of the Rumanian made Faur diesel locomotive essential on slippy wet rails. The minimum curve radius is a wheel-squealing 164 feet.

The children were all very smartly turned out, clearly took pride in their work, and appeared to enjoy it. The railway is popular with visitors, especially during summer festivities when its two steam locomotives are in action. The 'Pioneer Railway' is said to be the only enterprise of communist times that has always been embraced by everyone.

On the day of our visit thirty 10-14 year olds were doing everything except actually driving the locomotives. Depending on their capability and experience, they simply 'salute' an arriving train, or dispatch it, make announcements, act as guard, collect tickets, or sell souvenirs. Higher responsibilities include operating points, signalling and acting as station manager. Students take one day out from school every two weeks, are given four months weeks training, and have to pass an exam before working on the railway. In the summer they can volunteer for week-long camps.

Is it safe? The operation is run in accordance with Hungarian national light-railway legislation. Equipment has been discreetly modernized, dual brake-systems fitted, speed is limited to 12 mph, and everything looked well-maintained. Older children supervise younger ones, and all are supervised by trained adults who will take over in an emergency. The whole operation appeared professional and safe.

The value of the training in increasing language, interpersonal skills and confidence was brought home to me by an amusing incident involving a lively young lad selling souvenirs on our train. He displayed pens, fridge magnets and a lovely looking Danish pastry which I endeavoured to buy. From his slightly embarrassed explosion of laughter I learned that I had tried to purchase his lunch!

I asked my new young friend what was the best part of running a railway, to which his instant reply was, 'Free food!' *What a great way to engage children in industrial history!*

AIA Restoration Grants 2019

A record number of applications came in this year, some well in advance but most of them tight up against the deadline of 31 March. The spread covered: five locomotives (an 1897 Taff Vale Railway loco, a 1906 saddle tank loco, a 1920 Peckett saddle tank loco, a 1940 John Fowler diesel shunter, and a 1951 NER tank loco); five buildings (an 1805 coastal fort for conversion to a cinema; a grain store and bakehouse, a railway weighbridge building, a lock-keeper's cottage, and a 1936 bus garage); five vessels (a 1926 Brixham trawler, a 1948 canal boat, a 1949 motor vessel, a 1951 lifeboat, and a 1953 canal lighter); four water mills (the leat of a 1784 cotton mill, the sluice of an 1839 a corn mill, the repair of a 1990s water wheel, and the refurbishment of a 2008 water wheel); four types of factory machinery (an 1854 rope-making ma-chine, a set of Victorian fur felt hatting machines, two Jacquard silk weaving looms, and three coin-minting machines); four vehicles (replica seats for a 1935 bus, modifying the gauge of a tramcar truck, restoration of one of a pair of 1929 Fowler ploughing engines, and the overhaul of a Centurion tank); two stationary engines (bearings for a pumping station engine, and a brine pumping engine); a mining head-gear; a 1948 railway inspector's saloon carriage; a 1954 Bristol freighter aeroplane; transport of an early 19th century timber waggonway; and repair of cast-iron a signpost.

The projects had a total value of £2,145,960, for which grants of £530,300 were requested. Thanks to the ongoing generosity of our anonymous donors, out of this batch of 34 we were able to fund eight to a total of £130,683.

The eight finalists, are –

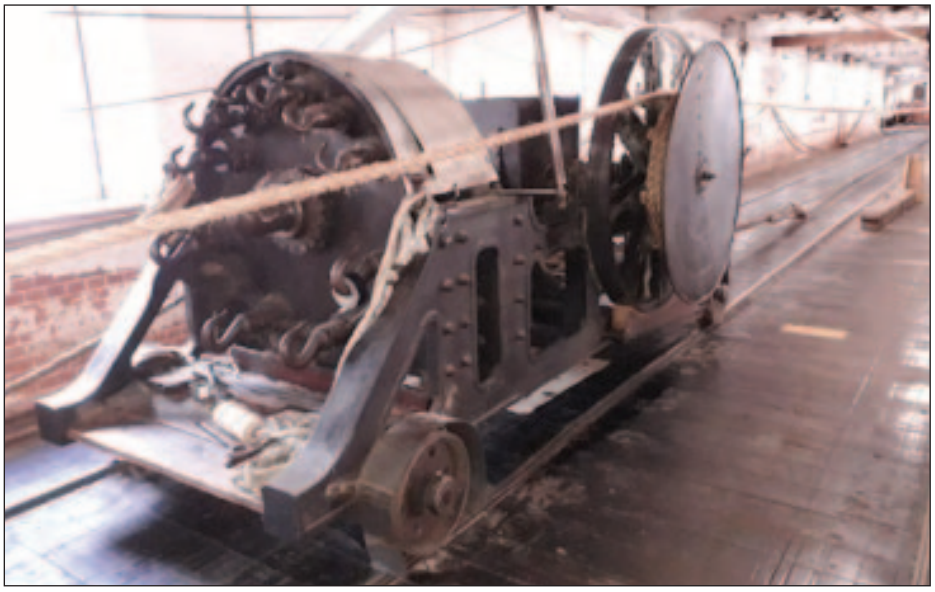
An early nineteenth century timber waggonway

The preservation and transport of an early nineteenth century timber waggonway for display at the Newcastle Discovery Museum, Tyne & Wear, with a grant of £11,000 towards a £29,500 project. A section of the rails was uncovered in 2013 at the former Neptune Shipyard close to the Tyne on the Willington Waggonway, the best preserved example anywhere in the world. The 93 timbers will go to the York Archaeological Trust for preservation before going on permanent display in Newcastle. Work begins in July 2019 for completion the following March.

The wagonway in its original site is shown on the front cover

1854 Rope making machinery

The restoration of 1854 rope-making machinery at Chatham Historic Dockyard Trust, with a grant of £17,200 towards a £21,700 project. It will fund the repair of the 'middle slide' closing machine that is used for the rope-making demonstrations in the Ropehouse a Grade 1 Listed Building and Scheduled Ancient Monument. Work is required on the drive shafts, bearings, drive wheels and gears, to start in November 2019 for completion by the following March.



Restoration of 1897 Taff Vale Loco

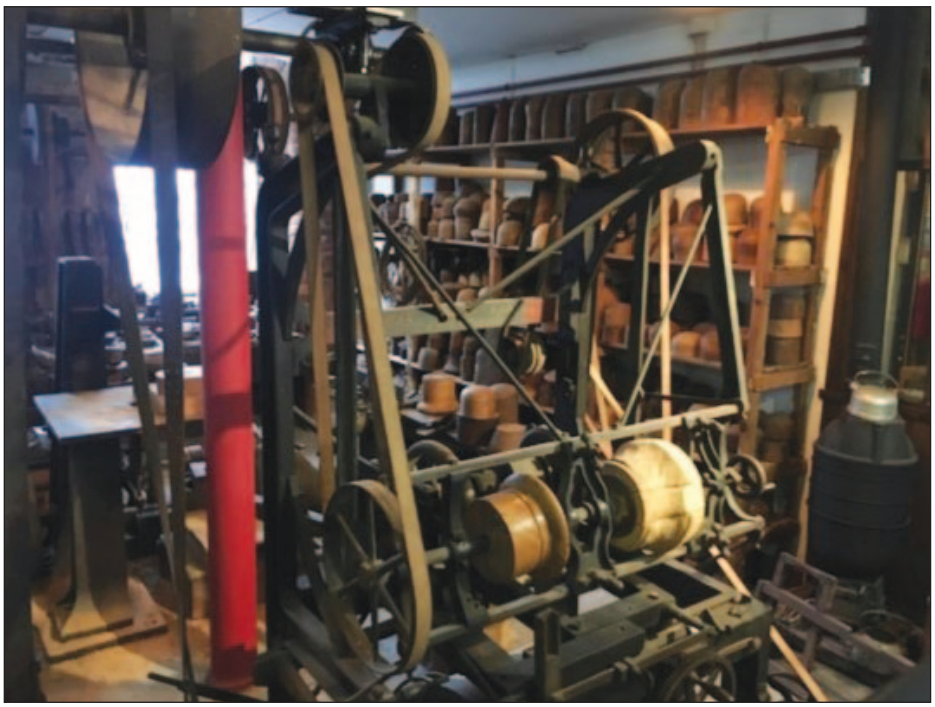
The restoration of the 1897 Taff Vale Railway locomotive No 28 for the Gwili Vintage Carriage Group, Carmarthen, a grant of £18,250 towards a £160,000 project. Last in steam in 1990, some restoration work was done at Swindon and later the dismantled locomotive was moved into storage at the Llangollen Railway in 2008, where it was later re-assembled. The worked funded by the AIA is to complete the restoration of the chassis, running gear and brake gear to full operational condition. It is estimated that the work will take the volunteers a little over three years.

1954 Bristol freighter

For transport, tools and equipment for the restoration of a 1954 Bristol freighter Type 170 at the Bristol Aero Collections Trust, a grant of £11,770 towards a £11,850 project. Brought back from New Zealand in 2018, this freighter and passenger airliner is the only one of its kind in Europe and one of eleven in the world. Tools, equipment, safety gear, access equipment and three months' worth of raw materials will be purchased to allow volunteers to undertake the restoration, which will include the doping of fabric wing flaps and the creation of replacement parts. The work is due to be done in front of the public starting in January 2020.

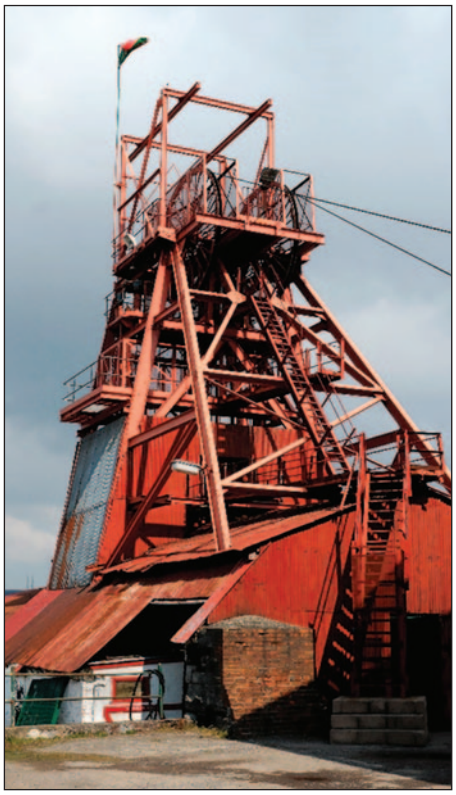
Restoration of 30 fur felt hatting machines

The restoration of belt drives, lubrication and air jet cleaning of 30 fur felt hatting machines at the Hat Works Museum, Stockport, a grant of £16,463 towards a £35,863 project. The machines cover the processes of cleansing, fur blending, fur forming, planking, blocking, finishing and trimming, as well as those used for hat block manufacture. Work is due to begin in December 2019 and should take about one month.



Restoration of 1953 wooden lighter

The restoration of the 1953 wooden lighter 'Susan' from the Chelmer & Blackwater Navigation for the Susan Trust, Chelmsford, a grant of £20,000 towards a £65,506 project. The vessel was built for Brown & Son, timber merchants of Chelmsford, 18 meters (59 feet) long and 4.5 meters (14.6 feet) wide with a displacement of 30 tonnes. The work requires the completion of the gunwales and superstructure and the re-installation of the original engine and stern gear. The Trust is continuing their fund raising so that they have everything in place to complete the restoration before recommencing work.



Big Pit Headgear

The restoration of the headframe structure at Big Pit National Coal Museum, Blaenavon, with a grant of £20,000 towards a £71,300 project. Replacing an earlier timber structure, the 1920s steel headframe has been in daily use lowering visitors 90 meters down the mineshaft to the underground galleries, but the steelwork is now showing signs of serious corrosion and rusting. The work will be undertaken in September 2019 and the headframe will be back in use in November.

Conservation of two silk looms

The conservation of two Jacquard silk weaving looms to allow them to be demonstrated at Paradise Mill, the Macclesfield Silk Museum, a grant of £16,000 towards a £21,200 project. Making silk scarves, handkerchiefs and tie fabric, this is the only surviving mill in the UK with its Jacquard looms in their original locations. One of the looms needs a new set of silk warp, while the second machine needs a new harness. Work will begin in July 2019 and be completed in December.

Could this be the Leebotwood Colliery engine?

Historical research is dogged by partial sources leaving one with perfectly reasonable assumptions, imponderable possibilities or wild speculations …

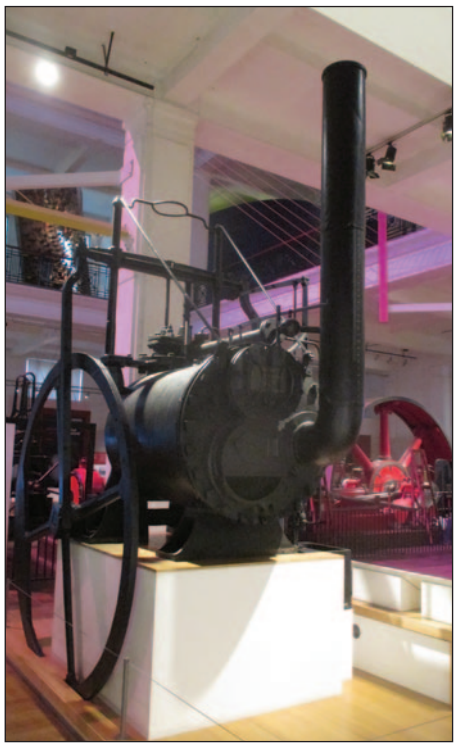
Leebotwood Colliery was a very minor mine in the middle of three very minor coalfields near Shrewsbury. It ran for about a century from 1784 to circa 1880 and operated at various sites straddling the later Shrewsbury to Hereford railway and the turnpike which became the A49. For all its unimportance it had two significant names in its history, the first is John Hazledine.

In 1804 Hazledine sought a lease for the colliery, a condition included in surviving proposed, draft and final leases from the February and May that year was that he must invest at least £1000 in the mine within two years which was to include a new engine The fact that Hazledine retained the mine until his death in 1810 strongly suggests that he fulfilled this condition. In 1804 his foundry in Bridgnorth had seven Trevithick engines under construction, the destinations of which are in several cases unknown, and he subsequently built at least seven more. While it is clearly possible that Hazledine could have sourced a new or second-hand engine elsewhere it seems at least as likely that he would use one of his own, state-of-the-art, ones.

