INDUSTRIAL ARCHAEOLOGY NEWS

192
SPRING
2020

THE BULLETIN OF THE ASSOCIATION FOR INDUSTRIAL ARCHAEOLOGY

FREE TO MEMBERS OF AIA

Australian Timber Viaducts • Kolkata Reservoir • Electric Canal Boats
Worsley Green • Shotton

ASSOCIATION FOR INDUSTRIAL ARCHAEOLOGY
AIA

INDUSTRIAL ARCHAEOLOGY NEWS 192
Spring 2020

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

COVER PICTURE
Henry Frederick Swan on trials after restoration. See page 16
photo North East Marine Trust

40th Anniversary of the National Railway Heritage Awards

St Pancras Station Roof – – *photo Robin Leleux*

This year saw the 40th anniversary of the National Railway Heritage Awards competition. This has been marked in three distinct ways; firstly the Awards for 2019 were presented by Her Royal Highness Princess Anne, The Princess Royal, on 4 December at the Merchant Taylors Hall in the City of London. Secondly, the Chairman of the Judges, Robin Leleux, who has been involved with the Awards for very many years, has produced a heavily illustrated book describing the progress of the Awards over these years and a review of this will be in the next issue of Industrial Archaeology Review. Thirdly, the Awards Chairman John Ellis, retiring at the end of this anniversary year, was asked to name a project which, in his opinion, marked the single most significant contribution to the preservation of Britain's railway heritage over these past four decades. Unhesitatingly he indicated the conspicuous and dramatic work undertaken at St Pancras and Kings Cross stations and the redevelopment of the once-extensive goods yards to their north, the Kings Cross Lands. – This area was further honoured by the Hendy and Pendle Trust award for the best overall entry of 2019, which went to BAM Construction for their sympathetic handling of the conversion for a different commercial use of the historic coal drops at Kings Cross

Eleven awards were made this year, and there was a winner and two runners for each award. - All the awards are sponsored by different organisations. For example, of interest to AIA members, the Volunteers Award is sponsored by the Stagecoach Group and this year was presented to the Ferryhill Railway Heritage Trust for their restoration of the turntable at Aberdeen Ferryhill depot on the now closed line from Ballater to Aberdeen. This project was the subject of an AIA Restoration Grant in 2017. Aberdeenshire Council were rewarded for their restoration of the historic Ballater station, which had been severely damaged by fire in 2015, with the Southeastern Commercial Restoration Award. – The restored Royal Waiting Room has become the centre piece of the heritage attraction, while the western half of the building has been totally rebuilt and also houses the local library.

Many small projects often receive awards from the NHRA. This year, the Supporters Award was given to Network Rail for their meticulous restoration of the clock at Tunbridge Wells. The runners-up for this award were for the restoration of a camping coach at Blue Anchor on the West Somerset Railway and a large stone memorial to navvies who lost their lives building the Bramhope Tunnel at Otley, as well as the thousands of other navvies who helped build the nation's railways. – –

These awards, like the AIA's Restoration Awards, play a part in enabling the survival of the nation's industrial heritage. Entries for the 2020 awards can be made on the entry form to be found on http://nrha.org.uk/ or by contacting the NRHA Public Relations Officer, Peter Waller, at peter.waller@nrha.org.uk

Marilyn Palmer
Adjudicator, National Railway Heritage Awards

Stortford Lime Works

Stortford Lime Kilns – showing five kiln draw holes *photo Tony Crosby*

Hopefully it is now rare for locally significant, former industrial sites to be forgotten and swept away in ignorance of their existence and importance. However, this nearly occurred recently near Bishop's Stortford, Hertfordshire, had it not been for the appreciation of the site by the new owners, leading to their search to learn about the site and seek advice regarding its preservation.

Tony Crosby

I had known that this was the site of a chalk quarry for some years, but had not visited the long abandoned works which was being used for landfill, until there was a planning application for change of use to an animal rescue centre (ARC) – the existing site of the ARC being needed for major house building developments. So in May of 2017 I decided to investigate, first checking with Hertfordshire County Council's Historic Environment Advisor what was known about the site. The HER entry was very brief and mentioned just one building on the site. I gained access to the site from an adjacent farm track, eventually to be met by an onsite caretaker and his large dog! Fortunately both were friendly and gave me a tour of the site, which turned out to be the former Stortford Lime Works (grid ref TL 487 235).