On a long overdue recent visit to the Science Museum I noted that their Hazledine engine, works number 14 of circa 1806, has as far as I have discovered, no known history prior to being found amongst scrap at a goods yard in Hereford in 1886 by Francis Webb of the L&NWR. The date, not too long after the closure of the colliery, and the situation, a few miles south along the main line, do not rule out this being the engine Hazledine supplied for Leebotwood. On the other side of the coin, no engine was included in an inventory of 1833, although an 'engine pit' was noted on a plan of 1832, presumably if this engine was still there it was no longer viable. No scrap iron value is included on any of the valuations of 1832 or 1833.

The second notable name to be associated with the colliery is John Barraclough Fell. In March 1878 Alfred Carver wrote to Edward Corbett to say that he, Carver, had been spending on the mine with a view to selling it to Mr (John Barraclough) Fell who, "has declined the mine but may still take the brickworks and build a tramway to the main line and put his son in to manage it." Carver had given Mr Round (the manager) and the miners 14 days' notice that week but was still running the brickworks. The interest here is that as Carver pointed out in his letter, "Mr Fell I may mention is the engineer who constructed the *'Fell' railway over the Alps…"* Fell took neither the mine nor the brickworks so a Fell railway never ran across the Shropshire countryside, not that the levels would actually have needed such complexity.

Mike Shaw



Trevithic engine at the Science Museum

Industrial Heritage Networks

New regional support for industrial heritage organisations in England

The Industrial Heritage Support Officer project (IHSO) is funded by Historic England, managed by the Ironbridge Gorge Museum Trust and supported by the key partners: Association of Independent Museums, Association for Industrial Archaeology and the European Route of Industrial Heritage.

All about the networks

One of the key objectives of the IHSO project is to develop regional support networks for industrial heritage across the country. Industrial Heritage Networks (IHNs) are umbrella organisations bringing together all industrial heritage sites and organisations from across England to support each other and work together towards becoming sustainable. Membership is free, networks meet twice a year and communicate throughout the year via an online platform. Networks are very inclusive and open to staff and volunteers at all levels.

The IHSO, Joanna Turska, brings industrial heritage sites and organisations together, organises inaugural meetings, facilitates each network's development and provides tools and resources for networks' growth including access to the dedicated IHNs website.

The website is there for members to use for promotion and knowledge sharing. Members can post news stories, advertise vacancies and volunteering opportunities, promote events and exhibitions and anything else that they would like to shout about, and share with the sector.

The purpose of the networks is outlined in more detail in the *Guidelines for Industrial Heritage Networks* (IHNs) document which can be downloaded via the IHNs website: industrialheritagenetworks.com/guidelines/

The story of a button

Each network's meetings are informal and friendly. The host chooses a theme for the day with members joining discussions, brainstorming and sharing their experiences. The theme can focus on a success, or an achievement that the host would like to share with members as best practice example, or an issue, or a challenge which the host would like to discuss and potentially find solutions for dealing with it.

To date, the themes have included industrial heritage interpretation, social media, balancing commercial and charitable and empowering collections. Looking forward, themes will include volunteer management and its various aspects including engagement and retention, health and safety, working with large objects, governance and many more.

During the Industrial Heritage Network West Midlands (IHNWM) meeting last November, members focused on heritage interpretation of objects which don't have connections with famous people, places or industrial revolution - objects which tend to live in the back rooms and storage areas waiting for their turn to tell their story and shine on displays.

Discussions in action

Members talked about moving away from pushing the usual links with the industrial revolution and looking for and discovering the untold stories behind the objects. An example of such an object discussed during the meeting is a button making machine stored at the Birmingham Museums Collection Centre where the meeting was held. One of the members talked about focusing on what the machine made and using the 'person behind the object' to tell its story, or rather to think about it as 'the story of a button'.

The interpretation could include the technical aspects of the machine, its inner workings and engineering marvels – this will always relate to some visitors. But there is so much more we can use to interpret objects like linking stories from the past to the present to involve visitors through relating to their current life. Knowing and understanding our visitors is another crucial aspect of a successful heritage site and will be the focus of many network meetings in the future.

There is a blog post after each meeting outlining issues and ideas discussed – you can read more about the West Midlands meeting last November, the most recent one at the Coffin Works focusing on embracing social media and other regional meetings to date on the Industrial Heritage Networks (IHNs) website: industrialheritagenetworks.com

What's happening in your region?

Cornwall & Devon: next meeting at SS Freshspring on 18 September

London: next meeting at House Mill (November; date tbc)

North East: next meeting at National Museum of the Royal Navy (October; date tbc)

North West: next meeting at British Commercial Vehicles Museum (November; date tbc)

South East: inaugural meeting at Amberley Museum on 28 June (next meeting in November; details tbc)

South West: next meeting at Westonzoyland Pumping Station on 16 September

West Midlands: next meeting at Etruria Industrial Museum (October; date tbc)

East Midlands: inaugural meeting at Nottingham Industrial Museum on 10 September

Yorkshire: inaugural meeting at Leeds Industrial Museum (date tbc)

East of England: coming Autumn 2019.

Get in touch!

For more information about a network in your region, contact the IHSO on joanna.turska@ironbridge.org.uk

Conserving industrial architecture in Asia: Problems and prospects

The debate on industrial heritage in Asia is directly related to the history of industrialisation and modernisation which happened during the colonial period in many Asian countries. Rapid economic and urban development in these countries has put a lot of pressure on to the efforts to conserve, even the significant industrial heritage, due to ignorance, economic greed, speculative development, etc. This article attempts to look into the issues related to the reasons for conservation and the problems for the conservation efforts, using some cases in Singapore and Indonesia to pin point the direction for the theoretical and practical discourse on the conservation of modern industrial Architecture in Asia.

Johannes Widodo, 1 National University of Singapore

Machinery in the old part of Indarung Cement Factory, West Sumatra, Indonesia *photo author*

Industrialisation in Asia

Industrialisation in Asia is as old as the civilization itself, from the development of metallurgy and mass production of objects and weaponries in China in 3000 BCE, to factories producing traditional utensils, foods, firecrackers, and ships, that still survive until today across Asian countries. Ocean going vessels from China, Ryukyu, India, Arabia, Nusantara, and Oceania were carrying and exchanging industrial goods produced in the factories, workshops, and kilns in various parts of Europe, Africa, Asia and the Pacific. The evidence of industrial architectural forms from this period are buried in the archaeological sites around the world. The intensification of industry during the European colonisation period in Asia happened predominately after the seventeenth century, when building materials like bricks and ceramic tiles began to be produced locally in the colonised land. Until the seventeenth century, bricks produced in Europe were brought as ballast in ships to the colonies around the world, such as Melaka and Batavia, to construct forts, churches, warehouses, and houses in the earlier period of colonisation in Asia.

Lime mixed with sand, water and often volcanic ash, gypsum, brick dust, egg white, or sugarcane, was used for plaster to stick the bricks and to cover the walls. These materials were obtained from natural sources. Load bearing walls or timber frame structures were used in the main building structures to carry the load from roof and floors to the ground. Building heights and spans were restricted due to the limitations of the materials' properties. These limitations were overcome by using concrete as the principal building material.

Modernization of the building industry in Asia

Concrete needs Portland cement produced by an industrial process that requires complex processes and factory buildings. The availability of cement since the nineteenth century has changed the building and construction landscape in the colonies in Asia. A cement factory was established in Ilha Verde, Macau in 1886, then it was moved to Hong Kong in the 1930s. The French built Hai Phong cement plant in 1899. The Dutch set up the first cement factory in Indarung, West Sumatra, Indonesia in 1910. King Rama VI of Thailand founded Siam Cement factory in 1913. The British established the Burma Cement Company in 1935. Denmark was the main supplier of the cement machinery, as seen in Indarung and Burma. The proliferation of cement factories across Asia was fueled by the construction boom of infrastructures (such as irrigation canals, bridges, harbours, dams), civil and military buildings. The cement factories in Asia adopted the building envelope typology of utilitarian steel structure architecture with concrete and brick walls to cover the cement production.

Breweries were built in China (Qingdao, 1903), Dutch Netherlands Indies (Batavia and Medan, both in1929 – followed by 'Java Beer' factory in Surabaya in 1931), also in Vietnam, India, Singapore, and other colonies in Asia. In contrast to the cement factories, the equipment and machinery for beer making are mostly kept in enclosed space. The old Qingdao Beer Brewery was built in a German brick classical architectural style like factories in four season Europe, using German industrial technology. In the early nineteenth century, in tropical Southeast Asia, the architecture was adapted to the environment, combining modern architectural style and materials with a tropical vernacular architectural language. Larger pyramid roof or steeper pitch roof were used to absorb the heat, cooling shadow was created using wider eaves and verandas, and many openings in the walls were provided to achieve a comfortable temperature inside the building through cross ventilation.

While many industrial buildings from the colonial period in Asia could not survive economic, urban, and technological

developments and have been demolished or changed beyond recognition, some have survived in recognition of their historical significance, heritage values, or economic potential.

The Old Ford Motor Company in Upper Bukit Timah Road was the place where the British surrendered to the Japanese army on 15 February 1942. The factory building with its Art Deco façade was Ford's first motor car assembly plant in Southeast Asia. Before the war, the factory was used by the British Royal Air Force to assemble fighter planes. Subsequently, the Japanese took over the factory and used it as their first military headquarters, then it was taken over by Nissan motor company to assemble military trucks and other vehicles for the Japanese military during the occupation.

After the war the Ford Motor Company resumed its operation from 1947 until it was closed down in 1980 and subsequently abandoned. The building was gazette as a National Monument on the 64th anniversary of the surrender of Singapore on 15 February 2006 and was turned into an exhibition gallery and archival repository called 'Memories at the Old Ford Factory'. The only part that has been 'preserved' (or technically 'restored') from the original factory building is the Art Deco façade and the boardroom where the surrender took place. The rest are new structures, including a large contemporary box structure near the road entrance.

Saint James Power Station was built between 1924 and 1927 as Singapore's first coal fired power plant, supplying electricity to shipyards, industrial buildings, and residences around it. The main three buildings were a steel framed structure supported by reinforced concrete piles with brick walls and Edwardian red bricked façade. The roof structure was covered with asbestos corrugated sheets. The power station was closed in 1962 owing to its inability to fulfill the increasing demand for electricity. The complex was used as a commercial warehouse by the Port Authority of Singapore between 1982 and 1992 and subsequently abandoned. The buildings were converted into a multi concept entertainment hub and nightclub in 2006. The building façades were restored and its interior was refurbished to house nine clubs and three restaurants. The terms 'preservation' and 'conservation' are used differently in Singapore, although in practice are almost the same. 'Preservation' is used for buildings (or parts of) with National Monument status, while 'Conservation' is for any other buildings and districts that are listed for rehabilitation, adaptive re use, or reconstruction. 'Façadism' is endorsed as the easiest way to balance the preservation of the exterior architectural style, while allowing exploitation of the economic potential within the building behind the façade.

One typical example of a conserved and adaptive reused industrial building is Khong Guan Biscuit Factory at MacTaggart Road No 2. It was the former headquarter of the famous Khong Guan biscuit firm established in 1947 and considered as a landmark at the middle of the MacTaggart industrial area, one of the earliest post war industrial estates in Singapore. It is a three story modernist structure with the lower floor used as office, storeroom and shopfront for the biscuit company, while the upper floors were used as home for the family members who owned the company until the 1960s. The conservation status was given in 2005 to keep most of the exterior features, but the interior has been gutted to make way for the new rental offices and light industry tenants.

Brewery in Surabaya, East Java, Indonesia, during demolition after the factory was relocated in 1988 and the site was converted into commercial complex 2000 *photo author*

Conserving Industrial Heritage in Asia

Industrial heritage is inherently 'local' as it is specific to a site and a community, but at the same time 'global' because of the connections which were established through shared investment, technology, and consumption. This duality - local and global - is the nature of industrial heritage. In Asia, industrial heritage is placed within the context of colonial, post colonial, rapid economic development and urbanization processes, all within a very short period since the end of World War II.

The mAAN Seoul Declaration 2011 on Industrial Heritage states that Asian industrial heritage is an interrelated process of production, transfers, and consumption through a complex network involving multiple political entities and different geographic locations. One aspect of this complexity comes from the painful association with economic exploitation through colonialism and imperialism. In Asia, conservation and preservation of buildings and sites are often considered as hampering progress, trapping the economic potential, or anti development.

Hence the pragmatic approach of conserving the façade or building envelope and allowing changes in the interior and redevelopment of other parts of the site, is seen as a good compromise. This approached is considered a better alternative than demolish and rebuild. Recognising, understanding, interpreting, and conserving industrial architecture and sites as heritage is still a challenge in Asia. Much of the modern industrial heritage in Asia, unlike in many parts of post industrial Europe or US, is still alive and very much integrated in the physical and cultural landscape of today, but it has been put under continuous pressure with rapid changes especially since the 1970s. The term 'conserving modern heritage' itself is an oxymoron, since 'modernism' is associated with functionalism, rationality, new materials, openness to innovation, timeless, and always 'new'. Modern industry, which has been an inseparable part of Asian modernity and modernisation process, is associated with technology and progression. Certain technology and machines become redundant due to the latest demands and newer technologies, likewise the industrial buildings.

Ray Riley

2 April 1931 – 30 May 2019

Ray Riley was born in Liverpool and was educated at Quarry Bank High School in the city.

As a teenager he was a keen train spotter, often going out with his schoolfriend, Charles Baxandall.

Ray did his National Service in the Army, and in the years that followed, joined the RAF Volunteer Reserve. He worked in the Home Office from 1952 to 1964, serving in Liverpool, London and Dover. He also studied for his first degree at LSE in economics, and then, at the same institution, for his higher degree.

His career then took him into academia, with a job at Huddersfield College of Technology from 1964 -6, before he moved to the then college of technology in Portsmouth, which later became Portsmouth Polytechnic and finally the University of Portsmouth. Apart from a spell in Poland in the 1990s, Ray remained at Portsmouth until retirement.

Although Ray's first degree was in economics, his real love was industrial archaeology and local history, to which he brought his wide geographical knowledge. His industrial archaeological expertise was wide ranging, and included not just railways and coal mines, but also more unusual fields, for example the Portsmouth Corset industry. He also taught classes in IA for the WEA (and thus I first met him 40 years ago). These were not only instructive, but always highly entertaining.

Ray was the author of many publications, on local history as well as IA, including nine Portsmouth Papers over several decades.

He had a great passion for Portsmouth Dockyard, and was a founder member of the Naval Dockyards Society and editor of its Transactions. However, his interests were much wider. His fascination with birds led to him becoming RSPB Local Newsletter editor.