The building mentioned in the HER entry is a two-storey building, very square in shape, flat-roofed, of grey brick, with metal framed windows. There was an office on the top (road) level and a store underneath at works level. However, next to this office/store was a more interesting building, not so obvious from the road which may explain its absence from the HER. This is a red-brick building with an iron-ribbed barrel roof of corrugated iron. On the south side of the roof was what appeared to be a hoist housing, although no hoist mechanism existed and it did not overhang the roof. It may have been at the top of some form of conveyor / elevator used to move the lime into the building for bagging. A large window in the north wall appears to have been inserted into a space which was once a loading dock, the bottom of the window being at the level of a raised internal floor and compatible with the floor of a truck backed up to the building for loading.

Between the office and the storage building was a wall with a door which led to an open area with the office to the west, storage building to the north and on the south a bank of red-brick faced, lime draw kilns, five draw holes being visible. On further inspection a further three draw holes which had been bricked up and hidden by vegetation were identified. Climbing steps up to the top of the kilns initially just revealed a mass of overgrown brambles etc., but after these had been removed, the rims of three loading holes were revealed. It is assumed that there are four kilns each with two draw holes and a loading hole, the fourth of which is still covered in waste material and overgrowth. The kiln rims are lined with bricks with the maker's name – 'DOUGLAS X' – indicating that the bricks were made by Douglas Firebrick Co. Limited of Dalry, Ayrshire. These are quarry-based, vertical commercial kilns, mixed-fed on a continuous and/or intermittent basis. They are in good condition externally and provide support to the land into which they are built, so it is not likely that they will be easily removed, and the new owners would prefer to preserve them. National listing of them has not been explored as yet, but an inquiry about Local Heritage Listing was received with a statement that there was 'no prospect of the District Council] creating a Local List'!

The works date from the end of the nineteenth century; chalk extraction ceased in the 1960s and the works closed.

The office building has been refurbished for use as the office and staff facilities for the ARC, now with a pitched roof, but otherwise maintaining its external industrial character. The storage building has also been refurbished as animal facilities, with new iron ribs supporting a modern corrugated barrel roof, and a new 'hoist' housing providing natural light from above. The kiln draw holes have been bricked up and rendered for safety while decisions are made about the future presentation and interpretation of the kilns, including the loading holes above. Meanwhile, research continues!

New listing

A National Explosives Factory in Hayle, Cornwall, has been listed by Historic England. It was built to serve the Cornish Mining Industry and became one of only two suppliers of cordite to the Royal Navy in WWI. The remains of this site tell an important story about the way explosives were manufactured in the late nineteenth century and how production was scaled up during the First World War with a tenfold increase in the number of (mostly female) workers. The site is owned by Cornwall's Council which working in partnership with Cornwall Wildlife Trust, turned it into an area for heritage and wildlife.

Thanks to the Hampshire IA Society for noting this.

New editor needed

Old age is creeping up—this edition is No192 – edition 195 for which the copy date is the end of September will be my last.

Who would like to take on this very satisfying job?

I estimate that it takes about three weeks of modest work every quarter with a small amount of attention in-between editions. If you would like to know more about what is involved please get in touch with me or with David de Haan, the AIA Secretary.

Chris Barney
Editor (for a little while longer)

VISIT THE AIA WEBSITE

www.industrial-archaeology.org

Australian timber viaducts destroyed

Understandably the news from Australia has focused on the loss of life and the homes destroyed as well as the heroic efforts of the firefighters in the appalling fires that have raged there through their summer.

However important engineering structures have also suffered and timber bridges, especially in remote areas, are in – particular peril.

I had prepared Helen Martin's article below on the Snowy River Viaduct a few days before sending this edition to the printers when I received this sad email from her.

Ed

The photo on the right is of the O'Grady's Creek Bridge which Helen describes in her message as 'badly damaged with half of it completely destroyed'

The fires haven't got any closer to the Orbost viaduct but, as feared, the O'Grady's Creek / Wairewa Road rail trestle bridge on the Bairnsdale to Orbost line - the photo in my last message - has been badly damaged, with half of it completely destroyed. – The fire just reached a finger down through a bit of bush to the bridge.

The local Country Fire Authority (CFA) brigade managed to put the fire out while half the bridge was still standing, but unfortunately it is the half over the road, so I'm apprehensive about its future. – Public liability is likely to dictate that it has to be demolished too. Through an oversight at the time the planning scheme was compiled, it has no heritage protection. – Some photos are attached. I don't have copyright to them but can see if I can track down the owners if you want to use one (although they are very low resolution).

Two of the three remaining timber truss bridges in East Gippsland Shire have also burnt to the ground. – One was a three-truss timber superstructure on tall concrete piers at Genoa, on the Princes Highway just near the border with NSW. It was bypassed by the building of a new concrete highway bridge about 30 years ago but had been 'restored' a couple of times since. – The other was a lovely little single-truss all timber bridge near Buchan. – It was also no longer in use and had not been maintained since being bypassed. – – Both were on the Victorian Heritage Register:

I haven't confirmed it, but one note on a heritage chat group said that there is only one true truss bridge left in the whole of Victoria, which is the third one in East Gippsland, way up north of Omeo. – It is known as the Hinnomunjie Bridge, also on the VHR. It was quite seriously damaged in the 2003 fires and was 'temporarily' strengthened with some massive steel girders to return it to use. It was also bypassed a few years later and is quietly mouldering away. – Maybe the loss of the others will cause a bit more attention and resources to be committed to its repair and restoration (assuming it survives these fires).

This is only the beginning of the list of heritage losses from the Victorian fires, let alone those in New South Wales. – I know the old alpine gold mining settlement of Kiandra has been destroyed, including the remaining historic structures. And many early townships such as Bemboka have suffered very badly.

Helen Martin – – – – – – – – – – Fri 10/01/2020 22:53

Snowy River Floodplain Rail Viaduct, Orbost, Victoria, Australia

The 103-year old Snowy River floodplain railway viaduct, in the East Gippsland region of Victoria (Australia) comprises a pair of timber trestle bridges that together stretch for 930 metres. – The western section (770 m) is the longest timber bridge remaining in the State. – A group of enthusiastic locals is seeking funding to restore the viaduct and incorporate it in the 'rail trail', which currently runs beside it.

Helen Martin

Shearwater Associates Pty Ltd, consultants in planning, environment & heritage, Metung, Australia

Railways first came to East Gippsland in 1888, when the line from Melbourne was extended to Bairnsdale. Other parts of the region agitated for rail links but only the Bairnsdale to Orbost line was constructed. The total length is just over 96 kilometres (60 miles), traversing very complex topography. It contains the most varied range of timber and timber composite bridges on any Victorian rail line, as well as significant concrete and metal bridges over the three major rivers.

Most railways in Victoria were built to meet established demand for transport of passengers or goods. By contrast, the Bairnsdale–Orbost line was a North American-style 'developmental railway', designed to open remote areas for closer settlement and resource extraction. The original focus was on minerals, although timber became the main freight item, with maize and other agricultural products.

The Bairnsdale to Orbost line opened in April 1916. It was the most expensive rail extension in Victoria for a generation, costing £450,000. It was never economic and faced increasing competition from road carriers. Passenger services ended in 1935 but freight continued for another 50 years, aided by a government monopoly on timber transport. Despite strong public protests, the line was closed and the final train ran in August 1987. – The rails were taken

Looking east from west of water course, Snowy River floodplain rail bridge, Newmerella, July 2018 *photo H Martin*

up and removed, but the formation and most of the bridges remain.

The route is now the popular East Gippsland Rail Trail, one of the longest in Australia, used by a growing number of cyclists, walkers and horse-riders. – Victoria has been at the forefront of the movement to redevelop redundant rail corridors as rail trails, providing an economic stimulus to the communities through which they pass, as well as opportunities for long-distance cycling or short trips from townships. In East Gippsland, a citizen-based committee manages the trail, overseen by a government agency. – Only two of the rail bridges are incorporated in the route, with the rest being bypassed at ground level or on nearby highway bridges. – Maintenance of the redundant rail bridges remains the responsibility of the state.

At the far eastern end of the line the long, low viaduct crosses the floodplain of the famed Snowy River, but not the river itself. – The 'Orbost' station was built on the western bank of the Snowy at Newmerella rather than in the township of Orbost on the opposite side. A very expensive bridge across the river, built in 1921, was intended to be shared by road and rail traffic, but the terminus stayed where it was.