Ray became involved with AIA in the 1990s and an account of his memorable trip to Poland is included below. He took over the Affiliated Societies role in 1999, and redesigned the 'Ironbridge Weekends' on particular themes, such as port structures and railway structures, which were very well attended. He was also involved in the AIA's early links with E-FAITH both in London and then later in Coalbrookdale – his skill in languages was great asset with our European guests.

He published his autobiography, the *Life of Riley* (2011 Tricorn press), from which his quirky sense of humour shone out. The last time I saw Ray 'performing' was in October 2016, when he gave a eulogy for Dr Edwin Course, at a Memorial event staged at Bursledon Brickworks. He soon had the audience in fits of laughter…

Ray was a remarkable character, an erudite teacher and for so many of us, a valued friend. He will be sadly missed.

Pamela Moore
With contribution from Mike Bone

Ray Riley and the AIA in Poland, July 1995

Ray Riley died on 30 May 2019. As well as his obituary from Pam Moore, a member of the Hampshire Industrial Archaeology Society in an area where Ray did much of his work, I would also like to share some of the memories of the visit he organised to Poland in July 1995 with the help of his friend Anna, one of the early Heritage of Industry excursions under the leadership of Paul Saulter. It was a visit that none of us will forget! It began with a sea and river journey from Harwich to Hamburg, sadly now no longer possible. The highlight of this was being on the deck during the cruise down the River Elbe in sunshine, watching one of our number's unsuccessful attempts to erect a deckchair before we docked.

The hotels we stayed in were interesting. Although no longer under Communist rule, it was still customary in Poland for everyone to have some sort of a job, so at one of our first hotels, we gave an order for breakfast to one man, who then repeated it to another man who also wrote it down, and this was then taken to the kitchen. Breakfast took a very long time. Dinners? Well, shall we say that dumplings figured extensively!

At a town with the unpronounceable name of Chiechocinek, we walked the half-mile or so along each of the salt graduation towers to breathe in the iodine-rich fumes from the brine which percolated through faggots in the towers in order to concentrate the salt. A windmill pumped the saline solution to the top of the towers, studied as in the picture by various members of AIA although for many who had climbed to the top, sitting down was the better option!

Chiechocinek brine pumping windmill with the AIA in 1995

Most of the Polish mainline railway system was built by the Russians for strategic purposes and as such did not necessarily pass through large towns, and so large numbers of narrow-gauge railways were built for both strategic and domestic purposes – about 4000 miles in all. This had become a playground for many railways enthusiasts who delighted in the process of transferring trucks for standard gauge waggons onto a narrow gauge chassis. In Warsaw, our hotel was situated alongside what must have been the busiest tram crossing in Europe where the trams were all brought down from the depot at about 4am. It was reported that one of our number chose to sleep in the bath as it was quieter in there!

In Sulejow with its magnificent lime kilns, the night should have been a lot quieter than in Warsaw as we stayed in what had been a Cistercian monastery – but the rule of silence was not observed! The zinc smelting and rolling mills near Katowice presented a problem for keen photographers since pictures were not allowed although some members got around this by attempting to bribe the bus driver to take some images with all the cameras.

Then to Lodz – or 'Wooj' to you – with its huge textile mills. By 1939, these had 672,000 employees, 37% of total engaged in textiles in Poland, and it was known as the Polish Manchester. After that, we were in the coal mining district in Upper Silesia, and Ray proved to be extremely knowledgeable on the many types of mining headgear that we saw, from the Malakoff tower at the Andrej mine to the various Koepe winders at both coal and silver mines.

Ray's expertise in the area, helped by his friend Anna, was enormous as the area was largely unknown to many industrial heritage enthusiasts in the west. Ray obviously got it right as many of the sites we visited are now on the ERIH network and now there is an annual *Industriada* – a Festival of Technical Landmarks in Silesia! But we were there first and our memories of this trip serve for many of us as a tribute to the memory of Ray Riley.

Marilyn Palmer

Richard Hills

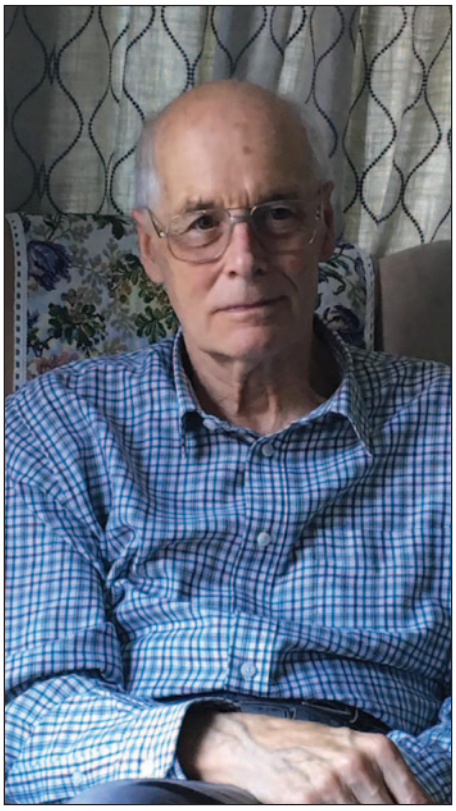
1 September 1936 – 10 May 2019

Richard Leslie Hills was born in 1936 in Lewisham in south London. His father Leslie was an Anglican vicar and his mother Margaret (Peggy) was a daughter of Sir John Ontario Miller. Peggy died of cancer when Richard was two years old and a year later Leslie was called up to serve as a chaplain in the war. Richard went to live with his Aunt Kathleen in Tunbridge Wells, Kent, and later attended Charterhouse School in Surrey. While there he became interested in engineering and nearly completed a model of Stephenson's Invicta locomotive.

Richard was called up for National Service in 1955 and commissioned into the Royal Artillery as a Second Lieutenant. He went on to read history at Queens' College, Cambridge. There he flirted with various vintage cars, including Alvises which he described as sturdy British bulldogs. He bought a 1924 Lancia Lambda which was 'a rather elegant Italian lady' and over the next 52 years he rebuilt it, ran it regularly and rallied it. He was an active member of the Mountaineering Society and also the Railway Club through which he was introduced to the narrow gauge lines of North Wales.

After graduation he started a Diploma of Education course at Cambridge but his studies were interrupted by a climbing accident. Richard was an instructor for Outward Bound in The Lake District and he was leading a small party of boys on a climb on Needle Ridge on Great Gable when a boulder came loose, crushing his left leg. He nearly lost the leg through gangrene but it was eventually saved. During his year of convalescence, between operations he would stay with Andre and Leslie Kenny at Long Melford where the Lancia was being restored. The Kennys were also helping to restore the 1831 steam engine at Stretham and while on a visit there Richard came across a trunk full of old records of the engine and the drainage of the fens. He wrote in his autobiography, "They changed my life and my career." He returned to Cambridge to complete his teaching diploma and then taught at various schools including Worcester College for the Blind. With an opportunity to study at Imperial College London he gained a Diploma in the History of Science and Technology through his thesis on fen drainage which was this was the basis of the first of his fifteen books.

In 1965 Richard became a Research Assistant in The Department of the History of Science and Technology at the University of Manchester Institute of Science and Technology (UMIST). His research in the textile industry led to his PhD. and to his next book *Power in the Industrial Revolution.* The department was planning a new museum of science and industry and Richard was appointed Curator and so set up The North Western Museum of Science and Industry. The first site was in Grosvenor Street, Manchester, but in 1983 The Greater Manchester Development Corporation acquired the site of the first railway passenger station in the world on Liverpool Road and the Museum was transferred to this site.



He collected mill engines, textile machines, railway locomotives, machine tools and all manner of North West connected artefacts, describing the return of South African Railways Beyer-Garratt steam locomotive No. 2352 as "perhaps my greatest triumph". His policy was to have demonstrations of many of the machines actually working and the numerous galleries were bustling with massive engines under steam, mules spinning cotton, looms weaving cloth etc. He made several 16mm films recording the last days of the textile industry in Lancashire. Richard was also involved with Quarry Bank Mill, Nether Alderley Mill and Dunham Massey Mill.

At first Richard lived on the National Trust estate at Styal but moved to Stamford Cottage, a seventeenth century weaver's cottage in Mottram in Longdendale, about 10 miles east of Manchester. The original kitchen there was converted into an engineering workshop which contained lathes, a milling machine, a pillar drill etc. The attic housed a large collection of books on theology and the history of engineering, a drawing board, papermaking screens, model steam engines and his writing desk. Spinning wheels and looms were spread in other rooms throughout the house. A 'lair' was built for the Lancia.

The Manchester Development Corporation appointed an outside Director for The Museum but Richard and his colleagues continued to achieve extraordinary progress in setting up all the machinery. However, he left in 1984 due to overwork but was then able research several areas of industrial history, including papermaking and windmills. His greatest academic work was his definitive three volume biography of James Watt. He was author of about 150 articles or papers and he continued to teach, lead hillwalking groups, and drive his beloved Lancia.

Richard had always been an active Christian and in 1985 he trained at St Deniol's College, Hawarden, and was ordained as priest. He served in parishes in Urmston (Manchester) and Yarmouth before becoming Curate of Mottram.

In 2005 Richard was diagnosed with prostate cancer. Among the many people who helped him through this was Bernice Pickford, a member of the church at Mottram. They got on very well together and were married in 2008. He was 71 and she a few years younger. They travelled a lot and were very happy. However, Richard had to make concessions. No longer were there steam locomotive models on the kitchen table; a television set appeared in the lounge.

By 2011 he was having problems co-ordinating movements in his legs and Parkinson's disease was confirmed. They sold Stamford Cottage and moved to a bungalow about a mile away.

Richard had held many offices, including President of the International Association of Paper Historians, Chairman and Honorary President of British Association of Paper Historians, Chairman of the Manchester Regional Industrial Archaeology Society, Chairman of The Newcomen Society North Western Branch, President of the Manchester Association of Engineers and Warden of the Society of Ordained Scientists. He was made a Companion of the Institution of Mechanical Engineers and Honorary Member of several societies. He was awarded the Medal of Honour of the University of Manchester and in 2015 was made a Member of the Order of the British Empire. Sadly, Richard was not strong enough to travel to Buckingham Palace. The Investiture was carried out by Warren Smith, Lord-Lieutenant of Greater Manchester, in Mottram Parish Church. This had the benefit that many of his friends could be with him on this well-deserved occasion.

Bernice was diagnosed with cancer and she died in 2016. The Parkinson's disease caused Richard to become frailer and he died peacefully of pneumonia on 10 May 2019.

Richard inspired many people during his lifetime. He was thorough and meticulous in all he did. He was always helpful and generous with his time and willing to share his knowledge, always giving credit to those who helped him. He leaves behind a sister, a niece, three nephews, two step-daughters, many, many friends and a large literary legacy. Countless people will enjoy and learn from The Museum of Science and Industry for a long time hence.

John Glithero.

Joan M Day FSA
1928 – 2019

Long-standing members of AIA and readers of this bulletin will be saddened at the passing of one of our early members who died of cancer in her care home on 13 February, last, at the age of 91. She led a long and eventful life and made a significant contribution to the development of IA at local and national levels. She is particularly remembered for her work on the history and archaeology of metallurgy - her book, *Bristol Brass: The History of the Industry,* was published in 1973, the year that AIA was founded.

Joan was born in Bath and narrowly missed an early death in the 'Baedeker Blitz' of 1942, one of the raids that targeted some of our most historic cities. She settled in Keynsham shortly after her marriage to Roy and lived here for the rest of her life. Joan and Roy became involved in the early days of IA in the Bristol region by attending a series of lectures organised by Dr Angus Buchanan and Neil Cossons at the Folk House in Bristol in 1964. So popular were these lectures that the Bristol Industrial Archaeological Society (BIAS) was formed in 1967 with Angus as chair and Neil as secretary. Joan and Roy operated as a team and were to play a major role in shaping the society as it is today. Joan joined its committee in 1971 and later served as secretary, chair and member of the grandly-titled editorial executive of its journal. Roy served as treasurer and made good use of his professional skills in design and print - BIAS publications were cited as an example for other societies to follow in *AIA Bulletin* 3/1 of 1976.

Joan and Roy were both passionate and determined in their approach to IA. As one of the contributors to the tributes at Joan's funeral amusingly remarked of her management style: 'There is a right way. There is a wrong way. And there is Joan's way' and this, unfortunately, was a contributory factor in her being voted off BIAS Committee at a hostile AGM in 1987. She continued, however, to organise the Bristol University extra-mural IA programme – the successor to the Folk House lectures - until 2008. Joan was also a founder member of the Keynsham & Saltford Local History Society (KL&SLHS) and served on its committee from 1965 to 2014. In 1980 she was a founder member of the Avon Industrial Buildings Trust Limited (AIBT) but differences over the future of Saltford Brass Mill led to her resignation from this organisation.

On the national stage, Joan and Roy were early members of AIA and served on its council in the 1980s. Roy took on production of *AIA Bulletin* (now *Industrial Archaeology News*) and early conference gazetteers and also edited the bulletin until 1987. This was an eventful year in which the Days arranged the AIA's Annual Conference in Bath and produced the gazetteer. Joan was also a member and contributor to the publications of the Newcomen and the Historical Metallurgical Societies, the latter publishing her paper 'The Bristol brass industry: Furnace structures and their associated remains' in 1988. She also worked with Professor Ronnie Tylecote as co-editor of *The Industrial Revolution in Metals* (1991), overseeing completion of this project after his death in 1990 and contributed entries to Routledge's *Biographical Dictionary of the History of Technology* (1992) and the *Oxford Dictionary of National Biography.*

In her later years, increasingly so after Roy's death in 2004, she focused on her local area and on Saltford Brass Mill in particular. The now-ruinous shell of the building was eventually restored by AIBT with the aid of a substantial English Heritage grant in 1995 and its freehold transferred to the new unitary authority shortly afterwards. The Saltford Brass Mill Project was set up as a community group to interpret and make the building safe for visitors on open days with Joan as chair and it was my privilege to join her as treasurer, volunteer and link between the group and AIBT until AIA duties took over much of my leisure time. She was the group's president when she died.

Although there was turbulence along the way, Joan commanded immense respect and gratitude for her contribution to IA and the affection of BIAS colleagues who, as she neared the end of her life with no family to speak of, took control of her affairs, welcomed her into their homes at Xmas and accompanied her to conferences and lectures for as long as she could manage this. Fortunately, she was able to attend the lecture given by Sir Neil Cossons and introduced by Professor Angus Buchanan that was held in the function rooms of a restored Bath Green Park Station as part of the BIAS 50th anniversary celebrations in 2017.