A 1916 paper by Maurice E Kernot, Victorian Railway's chief engineer for construction, describes the building of the line and its bridges. – Besides the three major river crossings, it has 3,340 metres (10,900 l. ft) of other bridges, most built to Victorian Railways' standard timber trestle bridge designs. However, he says,

"An improved type of timber bridge was designed for this line. – In renewing timber railway bridges it is generally found that the chief point of decay in superstructure is at the timber fish-pieces between the beams over the piers. In the new type, these have been omitted; beams are fixed to walings by steel angles and spaced 4 in. to 5 in. apart by bolts and ferrules.

"The previous practice of spiking all decking to beams, etc., also led to deterioration of the beam, both through mechanical injury and the entrance of water. In the new type no spikes are driven into top of beam, and all beams and walings are protected by 24-gauge galvanised iron. Decking is fastened to longitudinal cleats which are spiked to sides of outer beams every 2 feet. It is believed that these and some other minor alterations will result in a longer life for the beams and will also afford greater facility for making renewals."

The lower parts of the Snowy viaduct are mainly two-pile piers, but the higher sections over waterways on the floodplain use four piles per pier. The shorter bridge (183 m) has 4.57 m (15 ft) timber beams between piers, but the longer western section is a combination of 4.57 m and 6.1 m (20 ft) spans, with two 3.66 m (12 ft) spans. – The 6.1 m spans have six beams per span, rather than the usual four, and are aligned with the watercourse rather than square to the track. – The two 3.66 m spans were required to accommodate the change of orientation between the 6.1 m and 4.57 m spans.

Timbers used for the bridges on the line were several species of Eucalpytus, locally sourced: – white or yellow stringybark for piles and, in the case of the viaduct, Gippsland (southern) mahogany for beams and crossheads. – The latter has proven to be highly durable, although the timber cutters found it very tough and hard to work. The sleepers are of timber from local forests and are 2744 mm long x 229 mm x 114 mm in section (9 ft x 9 in x 41/2 in). –

A major flood in 1971 damaged sections of the viaduct. In places, wool bales were used as footings in the repairs, when no bottom could be found in the mud. The longer bridge had some timber in its abutments replaced by concrete, and steel joists replaced a few timber beams. The shorter bridge remains all timber.

The Snowy River floodplain bridges have been assessed as of historic and aesthetic significance at the State level and nominated to the Victorian Heritage Register.

Orbost had population of around 1,200 people when the railway arrived, rising to 3,000 in the early 1970s. – Since then, its fortunes have suffered a decline that to some extent mirrors that of the viaduct. – The timber industry has contracted and this, with other changes in the local economy, has led to significant reductions in employment and commercial activity. The community is ageing and younger people have less incentive to stay in the district. Orbost urgently needs a project that builds on the area's strengths to attract new interest from tourists and to increase residents' confidence in the future. Restoring the viaduct and incorporating it into the Rail Trail is a concept that offers a way to combine an economic stimulus for Orbost with preservation of a heritage icon greatly valued by the community.

In 2015 the Orbost & District Historical Society commissioned two railway engineers to examine the condition of the Snowy floodplain viaduct and assess the work required to restore it for cycling and walking. –

They reported that a relatively small number of piles have collapsed, due to a combination of fungal decay and termite attack at ground level. – This has caused the superstructure to dip and twist, particularly in some two-pile piers. – They estimated that 15 piles require complete renewal and another 60-80 should have a 2-3 metre section replaced immediately above and below the ground. – The majority of the timber beams and crossheads are in remarkably good condition, but about 20 of each might need to be replaced. The entire decking system needs replacement and safety rails and wiring have to be installed. –

The report estimated a total capital cost of approximately $2.5 million, assuming 'like for like' replacement. – An alternative option, developed later, suggested the decking might be replaced with a composite material that had a longer lifespan and provided a better surface for riding and walking.

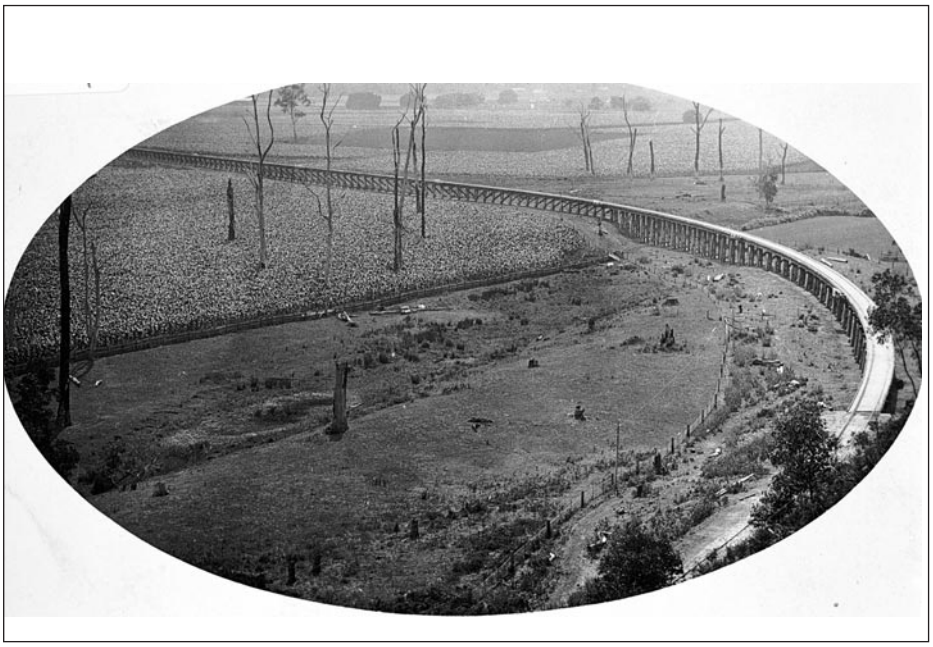
A recent economic and social assessment was funded jointly by the community (through the Friends of the East Gippsland Rail Trail), the Victorian Government and the local Shire. – Even with updated cost estimates, it finds that both restoration options deliver a positive cost-benefit ratio. The major benefits come from forecast growth in the local economy due increased tourist activity and from the creation of a new recreation asset for the community. Other

quantified benefits are: improved health and wellbeing from increased participation in physical activity; educational benefits from interpreting the history of the viaduct and the rail line and Aboriginal culture; the value of retaining and restoring Victoria's heritage; and the creation of a new marketing icon for the district. The report concludes that the potential to realise these economic, social and cultural benefits makes a compelling case for investment.

A new group, Save The Snowy Rail Bridge, has been formed to take on the task of advocacy and fund raising for the project. – Potential funding sources include Commonwealth and State Government regional development programs, philanthropy and private donations from railway and heritage enthusiasts.

Reference

Kernot, Maurice E. (1916) 'The Bairnsdale to Orbost Railway' *Proceedings of the Victorian Institute of Engineers* vol. XVI 1916 (18), pp.278-202 & 278-280 – I have an electronic copy of this paper and will happily forward to members on request. It is very interesting. Ed –



Snowy River floodplain viaduct c 1915 *photo Museums Victoria*

More About Jumbo

Jumbo is a recent popular appellation for the surviving large gasholder at East Greenwich in South East London. Quite close to the Millennium Dome, it was a prominent landmark and there has been a local campaign to retain it. However this was not successful and demolition is nearing completion. By early this year it will have gone.

The tank into which the lifts sink around the 'dumpling' *photo R Carr*

Robert Carr

It is necessary to correct what was written last time, see *IA News 191* p 24. George Livesey (1834-1908) was in some ways the brains behind the two huge gasholders at East Greenwich but the actual engineer was his younger brother Frank (1844-1899). It can be said that the guide frames of these gas holders were of George Livesey type, based on his pioneering gasholder number 13 at the Old Kent Road. However, Frank took his brother George's ideas and developed things further, earning him the praise and respect of the gas engineering profession.

The tank of gas holder number 13 at the Old Kent Road is deep but in 1886 when excavations were started at the East Greenwich site it was soon discovered that, being close to the river, there was a serious problem with groundwater. This was a marsh. Below ground the surface layers are underlain by more permeable strata and so serious was the ingress of water that construction work was halted for a time. However, following this delay the gasholder was completed in 1889.

To build this large gasholder only quite a shallow excavation was made. The tank which holds the water into which the lifts descend is impounded in the manner of a dock or reservoir, the water level being 13 feet above the original ground. To reach the pathway which encircles the top of the tank there is rising ground at first, and then a flight of 18 steps. The tank is only partially below ground and is surrounded by an embankment. Previously the top of most gasholder tanks had been almost flush with the ground.

The tank itself is relatively shallow, only 44 feet deep, and the centre of the tank is occupied by a very broad dumpling. Frank's design concept was that a shallow tank would be appropriate so as to keep above the water bearing strata and in round figures the diameter should be roughly 10 times that of the depth of the tank. The second even larger gasholder built at East Greenwich in 1892 was constructed similarly. Gasholder No. 1 was originally envisaged with three lifts but because of the shallow tank this was increased to four, making it the world's first four lift gasholder. – For five years it was the biggest gasholder in the world.