Mike Bone with thanks to David Alderton, Bruce Hedge and Marilyn Palmer (AIA), Tony Coverdale, Maggie Shapland and Roger Wilkes (BIAS) and John Vowles (K&SLHS) for their assistance with information.

AIA Creative Re-use Award, 2019

The 2019 award has gone to The Engine Shed, University of Northampton Students' Union which featured in *IA News 189* (p20). It is a Grade II listed building and had been unused for over 15 years. The project has ensured a viable, and productive use for the Engine Shed as the new Students' Union, an iconic element of the Waterside Campus site of the University of Northampton. The Midland Railway operated the building as a running shed to service locomotives on the Northampton to Bedford Line. In the early 1920s the LMS used it as a workshop and in the 1960s it become a welding workshop, then the Welding School for British Rail Engineering. In 1998 it closed and remained empty and vandalised until bought by the University in 2014.

AIA Research Grants

The AIA has set up a new initiative to promote research into industrial archaeology, a partner to our conservation grants for industrial archaeology and heritage sites and objects. An annual grant fund of £1500 was established last year and the first round of applications closed in March. Two awards have been made. The first award is to Dr Karen Pollock of Bangor University to help record historic graffiti (1860s to 1940s) at the Dinorwic Quarry Hospital, Llanberis, Wales. The second award is to Dr Charlotte Goudge to assist her survey of the Gamble sugar plantation at Ellington in Florida, USA. Short reports of each research project will appear in *IA News* during the next 12 months once the research has been completed, and copies of the research reports deposited in our library at Ironbridge.

IA e-News

The first edition of the new AIA e-News has now been published and has been sent to all members whose mail addresses have been registered. It is also available as a link from our website.

It will be published about the beginning of each January, April, July and October and will contain news and notices of forthcoming events. It is intended to be concise and up- to date and with links to further information.

If you have not received a copy and would like to do so please click on 'Mailing list' on the AIA website or email communications@industrial-archaeology.org

LETTERS

Tall chimneys – a note

In his recent articles in *IA News* Bob Carr seeks to discover who was responsible for building the first tall chimneys and the origin of tall chimneys. Determining why people started to build tall chimneys might shed some light on these questions.

An early twentieth century text book on steam boilers derives a formula for the height of a chimney from the required draught, the number of pounds of air per pound of fuel burned, the absolute temperature inside the chimney and the absolute temperature outside the chimney. The draught is defined as the difference in pressure above and below the grate of the boiler. The author notes that the formula ignores friction. He also gives an alternative, empirical, formula for the height of a chimney in terms of the number of pounds of coal burned per hour and the effective cross-sectional area of the chimney, defined as the smallest cross-sectional area minus 0.6√smallest cross-sectional area. This latter formula he attributes to 'Kent' in Proc Am Soc ME, vol vi. Apparently this was just one of several such formulae. The author also notes that the use of a Green's economiser could impair draught if the temperature of the flue gases drops below 350 deg F. He states, "The height of a boiler chimney must at least be sufficient to carry away the gases without causing any nuisance to the neighbourhood, and it may be governed by the by-laws of the district." (W Inchley, *Steam Boilers*, pub. Edward Arnold, London 1912, has a section on 'Chimney Draught' (Chapter IV))

This suggests that having larger boilers or more than one boiler would require a taller chimney. This might explain why taller chimneys appeared in the 1830s. The introduction of the Green's economiser could also have led to an increase in chimney heights. But there was another reason for increasing the height of a chimney. As Pickles wrote in *Our Grimy Heritage*, "…during the mid-nineteenth century, mill owners vied with each other for trade… One sign of prosperity was the size and opulence of the factory chimney… The height of the chimney was a source of pride…"

Boilers needed tall chimneys but so did Hoffmann and similar horizontal continuous kilns. At Llanymynech there is a preserved horizontal continuous limekiln. It is of a type first patented by brickmaker George Warren, of Exmouth, Devon, in 1894. Warren's main aim was to achieve fuel economies and improve the quality of bricks burnt in a kiln of this type. The design also offered an improved method of utilising waste heat from cooling chambers by pre-heating bricks before firing. Its complicated arrangement of flues suffered from draughting problems. Warren's solution was to increase the height of the chimney. This can easily be seen today as the top section of the chimney does not taper like the lower part. When that did not entirely solve the problem he resorted to introducing a fan in the

Remains of an economiser exposed at the base of the chimney at Dale End Mill, Lothersdale

flue near the foot of the chimney. Before the conservation work was done there was a broken section of flue in front of the chimney, perhaps the result of removing the fan.

Alumina and bauxite

I am a French historian, working at the Centre de recherches historiques (EHESS, Paris). I am working on the industries of alumina and bauxite in Ireland, from mid-19th Century until now. This research is focused on two factories and on several mines/quarries.

The factory was in Larne (the other factory is based in Limerick Co., Republic of Ireland). Created in 1894 by the British Aluminium Company (BACO), this plant ceased its activities about 1947.

The mines were in different locations in Antrim County. Some of the operators of this bauxite exploitations were The Irish Hill Mining Company and The Eglinton Chemical Company (of Glasgow).

I am contacting you for advice. Do you have material on these industries? Do you know historians (professors, students) who have focused research on Larne alumina factory or on bauxite mines?

Thierry Renaux
ANR ARCHIPAL Aluminium, architecture et patrimoine XXe-XXIe siècle Centre de recherches historiques (UMR 8558, EHESS/CNRS)

Portsmouth bus station

Portsmouth Harbour, The Hard Interchange, 24 June 1978 *photo Tony Jervis*

I hate to disagree with Mr Carr, (*IA News 189*, p17),though I suspect he may have based his first sentence on a blog about how Portsmouth Hard could have become a football stadium with attached railway station, local and cross-channel (well, cross-Spithead actually) ferries, taxis and buses. This quotes a building date for the interchange as '1960s/1970s'. However, I have a photograph which almost certainly shows that the bus station 'probably built in the 1950s' was not there in June 1978. At that time builders were in the process of filling in the triangular piece of inter-tidal land bounded by Portsmouth Harbour Railway station, its approach road and The Hard (road). My photograph is taken looking along the outside the rail station and the bus station building would have appeared on its left-hand side. I lived in Portsmouth at the time and cycled along The Hard daily to and from the Dockyard. I can remember the work being carried out but cameras and working in a Royal Dockyard are not good bedfellows and in any case I was a railway rather than bus enthusiast, so did not take many photos of the impending bus station. By the time work was complete, almost certainly not before 1980, I was living in Fratton and visited The Hard area much less often.

Tony Jervis,

The Recovery of 134-year-old 'Edison Street Tubes'

Part of the 1992 excavation – looking south-east along William Street from the corner of Stephens Lane. Note the shallow depth of the excavation below the road surface, and the right-angle joint 'boxes' for the 2-core and 3-core Tubes. Photo: Courtesy of Energex.

In February 2018, a recovery operation in William Street, Brisbane, of long abandoned underground electric mains called 'Edison Street Tubes' was completed, some 134 years after they were first laid in 1884.

Brian J Becconsall & Stuart Wallace Research engineers, Engineering Heritage Queensland.

The story starts in 1883 following a demonstration of new incandescent electric lighting in the Government Printing Office by the Edison Electric Company.

The colonial Queensland Government was so impressed by this invention by noted the American inventor Thomas Edison, that they immediately decided to place an order with his company for permanent electric light to the Government Printing Office in William Street and to Parliament House. This involved building a new Power Station behind the Printing Office, operating at 110v DC, and installing1350ft (410m) of underground two-core electric mains along William Street to Parliament House.

The new incandescent lighting was made up of 400 new 'cool' electric lights of 16 candle power (200 lumens) each, to replace the hot and odorous gas lighting. The dynamos, street tubes, lighting, wiring and fittings were all supplied by the Edison Electric Company of USA, using local agents Alfred Shaw and Company.

Progress was slow with the Edison Company. Their appointed American electrician, JW Snow, was responsible for route selection, installation and jointing – but he died in Sept 1884 and was replaced by J Matheson.

However, by March 1886, with still no completion in sight and unsatisfactory wiring work being condemned by the Edison Company's NSW agent, the Edison Company replaced him with a local Australian consulting engineer Edward Barton to complete the work. Some 40 months after the initial contract, the supply was commissioned by Barton in July 1886 and handed over to the Government Electrician, J Tomlinson. Shortly afterwards, a serious fault caused a fire in the Assembly with Tomlinson held responsible, and he was replaced by Barton as Government Electrician in November 1886.

The new Government Power Station comprised two 30 kW 110 volt DC Edison H dynamos driven by belts from two Robey & Company compound steam engines with locomotive type boilers supplied by Smellie & Co. These powered a total of 400 lights of 16 candle power each. The building was constructed by Andrew Petrie, and the overall project cost was estimated at £19,275, showing a very high value placed on replacing gas with electric lighting.

Difficulties in governing the loading on the Robey steam engines meant that all lights had to be switched on at dusk during Parliamentary sitting sessions and the station plant had to run at full load until sitting was complete. Operating the first central generating station was a steep learning curve for the colony, and Barton himself had to act as shift engineer at all operating times.

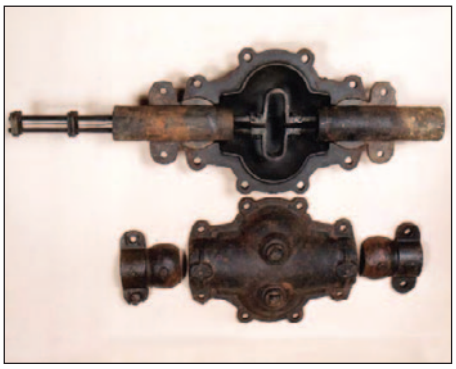
The Government Power Station was decommissioned once the Parliament load was transferred to other sources in 1906 and the Printery load likewise in 1909. The building survived for other uses but was subsequently

Cut-away examples of the 3-core (1892) and 2-core (1884) Edison Street Tubes recovered in 1992, showing the internal construction
Adapted from a Queensland Museum photograph.

completely removed in July 1986, while the underground Edison Street Tubes in William Street were abandoned and forgotten.

The new incandescent lights installed in 1886 were to replace each of the gaslight jets, which were only operated at night in winter sittings, but because of the unknown reliability of the new electric system, all the gas installations were retained. The early electrical installations had Edison light fittings attached to the wall gas fittings and the gas chandeliers, and new electroliers were fitted in halls and entrances.

After making improvements to the lighting in 1887 and 1888, Barton resigned as Government Electrician but retained a part time position as consultant and entered into a partnership with F White to form a new company, Barton and White,



2-core in-line joint 'box' laid 1884 and recovered from William Street in 1992. Photo: Qld Museum

to supply the General Post Office and the general public from their new Edison Lane Power Station.

The Edison Street Tubes were patented in 1881 for the two-core design by Thomas Edison, as the first commercial underground electric mains in the world, and were manufactured in New York by Edison Electric Tube Company. They were first used in January 1882 in London for the Holborn Viaduct installation, the world's first public electric lighting network designed by Edison to run from a central steam powered station and later, in September that year they were used in Manhattan New York, for the Pearl Street installation. Just two years later, in 1884, Brisbane was the first city in the southern hemisphere to install the Edison tubes and was one of a few cities, outside major world capitals, to have received its supply of Edison Tubes from surplus stock from the Holborn installation in London.

In 1892, the addition of the Alice Street wing to the Parliamentary Buildings gave Barton the opportunity to resolve an excessive voltage drop and improve the supply. He did this by laying a new three-core Edison tube alongside the existing two core Edison tube, using each of the 3 cores to supply a different part of the parliamentary buildings. The two cores of the original tubes were bonded together to form the return conductor. These reinforced mains provided supply for another 14 years and were taken out of service in 1906 when a larger capacity supply replaced them. This was a 220/110 volt DC three wire operation from the Barton and White Co. successor organization, the City Electric Light Co. in George Street, supplied from their more efficient [circa 1898] Ann Street Power Station.

The 2018 dig in William Street. Careful removal of full 20 feet lengths of Edison Street Tubes from the excavation photo: Brian Becconsall, February 2018.

The Edison Street Tubes were each 20 feet in length (6.1m) with conductor sizes of 2 x 0.206 sq. inch (2 x 133sq mm) for the two-core and 3 x 0.12 sq. inch (3 x 77 sq mm) for the three-core. They consist of solid copper rods insulated by millboard diaphragms tied by cords in the case of the two-core and twisted rope in the three-core and slid into the long wrought iron tubes of outer diameter 2 ¼ (57mm) for two-core and 2 3/8 (61mm) for three-core. After filling by vacuum pump with insulating compound made from a combination of refined Trinidad pitch, linseed oil, beeswax and paraffin wax, they were permanently sealed with rubber plugs at each end for transport, with 3 inches (75mm) of copper rod protruding to enable continuous connections.

Following installation in the trench, they were joined by cast iron bolted egg shaped 'boxes' filled with the same insulation and with flexible connectors to allow for expansion. The trenches were only 300mm deep under the roadway, with the two mains running parallel to each other and well away from any other underground services.

Later Discoveries from 1986 to 1992

Small sections of the tubes were re-discovered in 1986 and 1989 and the street mains were extensively re-discovered in 1992 by SEQEB, now trading as Energex, and by the Queensland Museum (QM). The research was conducted by QM staff researcher Don McKenzie and retired University of Queensland Emeritus Professor Syd Prentice, resulting in a paper that became the seminal work on the use of these tubes in Brisbane.

Electricity industry engineers Brian Becconsall from Queensland Electricity Commission (QEC), Jim Simmers from SEQEB, and technical officer Mick Purcell, also from SEQEB, supervised the 1992 excavation.

The 2018 Recovery

In 2016, Energex alerted Engineering Heritage Queensland of proposed new development which would remove over 50% of the remaining buried tubes. This provided an excellent opportunity to recover intact full 20 ft lengths of Tubes with joints just as they were manufactured by Edison in New York, and to demonstrate manufacturing methods at the birth of the electricity industry, some 134 years ago.

QM advised they had sufficient samples for their needs, and the now-retired engineers Brian Becconsall and Stuart Wallace, on behalf of EHQ, embarked on an extensive investigation worldwide to see which museums might want to obtain full length samples.

By the end of 2017, specific requests had been received from numerous museums in Australia as well as the Science Museum in London and the Smithsonian Institute in Washington.

In the 2018 recovery process, 150 metres of the two and three-core tubes were exposed, cut into full 6.1m sections with joint boxes at each end and strapped onto 7.7m purpose-built metal transport frames. They were then brush cleaned, sprayed with protective fish oil and transported to one of Energex's stores for onward shipment to the interested museums.