George Livesey became chairman of the South Metropolitan Gas Company and Frank succeeded his brother as Chief Engineer in 1882. The large new works at East Greenwich were planned in outline by George but the detailed work and the responsibility for their construction were essentially Frank's.

George Livesey became a powerful force in management, creating something of a gasworks empire. He was a temperance activist and has been described as a philanthropist. He became a public figure; his ideas were widely adopted, changing the way the gas industry was run.

Unlike George, Frank Livesey was well educated. He attended Dulwich College and went on to King's College in the Strand. He was a very able engineer but was overshadowed by his older brother, never becoming a public figure.

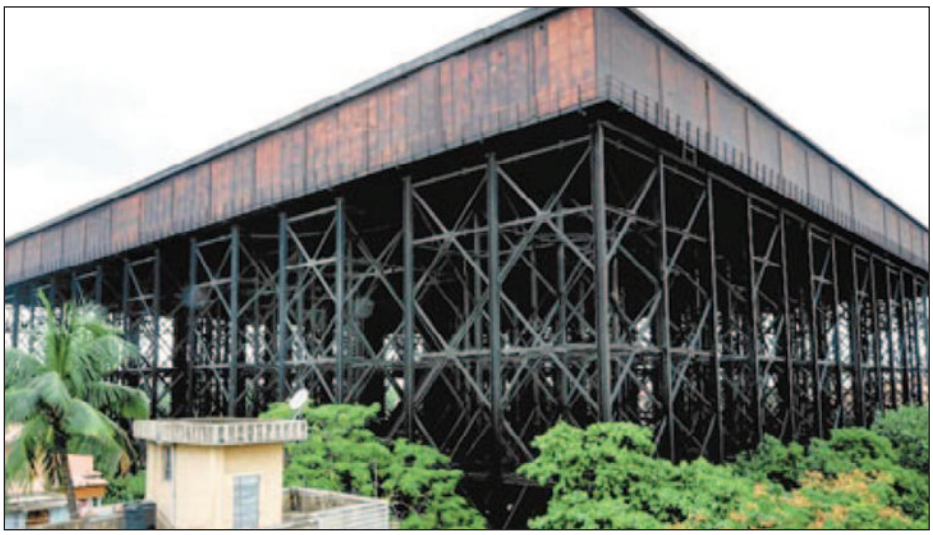
By the time you read this there will probably no longer be a guide frame at East Greenwich, although parts of three bays may be kept for possible incorporation into a proposed artwork. If you would still like to see a large George Livesey style gasholder guide frame there is one in Factory Road, Croydon in South London. This was built around 1920 and ,although a little smaller than East Greenwich No. 1, its appearance is quite similar.

Last but not least, very many thanks are due to SGN for organising site visits.

Kolkata elevated reservoir under repair

The repairing of the century-old Tala overhead tank, the world's largest overhead reservoir, is in full swing. This is the first time when such a major repair has been undertaken since its construction in 1909.

Chris Barney



Kolkata reservoir

Supported by steel columns and girders, the tank is 110 feet high and can store nine million gallons of water. It was designed by WB MacCabe, Chief Engineer of the then Calcutta Municipal Corporation to provide – a constant head of water for the city's distribution system without the need for pumping. The tank is constructed of 10mm rivetted plate and is 315 feet square and 18 feet deep. It is divided into four sections which can be independently filled and emptied. The floor was originally lined with mortar and the roof was made of panels filled with 66mm of concrete. Clayton Son and Co manufactured the steelwork in Middlesborough and undertook the erection.

The poor soil conditions required driving a huge number of logs, 20 to 25 feet long, and packing bricks between them with a further layer of bricks on top consolidated with steam rollers. A 30 inch concrete slab was then constructed to support a total of 65 steel trestles. The total weight of the tank when full is approximately 50,000 tons including some 8500 tons of steel; this gives a foundation load of half a ton per square foot (5t/mm2).

At the time of construction there were no applicable design codes and the work has been recognised as a major feat of civil engineering – even now the tank is nearly three times larger than its nearest rival (in Kansas) and it has withstood three major earthquakes and several cyclones with winds above 70 mph.