Legacy of the 2018 Recovery

After 134 years underground in shallow trenches, the tubes have remained remarkably intact, and the internal conductors and insulation are still in pristine condition for display. The prolific inventor and entrepreneur, Thomas Edison, was able to make use of readily available industrial products to provide the first commercial underground mains in the 1880s, and these underground electric mains were an instant success. Having the full 20 ft (6.1m) lengths available will show for future generations the ingenuity and care taken to make these in pioneering workshops at the start of the electricity network age in the 1880s.

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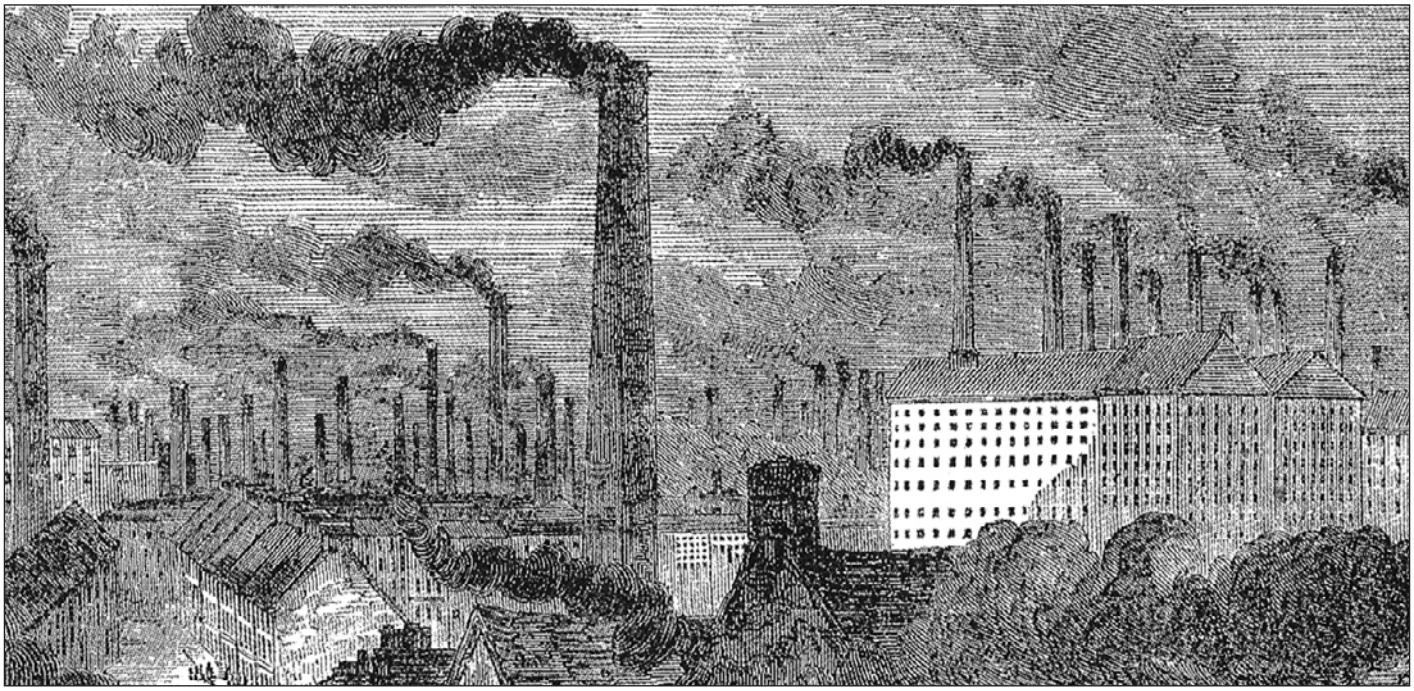
Recovered Edison Tube lengths with joint 'boxes' in special frames ready for transport photo: Brian Becconsall, March 2018.

On the origin of Industrial Chimneys – continued



Manchester – The Builder, 1 October 1853

Once tall Chimneys dominated our industrial towns and cities; you could hardly miss them. Why does there appear to be little written about them from the period 1820 to 1835? Surely a local newspaper would have something to say when a particularly tall chimney was built? An initial trawl through British newspapers does not reveal very much; almost the only mention of chimneys is when one collapses. Is it only disasters which are news? The building of tall chimneys was definitely not hot news and there is no mention of height, even when one collapses. Perhaps the journalists were innumerate or turning a blind eye. Chimneys seemed to be ignored in the way we often tend to ignore the motorcar; were chimneys 'the elephant in the room'?

Robert Carr

Chimneys received some mention later in the century. In 1889 a local journalist wrote about Oldham, "Our forest is mill chimneys, our lakes are mill lodges, our music is the sound of the loom and the spindle and rattle of machinery."

Chimneys are compression structures which are stable because of the weight of the building material. For a brick chimney the mortar only serves to keep the bricks apart, it contributes no tensile strength.

Looking at tall brick chimneys now, which are often freestanding and relatively isolated as the factory they once powered has been demolished, they are most remarkable monuments. Intuitively one wonders how such a slender tube of brickwork can remain vertical? Quite wondrous! How did they ever come about?

As has been mentioned in previous articles, the building of chimneys with a circular cross-section using stonework probably developed in Pennine areas and in the far west of England. Both these areas are rugged with wind and rain not infrequent. The question arises - where did the building of chimneys without the use of external scaffolding develop?

In areas subject to wind and rain it might have been more comfortable to build a chimney from the inside. Cornishmen were used to the dangers of deep-sea fishing and descending mineshafts. Building a tall chimney from the inside may not have seemed as daunting to them as it may have done to people from many inland areas. For someone used to a mine shaft the inside of a chimney would seem familiar.

At first sight a rather an unlikely connection - people who sank wells might also have been involved in building chimneys. The television celebrity steeplejack Fred Dibnah sank a mineshaft in his back garden as a demonstration.

Although thought foolhardy at the time, Cornish engineers pioneered the use of high-pressure steam, at first in mine pumping. When larger and larger steam-powered textile mills began to be built and more and more power was required, higher steam pressure was one way of achieving this. Some Cornish engineers probably migrated from the far West of England to areas like Cheshire and South Lancashire where large steam mills were being constructed.

Cornish steam engineers came to London at an early date, Arthur Woolf (1766 – 1837) came to London at the age of 19 and Richard Trevithick was in London in the early 1800s. Woolf worked at a brewery in the Tottenham Court Road where he developed his high-pressure compound beam engine.

Cornish steam engineers equipping larger and larger steam powered mills further north would also have required plenty of Cornish boilers. To provide sufficient draft for a large bank of boilers tall chimneys were needed and it would be natural for them to import Cornish chimney builders to construct them. Do we ascribe the rapid increase in the height of chimneys from about 1820 to the work of Cornishmen?

Cornish chimneys were already quite tall; an example with circular cross section said to be 140 feet high was built at the Pednandrea Mine in Redruth about 1820. This would have been one of the tallest chimneys in Britain at the time.

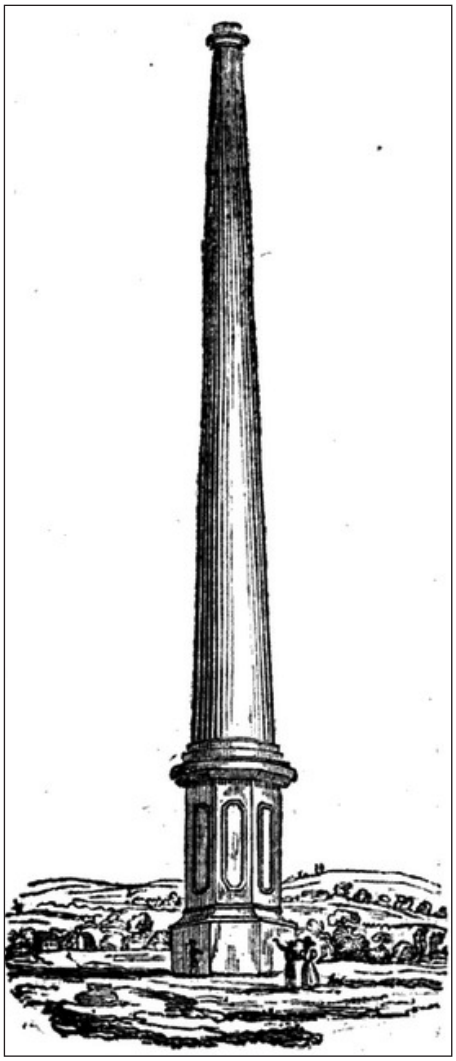
At the beginning of this article there was a general observation that in our period 1820 – 35, Newspapers, apart from the odd disaster, hardly ever mentioned chimneys. In the absence of hard facts we have been using plausibility arguments but now a most remarkable counter example has come to light.

In September 1828 an article appeared in *'one of the London papers'* describing how a chimney was built in London without the use of external scaffolding. It seems it was built up from the inside in a manner similar to that described by Sir George Head in his *Home Tour.* The newspaper, probably the London Evening Standard of 8 Sept 1828, claimed that this was something quite novel and the first example of this new method. However someone signing himself 'Scotsman' wrote in a reply that was widely syndicated in quite a number of provincial newspapers pointing out that building a chimney without external scaffolding was by no means new. Seven or eight years ago a Mr Inglis had built a chimney for the Edinburgh gasworks without the use of external scaffolding and *'Scotsman'* gave the impression that chimney building in this manner was at the time of writing relatively common.

This implies that building a chimney without external scaffolding had started by 1820. Were the London chimneys square in cross-section and

built with external scaffolding while the northern examples were circular and built up from the inside? Might this be the two schools of chimney building suggested in *IA News 189*?

However, it transpires that the above articles in the press can be related to two publications in *Mechanics Magazine.* On page 104 of number 266, 13 September 1828, an illustrated article described a chimney built for the East London



Charles Capper's chimney at Bow, Mechanics Magazine 13 September 1828 page 104

Waterworks at Old Ford, Bow (see below). This elegant brick chimney was 175 feet high, the lower part was octagonal the rest having a circular cross-section. The point of the article was that this chimney was built from the inside without the use of external scaffolding, something quite new in London. The construction was carried out by a Mr C H Capper of Birmingham who was also the designer. A formal topping out ceremony was held in the presence of eminent engineers and architects. There were probably newspapers reporters there too.

The riposte from *'Scotsman'* was a single paragraph on page 144 in the *Mechanics Magazine* of 27 September 1828. The content is similar to that given above.

From these two articles we can deduce that up to 1828 the building of a tall chimney from the inside was unknown in London. The first article in *Mechanics Magazine* makes no mention of the height of the chimney or its cross-section which implies that chimneys something like 150 to 200 feet high with a circular cross-section were not that uncommon in the capital.

Restrictive practices were quite usual in London and things may have lagged behind the rest of the country because London builders insisted that scaffolders be employed. In the Midlands and the North labour would have been less regulated. Since the chimney at Bow Waterworks was Mr Capper's London debut, it is quite probable that he had already built some chimneys in the Midlands using the same technique.

Quite why the chimney at Bow built by Mr Capper received such generous press coverage is something of a mystery. Excepting disasters, over a period of ten years it appears to be one of the very few examples of an industrial chimney being mentioned in a newspaper. On Saturday 13 September 1828 *The Scotsman* in Edinburgh carried an account of this chimney building, giving the height as 188 feet. Well before the age of railways and the electric telegraph news still travelled quickly. Our chimney had really caught the interest of the press.

A possible explanation for this phenomenon of exceptional newspaper interest is that the building of the chimney at Bow was conspicuous from the Mile End Road. People travelling into London might talk about it when they arrived there. It probably did become a topic of conversation because there were several newspaper reports even before the topping out ceremony took place. Mr Capper had requests from people who wanted to go to the top of his chimney. He made it absolutely clear that this was far too dangerous and that only workmen accustomed to the ascent could be allowed to the top.

Mr Capper of Birmingham was Charles Henry Capper. He became a member of the Institution of Civil Engineers in 1838. Capper took on apprentices and provided steam engines for pumping at the Kilsby Tunnel works. In 1844 he took out a patent for palisades. Here we have an example of a civil engineer who designed chimneys and built them.

In 1836 a 232 feet chimney, the highest in Scotland, was built at Springfield in Glasgow, - see page 84 of the *Architectural Magazine*, volume 4, 1837. In Carlisle in 1836, Mr Richard Wright completed a 305 foot chimney for Dixons Mill. This great chimney was built from the inside and the work took 13 months during which time there were no accidents. There is a good account in the *Carlisle Journal* of 29 October 1836. When it was finished, small groups of visitors were taken to the top to admire the tremendous view.

As was to be expected when chimneys became higher and higher, the odd one here and there fell down. At Rotherhithe in London a relatively modest chimney, 72 feet high, collapsed on 29 January 1836 just two days after it was finished. This was a 'funnel chimney' - the failure was almost certainly due to poor ground and insufficient foundations, the site being close to the River Thames. This was borne out by the evidence of a witness - the chimney fell quite intact until it struck a building and its concrete foundation raft ended up almost vertical, see page 132 volume 3 of the *Architectural Magazine*. A 'funnel chimney' is one in which the internal diameter tapers towards the top. They were common in crowded manufacturing towns.

The builder of the Rotherhithe chimney, Mr Brigg, was an established builder of chimneys with a good reputation. Here we have another named constructor, so we can add Mr Brigg to Mr Inglis, Charles Henry Capper and Richard Wright. John Inglis, who did building work in the Scottish capital, seems to have been just a builder and not involved in design. This probably also applies to Richard Wright; the architect of Dixon's Mill was Richard Tattersall from Manchester and it is more likely from there that design originated.

Among the highest chimneys in the country were those at the chemical works of James Muspratt (1793 – 1886). The purpose of these chimneys was to disperse hydrochloric acid fumes and, despite their great height, there was still a chorus of complaints. He built higher and higher, one of his chimneys being nearly 398 feet high; see the *Civil Engineer and Architects Journal* volume 1 page 420, 1837-8. The location is not specified, and this was not the highest. But first we go back in time - to Liverpool.

Muspratt had a chemical works in Vauxhall Road, Everton. Because of complaints, in 1828 he built a chimney there 228 feet high. This was said to be the highest in England at the time. Nonetheless he was forced to move further and further away, establishing works at St Helens in 1828, Newton-le-Willows and then Widnes. Muspratt had a chimney at Warrington which was 406 feet high. When the works there became redundant the chimney was demolished about 1876 using gunpowder, see *Bancroft & Bancroft* 1885, page 131. However, their date c.1876, 'about 9 years before 1885', is probably incorrect. It disagrees with the date 1853 given in a very similar article in *Scientific American*, 5 February 1853 page 168, and other references give the same year.