The first refurbishment was between 1978 and 1986. The pipework, foundations and support frame were all in good condition but the roof was badly damaged and was replaced with precast concrete panels. A third of the bottom plates had corroded to less than 8mm and these were replaced with new steel, fillet welded to the old. Where this could not be done a 5mm coat of food grade epoxy was applied and this has subsequently been done to the rest of the floor. The whole tank was sandblasted and recoated in bituminous paint with a green topcoat.

Reservoir under repair

The tank was reassessed in 2011 and it was realised that a substantial overhaul would be necessary within a – few years. The upper parts of the trestles were found to be in good condition but the lower third needed considerable attention. There was doubt about the horizontal stability due to fatigue through cyclical loading. It was decided to add interlinking beams at the top of the trestles to create a portal effect to resist wind and seismic loading. Additional steel was also added to the columns. The tank roof beams and supporting columns are being replaced with heavier material and the diagonal tie rods that support the sides are being replaced. The concrete roof slabs are being replaced with 8mm steel plate finished in suitable – anti-corrosive paint. A new 10mm raised floor is being fitted over the existing deteriorated structure and this will be encased in an average of 40-60 mm of concrete to create a composite structure. Other work is being done to the foundation slab, the drainage and the internal tank walls.

The tank has served without interruption since its original construction and it is expected that the current work will make it good for another 50 years with normal maintenance. It had been calculated that the tank was losing over 2 million gallons per day (10Ml/d).

Much of this information above was drawn from the extensive article published by the Institution of Civil Engineers in their *Proceedings 172(4)* 2019.

Mike Heyworth Steps Down as Director of CBA

The Council of British Archaeology (CBA) announced that Mike Heyworth will stand down as Director of The Council for British Archaeology after 15 years. The CBA is now advertising for a new Executive Director.

On the Origin of Industrial Chimneys – Final Instalment

The bricks used to build the chimneys discussed in this series were of the commonplace rectangular type. To construct a chimney with a circular cross-section such bricks are not ideal as the mortar either side of a brick has to be tapered. If the brick could be shaped so that it fitted snugly against its neighbour either side and the outer vertical surface was curved to fit the circular shape of the chimney, surely this would be an obvious improvement.

However, in the period we've been studying, no brick making machines were available, bricks were hand-moulded in a rectangular wooden stock. Suitably shaped bricks as described above, known as 'radial bricks', were not really feasible as chimneys were built on the cheap. Brickmaking machines did become available in the mid-1850s and it then became a practical proposition to manufacture trapezium-shaped bricks with a curved outer edge for making circular chimneys. However, even when radial bricks might have been used it seems that chimney builders were conservative and in the main continued in the old way with ordinary rectangular bricks.

However, in some other countries which were only just starting to build their industrial chimneys, things were different. In the Netherlands radial bricks with vertical perforations for building factory chimneys were used as soon as they became available. When fired, perforated bricks burn more easily than those that are solid and the resulting brick is stronger. Whereas in Britain the building of industrial chimneys remained essentially a craft activity with relatively local master builders, Dutch chimney building was organised differently. Specialist brickworks employed their own bricklaying teams. Engineers and architects designed industrial buildings but the details of chimney design and construction were left to specialist brick manufacturers.

Chimney building might have been organised in this integrated fashion in Germany and Belgium. Further information is awaited.

In the United States, skilled labour was in short supply compared with Britain and work was organised to take this into account. Chimneys were built with radial bricks and there was a radial brick company - see *Radial Brick Chimneys, Alphons Custodis Chimney Construction Company, New York 1924*. Using radial bricks the brickwork can be made more compact, and stronger, resulting in a slender and more elegant chimney. The use of radial bricks in the USA would be worth further investigation.

In this series of articles I have attempted to find an involvement of British civil engineers in the design of chimneys during the period 1820 to 1835. A Mr Henry Capper has been found who did become a member of the Institution of Civil Engineers, but this was after he had had already built an impressive chimney in London in 1829.

The evidence suggests that the impressive increase in chimney heights in our period was due to the tenacity of specialist chimney builders and that the whole phenomenon was one of artisan endeavour. Unfortunately this is only 'proof by the exhaustion of the investigator' and with this unsatisfactory result the present series of articles comes to an end.

Robert Carr

Thanks are due to Dr Jur Kingma for information on chimney building in the Netherlands. Also thank you to people now writing articles about chimneys and submitting them to *Industrial Archaeology News,* chimneys have long been a neglected subject.