According to a local history website Muspratt had a chimney at Newton-le-Willows which was 400 feet high. Built 1832 – 1834 this chimney was not demolished until 1925. If the building date is correct, we have a really tall chimney in the north-west which survived the great storm of October 1859, which was especially severe in that part of the country. The above is rather surprising; the ground here is marshy. If the facts are correct, particular care must have been taken in building the foundations and it would be interesting to know who designed and constructed such chimneys. This Newton-le-Willows stack was probably for a vitriol works. It is not always clear which chimney is being referred to and there may have been more than one of these very tall stacks at Newton. However, it is reasonable to suppose that for a given chemical works the object was to have a single great chimney to ventilate the whole site.

Muspratt's chimneys were numerous and it is not easy to sort out which was which, for us the significance of the Muspratt stacks is that by c1835 chimneys roughly 400 feet high existed or were being built. Reports of the actual height of these chimneys do not always agree but we can say that nearly 400 feet is a reasonable figure. It was not all plain sailing, some of Muspratt's chimneys collapsed. The 228 ft chimney built in Vauxhall Road, Everton in 1828, fell down in 1846. At Newton-le-Willows near Warrington, in 1837 one of the very tall chimneys collapsed while being built. This stack was intended to be 390 feet high; the failure was very likely due to insufficient foundations. There was damage to property but mercifully no one was killed.

There is a clear need for a good local historian to investigate this chimney building; the sources so far consulted are not really sufficient. Perhaps this work has already been done?

The lifetime of the stacks built to disperse hydrochloric acid fumes may have been quite short. Did the mortar and perhaps the bricks suffer from the noxious vapours? The 228 ft chimney at Everton had a lifetime of just 18 years. The chimney demolished by gunpowder in 1853 was only in use for about 15 years.

It should be made clear that Muspratt was not the only builder of really tall chimneys. There were many other chemical works with chimneys of a roughly comparable height.

Sir George Head's book *A home tour through the manufacturing districts of England in the summer of 1835* was so well received that there was more than one printing and there are detailed differences between editions. Head's remark, *'one of those stately circular chimneys which are becoming everyday more general in the country'*, may be influenced by the large number of lofty examples being built near the Mersey - we should not assume that very tall chimneys were being built everywhere the UK. As we are well before the Great Storm of October 1859 almost all the chimneys discussed in here will be of the slender Georgian – early Victorian style.

It is highly probable that Muspratt's chimneys and others constructed around the late 1830s were built from the inside, as described by Sir George Head. We still do not know how this method originated. The early mediaeval Irish Round Towers were built from the inside so there might just be an Irish connection. These round towers built of stone look remarkably like chimneys, especially the earlier Cornish examples.

One of the surviving Irish towers is 130 feet high, probably built between the ninth and twelfth centuries. It is thought that about 120 of these towers were built. Most surviving examples are now in ruins but 18 - 20 are still almost perfect.

Brunel's Other Bridge

West end view of Brunel's other Bridge with Plimsoll Bridge above

Brunel designed his first Swivel Bridge to allow road traffic to cross his new lock at the entrance to the Bristol Floating Harbour in 1849. It was an innovative design with tubular side-girders containing tensioned tie-rods to increase stiffness and was so successful that when the new North Entrance Lock was built in the 1870s the old bridge was relocated over it. Originally the Bridge was rotated using hand operated windlasses, but in 1902 Sir W G Armstrong Whitworth & Co. Ltd. supplied hydraulic ram jiggers to operate the Bridge, powered by water at 750 psi from nearby Underfall Yard.

The Swivel Bridge, now dubbed *Brunel's Other Bridge* and affectionally known as BOB continued to work for over a century until the mid 1960s when it was superseded by the present Plimsoll Bridge, built above it. BOB is now derelict, the only Brunelian feature in Bristol to have been abandoned, even though it is Grade 2* Listed and on Historic England's 'Buildings at Risk' Register. For five years a valiant group of volunteers from the Avon Industrial Buildings Trust has been conserving BOB and hopes to have it moving again by the end of the year. More about the project can be found on brunel's other bridge website.

This year is The Swivel Bridge's 170th anniversary, so celebrations are planned. The Institution of Structural Engineers is holding a conference entitled *'Brunel's Bristol Swivel Bridge, its place in his office and world'* on Friday 6 September in the Create Centre near the Swivel Bridge in Bristol. For more information and booking see the Events page on the Institution's website. The conference will reveal new research about how a man as busy as Brunel got his projects built, how he used photography, and the remarkable story of how an early copy of the Swivel Bridge has turned up in St. Petersburg !

A 170th BOB Birthday Celebration is taking place next to the Bridge on Saturday and Sunday 7-8 September. The unusual event will include 'Have-a-Go' metalworking stalls including blacksmithing, riveting and stamping, demonstrations, exhibitions, tours of the Swivel Bridge, interactive models and refreshments. Entry is free, but there will be a charge for activities. Volunteer help is needed, so offers please to Geoff Wallis on jandgwallis@gmail.com

Geoff Wallis, Joint Project Manager

Waverley withdrawn from service

It was announced on Friday 10 May that Paddle Steamer Waverley has, regrettably, been withdrawn from service and will not operate any of her sailing programme for the first time in 45 years. Work on the ship's boilers had been ongoing since February and following extensive consultation and investigation it has been concluded that the boilers must be replaced if Waverley is to have a future and sail in 2020.

An appeal has been launched to raise the 2.5million that will be required to replace the boilers.

General Report of the Trustees for the year ending 31 December 2018

The full report was presented to the AIA Council at their meeting in June and approved. It will be circulated to all members before the AGM in August. Some sections of the report are omitted here but will be included in later editions of the *IA News*

Elected Officers during 2018

Chairman: Michael Nevell
Honorary Secretary: David de Haan
Honorary Treasurer: John Jones.

Council of Management, 2018

Tony Crosby, David de Haan, Kate Dickson (until 2 September), Keith Falconer (from 2 September), Bruce Hedge, John Jones, Shane Kelleher, Ian Miller, Michael Nevell, Marilyn Palmer, Amber Patrick, David Perrett (from 2 September), Tegwen Roberts (until 2nd September), Mark Watson and Ian West (from 2 September).

Objects and activities

The objects for which the Association is established are to encourage and promote for the public benefit the study of, and research in, the archaeology of industry and the industrial period, and to promote education in the identification, recognition and conservation of the industrial heritage. To achieve this the Association funds Restoration Grants; awards cash prizes for research and publications; sponsors new research; lobbies bodies concerned with legislation, planning and funding; unites individuals, local societies, academics and field professionals; represents industrial archaeology nationally and internationally; runs conferences and practical workshops; publishes a biannual academic journal and quarterly newsletters.

Council Meetings

In 2018 the AIA Council met three times: Leicester in February, London in June and Salford in October. Extracts of the meetings were posted on the AIA website and reported in *IA News.*

A working group was set up to review the Associations' Forward Plan for 2018-2023, which continued to meet during the year, particularly identifying the need for better publicity for which a Communications team was established. The mission statement was refined to being to "develop and deploy our knowledge and expertise in the most accessible ways possible to promote the value of industrial archaeology and heritage, and help others to do so."

A full report of the working group's activity will be in *IA News 191*.

The position of Affiliated Societies Officer was vacant, some of the work being covered by the Liaison Officer but with the main support coming from Bill Barksfield who began to circulate information to the Societies through email updates. A legacy of £15,000 left by Patrick Nott in 2017 was allocated to subsidizing the attendance of students to the annual conference and its associated seminar. A Research Grant was established with a sum of £4,500 being available over three years, details of which are available on the web site.

Representation

Council members also represent the AIA and industrial archaeology matters in other groups and committees regionally and nationally to promote the Objects of the Association.

Lobbying, Advocacy and Communication

During the year Amber Patrick, the Planning Casework Officer, looked at 130 industrial archaeology cases and commented on 22 of them, some being referrals either from local authorities or direct from AIA members. With regard to key cases there were none on which she submitted an objection on the Associations' behalf.

Details of many of these have been published in *IA News*

The All Party Parliamentary Group (APPG) on the Industrial Heritage

Based on two Evidence Sessions which had been held in October 2017, the winter months were spent drafting a report based on the transcribed oral submissions from the sessions and the written submissions which were also made. This **Report on the Challenges Facing the Industrial Heritage Sector** was published and launched on 1st May 2018 in London. It was well attended by representatives of various sector organisations including the AIA, Historic England, Historic Environment Scotland, and the Heritage Lottery Fund. It is available to all on-line at the AIA website:

The report's key findings are that industrial heritage is vital in the formation of local and national identities, and is highly valuable in the UK's contemporary society as a source of economic potential. By providing an examination of the value of industrial heritage to the UK and the major social, economic and cultural issues impacting this sector, the APPG has compiled a series of conclusions and recommendations on how to face the challenges of the future. Whilst the report identified fiscal challenges – the industrial heritage sector is no different from many others in the UK – the report found examples of innovative ways to raise capital and generate revenue, including community ownership, and designing projects with commercial income opportunities.

The APPG IH held its AGM on Tuesday 11 September 2018 and was re-constituted for another year. One of the recommendations of the APPG IH Report was 'To establish a National Strategy for conserving the UK's industrial heritage …', so that report has helped shape their thinking. Shane Gould (AIA member) has been appointed on a two-year secondment to deliver Historic England's Industrial Heritage Strategy and Implementation Plan. At the meeting Shane identified a number of threats to the industrial heritage, including functional redundancy (abandonment and vandalism), being in areas of low property values, problems of reuse and adaptability, especially when historic machinery survives, understanding of the importance of the heritage at all levels including local authority planners and private sector developers.

AIA Practical Weekend and Seminar

Two events were run as the Association's contribution to the European Year of Cultural Heritage 2018 programme, as was the annual conference in Nottingham. The AIA Council decided to give Ironbridge a rest for the Practical Day and instead Marilyn Palmer organised a whole weekend on 7th and 8th April based in Matlock Bath devoted to the study of the Mining Landscapes of Derbyshire. We were very fortunate to secure the services of John Barnatt, then just retired from his role as Senior Archaeologist with the Peak District National Park. The weekend included visits to the Peak District Mining Museum in Matlock Bath and its adjacent Temple Mine, the remains of Magpie Mine run by the Peak District Mines Historical Society, and Mandale Mine in Lathkilldale, as well as the Great Masson Cavern.

Organised by our Chairman, Mike Nevell, there was also a one-day Seminar in Salford on 12 October on the Creative Re-use of Industrial Buildings. This was the month of 'Adaptive Re-use' in the year of European Year of Cultural Heritage 2018. As part of this the seminar explored the experiences of a number of organisations and discover how they had managed the task and the lessons they could pass on to others. 25 people attended and heard talks by Alistair Gill on the conversation of Clementhorpe Maltings; Martin Hulse of the Tyne & Wear Building Preservation Trust who described the success in refurbishing St Hilda's Pithead; Elizabeth Perkins of the Birmingham Conservation Trust who talked about the problems of operating the Coffin Works Museum in Birmingham; Charles Smith of Historic England's North West Planning Officer who described the emerging HE Industrial Heritage Strategy; and Nadia Ferrer from Barcelona who described the transformation of Can Batlló textile factory in Barcelona, Spain into a community asset. John Jones of the AIA finished the day with a review of small scale, but valuable, examples of industrial building conversions and reuse in East Anglia.

Annual Conference

The Council withdrew its involvement in what was to be our annual conference at Caithness from 22 to 27 June, though it still went ahead, albeit with a different sponsor. However, the Association did provide £1,000 sponsorship and funded a keynote lecture given by Geoffrey Stell. The conference was organised by Mark Watson. Instead, what was previously to be just a

weekend event in the autumn was developed into a full annual conference by Marilyn Palmer and David Ingham. It was held at Nottingham University from 30 August to 5 September. A full illustrated report appeared in the winter edition of *IA News.* Full credit must go to Marilyn Palmer and David Ingham and for the excellent support from John McGuinness and Steve Miles. Our thanks also go to the many host organisations for their involvement with the study visits.

Publications

IA News: This quarterly is the bulletin and main communication organ of the AIA. Four issues under the editorship of Chris Barney were published in 2018, encouraging high standards in all aspects of the study of industrial archaeology. Illustrated reports covered all the Association's activities as well as short technical articles, reports on the work of the AIA Council, affiliated societies, regional news, international news, visits, conferences, letters, etc. We were saddened to lose several long-standing members during the year, remembered through obituaries in *IA News* on David Crossley, John Selby, Henry Gunston, Mark Sissons, John Powell and Alan Crocker.

IA Review: Peer reviewed and with an international Editorial Board, the journal of the AIA is now in its 40th year and was edited by Dr Ian West and Ian Miller with Rebecca Haslam as Assistant Editor. Volume 40.1 contained papers on Hydraulic Energy in Spain; Portable Steam Engines and Traction Engines in Portugal; Cottages and the Country House, Elsecar; Milk Marketing Board Creameries in Wales; and Traditional Soap Workshops in South-Eastern Turkey. Volume 40.2 was a themed issue on the archaeology of transport infrastructure and the first to be compiled by Ian Miller, but it also marked the 40th anniversary of the *Industrial Archaeology Review* with a special retrospective article by Marilyn Palmer. Papers included the Rolt Lecture 2017 – Conserving the Waterways Heritage; Tracks across the Irwell, Liverpool & Manchester Railway; York South Motive Power Depot; The Railway Workshops of Jundiaí, Brazil; Railway Architecture of the Great Northern Railway (Ireland) at Dundalk; and the Streetcar Suburb of Rochester, New York.

Awards

To encourage scholarship and investigation in the industrial archaeology field, awards were made to archaeologists, historians, professionals and students:

Recipients of the awards were listed in *IA News 187.*

Restoration Grants

In 2018 the Association received further very generous donations from our two anonymous donors to support our Restoration Grants. Geoff Wallis joined the judging panel in place of the late Mark Sissons. New restoration projects and progress on the on-going ones were reported in greater detail to the annual conference in September. Applicants are encouraged to submit a draft proposal to the Hon Secretary upon which comments can be made and acted on before the final application is circulated to the grant panel. As usual the fund was heavily over-subscribed in 2018. This year there were 27 applications requesting total grants of £406,062. Eight awards were made totalling £127,100:

Restoration of three small buildings at Coldharbour Working Wool Museum, Uffculme, Devon – a gas retort house, an 'economiser' house for the gasworks and a barn. £20,000.

Restoration of a Bradford horse tram cabman's shelter of 1877, National Tramway Museum, Crich, Derbyshire. £20,000.

Restoration of a Clark Chapman steam winch c1910 for use in the saw mill of Holycombe Working Steam Museum, Liphook, Hampshire. £19,600.

Repairs to the roof and walls of the pump house that supplied the house with water and to conserve the remains of the waterwheel, Croft Castle, Herefordshire, National Trust. £18,000.

Restoration of a brine pump, gantry and shaft of c1890 at Murgatroyd's Salt & Chemical Works, Middlewich Heritage Trust, Cheshire. £17,000.

Restoration of the 1874 iron-framed retort house roof of the gasworks for Sudbury Hall, Sudbury Gasworks Restoration Trust, Derbyshire. £15,500.

Restoration of a 1947 Leyland bus to its original condition and livery, South Yorkshire Transport Museum, Rotherham. £10,000.

Restoration of a 1951 Morrison's electric coal lorry, Ipswich Transport Museum, Suffolk. £7,000.

Industrial Heritage Support Officer

Shane Kelleher left the post in January and was replaced by Joanna Turska, based at the Ironbridge Gorge Museum. Key outputs in 2018 have included:

Provision of advice, information and support to 191 organisations.

Training, delivery and attendance by the Officer at 17 events.

The launch of the Industrial Heritage Networks in West Midlands, North East, South West and Cornwall & Devon.

Visits

Spring Tour – Saxony, 14 – 20 May 2018

Heritage of Industry organised this fully booked 7-day tour, partly based on an itinerary supplied by Professor Helmuth Albrecht from the Technische Universität Bergakademie Freiberg. Professor Albrecht and his assistant Franz Dietzmann were also able to spare some time to guide and interpret at some of the sites and Prof. Albrecht also presented a lecture on his attempts to register the Mining Cultural Landscape of the Erzgebirge with UNESCO as a World Heritage Site.

Country House Comfort & Convenience

Heritage of Industry organised a tour led by Professor Marilyn Palmer to country houses in East Yorkshire which included Nostell Priory, Brodsworth Hall, Harewood House, Burton Constable and Burton Agnes.

Financial statements

At the AGM delegates were alerted to a forthcoming increase in membership rates of £3 in all categories, the first time there has been a rise in six years.

The net surplus for the year amounted to £103,987, with £95,560 attributable to restricted funds, £nil to designated funds and a surplus of £8,427 attributable to unrestricted funds (2017: net surplus of £16,028, with £7,211 attributable to restricted funds, £15,000 to designated funds and a deficit of £6,183 attributable to unrestricted funds).

Reserves Policy

The policy remains unchanged from 2017 whereby Council maintains a contingency for a late cancellation of the annual conference, for a cancellation of an issue of *Industrial Archaeology Review,* and for a sufficient reserve to cover cash flow fluctuations during the year. The Council considers that a reserve of not less that £60,000 is required. There was one abstention.

Changes on Council

Kate Dickson, Robert Murphy and Tegwen Roberts resigned from Council at the AGM and their places were filled by Keith Falconer, David Perrett and Ian West. The Honorary Secretary continued to act as the Liaison Officer, who throughout the year supported Council, dealt with queries and forward information to the appropriate quarter and managed the applications for Restoration Grants. We are very grateful to all officers and members of Council for the extensive amount of time and effort that they commit voluntarily to ensure the smooth running of the Association through Council and its committees.

David de Haan
Hon Secretary

A very warm welcome to our new members:

Laura de Boer of Newport, Nova Scotia
Halls Pamela of Cambridge
Chris Jones of Elsecar
Mark Lees of London
Peter Mobbs of Bucks Horn Oak Hants
David Penlington, of Kendal
Paul Hyde of Chester
Rowan May of Sheffield
Mike Moore of Newport, Shropshire
Stuart and Linda Shuttleworth of Chester
Lanny Waguespack of Highlands Ranch, Colorado
and Ancient Monuments Society, London.

Austin Village

Birmingham City council is removing conservation status from Austin Village, a development which was constructed in just eleven months to provide housing for the workers in the nearby Longbridge plant at a time when the workforce expanded by almost ten times between 1914 and 1918.

John McGuiness has supplied the following note:-

> The Austin Village, built in 1917, is predominately built of prefabricated bungalows, imported from Michigan in the USA. Originally, the village only had planning permission as temporary houses but forty years later the village was considered permanent and in 1999 achieved conservation status.

On a recent visit it was clear that most of the dwellings are being well looked after although in many houses the free standing brick flue has gone and been replaced with a modern gas flue.

When built they provided an exceptionally high standard of workers' houses, with full central heating and gas lighting, as such they are unique in England as worker's houses. For these reasons if for no other the conservation status should be retained.

Threats to historic vessels

Operators of historic vessels could be sunk by requirements costing up to £250,000 per boat. Under new safety proposals, passengers will be barred on such historic boats unless their owners make costly changes to the design.

While boat owners agree that safety is paramount, they say the scale of bringing old boats into line with new, under Maritime and Coastguard Agency (MCA) proposals, could close their businesses and lead to skilled jobs – as well as popular passenger boat services – disappearing.

Most contentious are rules to ensure a vessel's 'survivability'. New boats have compartments to keep them afloat after a collision. More than 600 vessels around Britain could be affected by the proposals.

All operators have absorbed the costs of additional lifeboats and other safety equipment mandated since 1990. But the MCA says that despite major improvements since the *Marchioness* tragedy, "The reality is that safety gaps in some areas mean the consequences of such an incident have not appreciably changed.

Nuclear power plants

In October 2017, a conference organised by the Technical University Berlin, the German national committee of ICOMOS, the German section of TICCIH, and Deutsches Technikmuseum, Berlin discussed the issues around the dismantling and possible preservation of entire nuclear power plants.

In 2011 the German Federal Government announced it was to abandon nuclear energy and that by 2022 the remaining seven operational stations would be closed. For the first time in Germany speakers were drawn from across Europe to share experiences from Austria, France, Germany, Sweden, and the United Kingdom. It was recognised that the preservation of a nuclear power plant would be a complex undertaking. Technically any remaining radiological contamination would need to be managed, but it's also a divisive social and political challenge and potentially an enormously expensive undertaking. One option may be to consider the preservation of unfinished reactor complexes such as those at Zwentendorf, Austria or the uncompleted Russian inspired unit at Greifswald-Lubmin, Mecklenburg-Vorpommern, Germany. At present the only post-war protected civil nuclear facility in Germany is the 1950s aluminium clad dome of the Garching research reactor, Munich.

The report, *Nuclear Power Stations Heritage Values and Preservation Perspectives* ICOMOS Germany Journal 68, Brandt, S and Thorsten, D (eds) 2019 is in English and German and may be downloaded from the ICOMOS website.

Wayne Cocroft, Historic England

British Archaeological Awards

The AGM of the BAA took place at Cannon Bridge House on 26 March 2019. This was the final meeting, at which the Awards were wound up, as the possibility of obtaining further funding is now considered too remote. The small sum of money remaining was transferred to the Council for British Archaeology.

Dr Mike Heyworth has agreed to establish a new set of British Archaeological Awards and has hopes of obtaining commercial funding. I have agreed to represent the AIA at these new Awards.

Current Archaeology Awards

This year the awards were presented at Senate House in London on Friday 8 March as part of Current Archaeology Live! These awards are now of very little interest as regards industrial archaeology. Richard Osgood received the Award for Archaeologist of the Year.

Robert Carr

Goole Museum closed

A much-loved museum and charity for vulnerable people in East Yorkshire has closed, owing to the current economic climate and a 'reduction in the available public funding' for charities.

Founded in 1980, the Yorkshire Waterways Museum and the Sobriety Project is an independent charity that uses the environment of the Yorkshire waterways as a 'resource for learning and education'. Located in Goole's docklands by the River Ouse, the venue holds a wide collection of historic artefacts and archives related to waterways and boating, as well as local artwork.

The museum is one arm of the Sobriety Project, which helps people in rehabilitation from drug or alcohol dependency, as well as other vulnerable adults and children. The organisation also runs boat trips, engineering and woodwork shops as well as a range of community events.

The charity called in the insolvency firm Revive Business Recovery and closed on 15 May.

In a statement, Revive Business Recovery said, "Funding in the charities sector has shrunk and unfortunately this has had a negative impact on the museum". Acknowledging that news of the closure would be "upsetting for many", the firm said the organisation was no longer able to cover its costs and had been facing a continuing funding shortage. It said, "Various cost-cutting exercises (and fund-building exercises) were explored by the trustees and staff, however a critical point had now been reached… The trustees have taken steps to close as they do not want the position to get any worse.

The Museums Association's policy officer, Alistair Brown, said, "It's really sad to hear the news that Yorkshire Waterways Museum is closing. It has played an important role as a guardian of local industrial heritage as well as being a champion for volunteers and vulnerable people in the community in Goole. Given that the organisation is now in the hands of the receivers, we are obviously very concerned about the future of the collection, which includes a beautiful restored Humber Keel and Tom Puddings - and archives that are historically significant.

Good news for Queen Street Mill

Queen Street Mill during AIA visit 2007

In April Lancashire County Council announced that it had formed a partnership with the National Trust to examine the future of Queen Street Mill and Helmshore Mills Textile Museums. This came after the two sites were reopened to the public by the County Council in 2018 after being mothballed in September 2016 owing to budget cuts. The Council said that, "The project will explore and develop ways in which the mills can generate income and minimise costs while also conserving the buildings and collections to benefit the public. The work has been supported with a £99,000 grant from the Heritage Lottery Fund and has also received funding from Arts Council England. At this stage, the project, which will involve a number of other organisations including the Higher Mill Museum Trust, the National Lottery Heritage Lottery Fund, Historic England and Arts Council England, will not implement any proposals."'

The AIA welcomes this initiative and Mike Nevell, the AIA Chairman, described the move as a vindication of our lobbying with other groups in the industrial heritage and archaeology sector against the closure.

Flax Mill artefacts

I am looking for flax-mill-y artefacts for new interpretation at Ditherington. The Friends has a lot of maltings-related artefacts - most of which are original to the site - so no problem there; but almost nothing to do with flax processing and the like.

I have museums/heritage sites in Leeds (obviously) and N.Ireland (obviously) on my list to approach, and the Flax Museum in Kortrijk/Courtrai. I know of others, but their focus seems to be slightly to one side of our ideal: this search is primarily for artefacts that fit with mechanised flax mill processing/production, rather than domestic processes. Up to 1886 would do. Any ideas?

We don't actually need many artefacts. (The exhibition area isn't going to be marketed as a museum; the buildings themselves are seen as the core collection; and there are all those maltings bits and pieces to display). And they don't have to be large - but the scheme really does need something like three/four/five good pieces (acquisitions or loans) to lift it.

Joanna Layton

New coal mine

Amid a great deal of controversy the plan for a new deep coal mine at Whitehaven has moved a step closer.

Councillors unanimously backed the plans of The West Cumbria Mining Company who want to open a mine next to the site of the former colliery in Whitehaven that shut in 1986.

West Cumbria Mining wants to extract coking coal from the seabed off St Bees, with a processing plant on the former Marchon site at Kells.

The Woodhouse Colliery could create 500 jobs, but objectors have said mining will contribute to climate change.

The mining firm believes there could be up to 750m tonnes and expect that the demand for steel, for which coking coal is needed, would grow 'significantly' over the next 50 years.

Museum award

Being Brunel, the new museum at Bristol has been named 'Permanent Exhibition of the Year' at the 17th Museums + Heritage Awards for Excellence Ceremony.

The 2019 awards ceremony celebrated innovative and ground-breaking initiatives from museums, galleries and heritage visitor attractions across the UK and overseas.

Anna Preedy, Director of the annual Museums + Heritage Awards commented, "These awards recognise the amazing achievements, creativity, innovation, hard work and utter commitment evident throughout the museums and heritage sector. The awards have become the benchmark for excellence and winners represent the very best of the best."

The new museum, tells the story of Brunel, through never-before-seen personal possessions, as well as interactive exhibits and audio-visual experiences.

Fison's warehouse destroyed

The Grade II listed North Warehouse at the former Fison's fertiliser works in Bramford, Suffolk, was completely destroyed by fire on 5 May.

The earliest part of the building dated from around 1850 and was one of the earliest, if not the earliest, purpose-built superphosphate fertiliser factory. In 2017 the Victorian Society had included the site in its list of the 10 most endangered buildings in Britain and there had been much local concern about the insecure boundaries of the site. In recent months there had been a series of smaller fires in other parts of the complex but still nothing was done by the owners to improve security.

John Jones

Europa Nostra Awards

The winners of the **European Heritage Awards / Europa Nostra Awards 2019**, Europe's most prestigious honour in the field, funded by the Creative Europe programme, were announced, in May, by the European Commission and Europa Nostra, the leading European heritage network. The 25 laureates from 16 countries have been recognised for their impressive accomplishments in conservation, research, dedicated service, as well as education, training and awareness-raising. The winners will be honoured at the high-profile European Heritage Awards Ceremony on 29 October in Paris, during the European Heritage Congress.

The 2019 Award Winners in the Category of Dedicated Service include **The Flemish Association for Industrial Archaeology**, the Vlaamse Vereniging voor Industriële Archeology (VVIA).

The award recognised the remarkable commitment of volunteers since 1978 in the industrial heritage in Flanders. The VVIA is the oldest nationally active association for industrial archaeology on the European continent and during its existence always has been operating independently, without government subsidies. It is seen as an example of the power of volunteers - thus promoting the role of volunteering in the heritage field.

In the Category of Education, Training and Awareness-Raising there were two winners with Industrial Archaeology associations - **The History Radar 1938,** Vienna and the **Betina Museum of Wooden Shipbuilding** in Croatia.

The only UK winner was **Yr Ysgwrn, Trawsfynydd**, Wales in the Conservation Category for the rehabilitation of the home of Hedd Wyn, a Welsh war poet killed in World War I.

For 2020 Up to 30 heritage achievements from all over Europe will be awarded. Of those, 4 laureates will receive a **Grand Prix** and €10,000 each; one will be granted the Public Choice Award, chosen through an online poll conducted by Europa Nostra.

The deadline for applications is 1 October and full details are available on the Europa Nostra website.

National Lottery Fund New post

National Lottery Heritage Fund - Head of Built Heritage & Regeneration Policy

As part of the reorganisation of the administration of the National Lottery Heritage fund, the NLHF is recruiting a full time Head of Built Heritage & Regeneration Policy which specifically mentions industrial archaeology.

A new look at the Zaan

Margerine factory

Noted for its windmills which produced flour, followed by wind-powered sawmills, oil mills, paper mills and others, the area along the river Zaan to the north-east of Amsterdam has become a major tourist attraction but its significance for the industrial archaeologist lies in its development of industry over four and a half centuries from wind power through steam to modern industry, providing a striking landscape rich in industrial heritage. The Zaan economy was and still is based on three fundamentals: the landscape, the merchant mentality, and ingenuity.

The evolution of Zaan industry can be divided into three distinct periods: the first from 1500 to 1800 dominated by wind power, the second in the nineteenth century with the arrival of steam power and third, the twentieth into the twenty-first century, with globalisation and consumerism becoming the dominant factors.

A striking feature of Zaan industry is the especially long period over which it developed, modern companies growing out of older technology in the same location. The company AAK (Aarhus Karlshamn AB), dealing in vegetable oils and fats, has its origins in the oil mills of the seventeenth century. Other examples can be found in the paper business, the timber trade and the cocoa-based industry. There are few regions in the world with companies whose pedigree goes so far back in time.

An important factor in the evolution of the Zaan area was its stable community, based on the agricultural economy following the drainage of its wet lands and its cautious approach to innovation, which was welcomed but undertaken in small steps. It also developed a strong merchant community financing its development from its own capital. It was open to outsiders who could make their fortune there. The Government, too, was from the early days generally in favour of business, becoming more favourably involved over time both in terms of encouragement and regulation.

Where in other industrial regions development came later and was sometimes based on a single industry, the Zaan developed on the back of a wide range of well-established enterprises and avoided some of the worst effects of de-industrialisation through its closeness to Amsterdam, an established international trading centre. The Zaan also had the advantage of being part of the main waterway system in the Netherlands, linking up in due course with the European system of waterways.

These insights can be gleaned from an important new book by Dr. Jur Kingma, *Vernuftelingen en Kooplieden in een bijzonder Landschap.* Dr Kingma, a native of the Zaan area, will be well known in AIA circles for his major contribution to the success of its visits to Dutch sites and industries of industrial archaeological significance. The Dutch text could be a barrier for most people but with copious, striking photographs handsomely reproduced, the book presents a fascinating glimpse into one of the oldest industrial areas in the world. It is to be hoped that there will be an English translation in due course to bring it to the attention of a wider readership.

Paul Saulter

European Route of Industrial Heritage (ERIH) Annual Conference,

Deutsches Technikmuseum, Berlin 17 & 18 October 2019 Industrial heritage tourism – It s all in the mix

The aim of this conference is to explore ways that industrial heritage sites can be promoted more fully within wider tourism offers.

The growth in international tourism during the 21st century has been phenomenal. According to the United Nations World Tourism Organisation (UNWTO), international travel increased by 6% in the first six months of 2018.This growth is expected to continue not only from within Europe but from developing countries especially China. However, from surveys like the ERIH Industrial Heritage Barometer, we know that most tourism at industrial heritage sites is local or regional, sometimes national but not so much international. Still, the overall growth in tourism has been mirrored by the growth of industrial heritage and ERIH is now recognised by the EC as the primary organisation for promoting European industrial heritage in Europe and beyond. Millions of visitors are attracted annually to Europe's internationally significant industrial heritage sites.

While this is a success story, there is increasing awareness that industrial heritage on its own might not be enough for long-term attraction of visitors and for the stimulation of repeated visits. Linking the promotion of industrial heritage more fully with other sectors of tourism is therefore desirable. Greater integration of ERIH sites with other sectors of tourism could address new target groups and thus substantially increase visitor numbers and ensure that the full economic and social benefits of tourism can be realised in former industrial communities throughout Europe.

The aim of this year's annual conference is to explore ways in which European industrial heritage attractions can be better presented in combination with other tourism offers, such as ocean and river cruises, cycling or hiking tourism, major events, city breaks etc. ERIH wishes to engage more fully with other sectors of tourism, tourism marketing organisations and tour operators, to open industrial heritage to a wider range of visitors. It is intended that the conference will act as a catalyst for wider and a more inclusive presentation of Europe's internationally significant industrial heritage.

As those who have attended previous ERIH Annual Conferences already know, they are enjoyable and interesting events, with excellent presentations, workshops and study visits and also a great opportunity to network with a variety of people from across Europe who are involved in different aspects of industrial heritage tourism.

Jonathan Lloyd ERIH National Representative, UK & Ireland

North West Industrial Archaeology Conference

Friday 20 September

Excavating the Steam Engine in the North West:

Exploring James Watt's Legacy

The 39th North West Industrial Archaeology Conference (NWIAC39) will be held on at the Bolton Steam Museum.

There will be a tour of the Museum in the afternoon

AIA members will receive a discount on the conference price. Booking online through Eventbrite.

Save the date – Welsh Slate weekend 24 – 26 April 2020

The Welsh National Slate Museum

Our practical weekend next year will be devoted to the Welsh slate industry, whose remains are under consideration by UNESCO for inscription as a World Heritage Site.

The weekend will take place in Llanberis at the National Slate Museum (pictured), formerly the workshops and foundry of the enormous Dinorwic quarry. Built in the early 1870s, the workshop complex was intended to demonstrate the wealth and status of the Dinorwic quarry's owners, the Assheton Smith family.

We have some highly-qualified speakers lined up and the weekend will be led by David Gwyn, whose book *Welsh Slate* won the AIA's 2016 prize for outstanding scholarship.

Further details will be available later, but in the meantime please would you save the date.

House of Lords supports Heritage Railways

In a recent debate in the House of Lords on the 2018 report by the All Party Parliamentary Group on Heritage Rail (APPGHR): 'Engaging the Next Generation: Young People and Heritage Railways', the Heritage Railways Association (HRA) [Alliance member] President Lord Faulkner drew unchallenged support for heritage railways.

There was unanimity across the house, recognising the huge value of heritage rail in social and economic terms. Amongst the supporters was Lord Ashton, Parliamentary Under-Secretary for Digital Culture, Media and Sport (DCMS), who offered support for changes under the Health & Safety at Work Act 1974 to remove concerns about the engagement of volunteers under the age of 16.

Lord Ashton also applauded the introduction of the Level 3 Apprenticeship for heritage engineering technicians, and highlighted the option covering skills for the restoration and repair of locomotive steam engines through the BESTT programme, developed with the help of the HRA.

Historic England Publishing

Historic England Publishing has been acquired by the Liverpool University Press. The back list of titles is to be found on their website and it is hoped that they will continue to publish titles on industrial heritage.

Local Society and other periodicals received

Abstracts will appear in *Industrial Archaeology Review.*

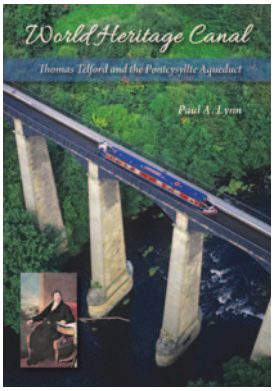
Bristol Industrial Archaeological Society Journal, 51, 2018
Friends of St Aidans BE 1150 Walking Dragline Newsletter, 81, Winter 2018
Greater London Industrial Archaeology Society Newsletter, 302, June 2019
Histelec News: Newsletter of the South Western Electricity Historical Society, 71, April 2019
Historic Gas Times, 99, June 2019
London's Industrial Archaeology, 17, 2019
Northamptonshire Industrial Archaeology Group Newsletter, 150, Spring 2019; 151, Summer 2019
North East Derbyshire Industrial Archaeology Society Newsletter, 74, May 2019
Piers: the Journal of the National Piers Society, 131, Spring 2019
Somerset Industrial Archaeological Society Bulletin, 140, April 2019
Surrey Industrial History Group Newsletter, 222, May 2019
Sussex Industrial Archaeology Society Newsletter, 182, April 2019
Sussex Mills Group Newsletter, 182, April 2019
Trevithick Society Newsletter, 184, Summer 2019
Triple News: Newsletter of the Kempton Great Engines Society, 52, Winter 2018/19
The Trow: Cotswold Canals Trust Magazine, 185, Summer 2019
WaterWords: News from the Waterworks Museum, Hereford, Spring 2019
Welsh Mines Society Newsletter, Spring 2019
Worcestershire Industrial Archaeology and History Society Newsletter, 54, April 2019
Yorkshire Archaeological Society Industrial History Section Newsletter, 106, Summer 2019

Books

Early Railways 6, edited by Anthony Coulls, Six Martlets Publishing on behalf of the sponsors, c/o Better prepared Ltd, 15 Diamond Court, Opl Drive, Fox Milne, Milton Keynes, MK15 ODU, 2019, 275pp numerous illus, plans etc., hbk.

The sixth Early railways Conference was held in Newcastle in June 2016 and this volume contains the printed version of the papers presented there. There are sixteen of extraordinary variety. They begin with a paper describing the 'Willington Waggonway Excavation in 2013' (currently being prepared for display at the Newcastle Discovery Museum with the aid of an AIA Restoration Grant) and ending with a paper on 'Proposals for an early colonial railway in Sierra Leone'. In between there are papers on 'Pointwork to 1830', 'Early Locomotive Performance, 'George Stephenson's first locomotives' and railways in Australia and Africa and France among many others. Altogether a fascinating study.

World Heritage Canals, by Paul A Lynn, Whittles Pub-lishing, Caithness KW6 6EG, 2019, ISBN 978 184995-398-6,144pp 135 illus. £16.99 pbk.



In 1793 Telford was appointed principal engineer on the Ellesmere Canal (now the Llangollen Canal) in North Wales. An 11-mile section of the canal, including his magnificent Pontcysyllte Aqueduct has recently been made a World Heritage Site. This is a personal and professional story, putting Telford's work into its historical and social context, showing him as a remarkable mix of good-natured ambition, talent and resilience. It will be appreciated how much is owed to Telford and others for creations that have stood the test of time, built with courage and daring, in an age when major construction projects relied heavily on pickaxes, wheelbarrows, and an extraordinary amount of hard physical labour.

Devizes Conference

26 October 9.30—16.30

Michael Asbury – Pewsey Heritage Centre and the building's former use as the foundry of Whatley and Co.
Terry Waldron – Wishford Station – the history of a wayside station.
Vince Povey – Conversion of the former RAF Blakehill Farm base into a nature reserve.
Bob Clarke – Gas-Bags, Kites and Dirigibles – unusual methods of flight in the skies of Wiltshire.
Dennis Gardner who will talk on 'R & J Reeves an elevating experience'.

£15 includes morning coffee and afternoon tea, but not lunch.
Booking via the Museum website at www.wiltshiremuseum.org.uk or by post to The Bookings Secretary, Wiltshire Museum, 41 Long Street, Devizes SN10 1NS, cheques payable to 'WANHS Ltd' or by phone on 01380 727369.

21st International Conference on Industrial Heritage, Espacio Cultural Escuela de Comercio Gijón 25th to 28thSeptember 2019

Geographies, Geometries and Employment

The programme includes various other activities, such as photographic exhibitions and the screening of films and documentaries on industrial heritage and cultural landscapes. While drawing on last year's Incunafilmfest ICC, the aim is to highlight the way images as well as technological and audiovisual tools contribute to raise awareness and disseminate knowledge on industrial heritage.

The Conference includes four theme sections

Geography, Geometry and History on Architectural and Technological Heritage. Aspects from an Industrial Heritage Point of View.

Interventions on Industrial Heritage. Palimpsests and Intelligent Territories.

New Uses and Employment of Industrial Heritage. Experiences on a Second Life.

Tourism and Memory Sites. Heritage for the Future.

The programme will be rounded up by study cases, investigations and proposals from about 20 different countries,

Application forms can be downloaded from www.incuna.es

Apart from several trips to Asturian mining heritage sites, the programme includes a tour of various representative industrial sites in Asturias and Galicia on Saturday, 28th September. We will visit some examples of Modern Movement architecture, water and electricity heritage and the power stations of Doiras, Silvón and Arbón in Navia, which were designed by architect Ignacio Álvares Castelao and the engineer Elorza. We will then go over to neighbouring Galicia to visit the unique Sargadelos Ceramic Factory and obviously embark on a mandatory evaluation of the gastronomical heritage of the area.

More information on the International Conference on Industrial Heritage and the 16th Photographic Exhibition on Industrial Heritage on www.incuna.es and social media.

30 August – 1 September
RETHINKING JAMES WATT
University of Birmingham

7 – 8 September 2019
BRUNEL'S OTHER BRIDGE
See page 20

11 – 13 September 2019
BIG STUFF
Katowice, Poland
Preserving large industrial objects in a changing environment
Muzeatechniki.pl/bigstuff

18 – 19 September 2019
HISTELCON 2019
Strathclyde University

20 September 2019
39TH NORTH WEST IA CONFERENCE
Bolton Steam Museum
Excavating the Steam Engine in the North West
See page 26

25 – 28 September 2019
21ST INCUNA CONFERENCE
"Espacio Cultural Escuela de Comercio, Gijon,Spain
Geographies, Geometries and Employment
See page 27

5 October 2019
ESSEX IA GROUP INDUSTRIAL HERITAGE FAIR
See this page

17 – 18 October 2019
ERIH ANNUAL CONFERENCE,
Deutsches Technikmuseum, Berlin
Industrial heritage tourism
See page 26

26 October 2019
DEVIZES CONFERENCE
Devizes Town Hall
See page 27

5 November 2019
PRECISION: BRAMAH AND MAUDSLEY TO ADVANCED MANUFACTURE
Kelham Island, Sheffield
details - newcomen.com

4 April 2020
51ST SOUTH WALES AND WEST OF ENGLAND IA CONFERENCE
Elim conference Centre, West Malvern
Programme in *IA News 191*

24 – 26 April 2020
AIA WELSH SLATE WEEKEND
National Slate Museum Llanberis
See page 26

May 2020 (date to be confirmed)
2ND INTERNATIONAL EARLY ENGINES CONFERENCE
Black Country Living Museum

Chelmsford Corporation Water Works – now Sandford Mill

Industrial Heritage Fair

Saturday 5 October 2019
Sandford Mill, Chelmsford

Nearly 20 societies have already booked stands

Speakers on innovative Essex industries including waterway transport, concrete housing, steam roller milling, public water supply and the development o television and broadcasting.

Free admission, ample parking and light refreshments available
essexiag@gmail.com

The AIA trip to Hungary on the way to the windmill at Tés in the fog

IMPORTANT NOTICE

IA News would like to publicise your event, particularly if it will appeal to members outside your area BUT if you don't tell the editor IT WILL NOT HAPPEN. The production schedule is long and it is no good leaving it to the last minute.

The next edition (191) will be distributed in November 2019 so it will be ideal for publicising events for the first months of 2020.

The subsequent edition, distributed in February, will be too late!

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Final copy dates are as follows:

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

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