Bennerly Viaduct on 2020 World Monuments Watch List

Sarah Meaker and John Darlington from the World Monument Fund (2nd and 3rd from left) on a site visit to Bennerley Viaduct earlier this year.

The grade II* Victorian wrought iron structure straddling the Derbyshire/Nottinghamshire boundary, has gained international recognition by its inclusion in the 2020 World Monuments Watch list. The railway viaduct, still on Historic England's at-risk register, is one of just 25 projects selected from a competitive pool of 250 nominations worldwide, and the only site to be chosen in Britain this year. – All the sites included in the 2020 World Monuments Watch List were selected to support communities who are striving to save sites of outstanding cultural importance.

World Monuments Watch is run by the New York based World Monuments Fund, a private non-profit organisation, which sponsors an ongoing programme for the conservation of cultural heritage worldwide. The World Monuments Fund identifies endangered sites and works with local communities to conserve their heritage and to explore ways of ensuring their long-term stewardship. –

The Friends of Bennerley Viaduct, who submitted the application, and the owners, Railway Paths Ltd, are delighted by this massive boost to their joint project. John Darlington, Executive Director of the World Monument Fund, Britain said, – "Bennerley is an extraordinary monument – special because of its historical importance as the longest wrought iron viaduct in Britain, but also special because of what it means to the local community. It's a delightful opportunity to showcase heritage and its contribution to health, wellbeing and as a home to nature. We're so pleased that is has made it onto the 2020 Watch, and look forward to a catalytic partnership."

A six minute video describing the work of the organisation and showing many of the other structures on the list can be seen at 2020 World Monuments Watch website.

The Gamble plantation, Ellenton, Florida

Charlie Goudge was a recipient of an AIA Research Grant and has sent this report on the project.

The Gamble plantation, Ellenton, Florida was built using slave labour in 1845, and is the only standing plantation house in South Florida with associated structures and industrial sugar factory.

Dr. Charlotte Goudge, University of Bristol

At peak production, Robert Gamble owned approximately 3,500 acres worked by nearly 200 enslaved individuals. Currently, the location of the living quarters for enslaved labourers remains unidentified. During the Civil War between 1861 and 1865, Captain Archibald McNeill, a famous Confederate officer, temporarily occupied the premises and Confederate Secretary of State, Judah P. Benjamin, escaping Federal troops, took brief refuge on the property in May 1865.

After the war, George Patten bought the property and, in 1885, constructed a wooden Victorian style house. This was relocated in the 1920s where it remains on park property today. The state recently purchased a parcel of land including, and adjacent to, the ruins of the sugar mill north of the mansion. The current exhibits, tours and signage include minimal attention to the history of the enslaved community who built the mansion, and whose labour and bodies maintained the wealth and status of Robert Gamble. –

Gamble's first mill was constructed of wood and located on his brother John's tract of land, north of Robert Gamble's property. In his own words, "In 1844 I carried ten of my negro [sic] men to the river and commenced operations… In 1849 I erected my first set of sugar works; they were of frame; the boiling house 40 x 30 feet, the draining-house 60 x 30, the mill-house 30 x 30." Written 44 years after the original construction, this narrative gives us an interesting visualisation of the first structure. Likely the description 'of frame' denotes that the structure was framed with timber, though it could also have been part constructed with tabby, which is an early form of concrete made of lime, sand, oyster shells and ash. It is very durable and was commonly used at the time . –

This structure burned down and was replaced by the brick and tabby structure that stands to this day. The second mill, constructed with red and tabby brick, was an enlargement of his first building. The 25 per cent increase in size indicates that Gamble anticipated larger harvest yields as he continued to expand his land and slave holdings. The King and Johnson survey in 1973 illustrates an L-shaped feature that measures 53.3 meters (175 feet) north-south and 32.0 meters (105) east-west, a structure very similar to other industrial sugar factories on the East coast of Florida. –

After rebuilding his mill, Gamble wrote this description in a letter to George Patten in 1868, "I constructed two buildings for my sugar works. No. 1, 180 feet long & 40 feet wide in the clear, of brick; 40 feet of the length 22 feet high in the walls, 40 feet of the 40 length 17 feet high, 40 feet of length as & 40 ft. of the length 12 feet high. The draining room being 60 feet long and having a brick cistern on each side the full length of the house & additional building having a cooling room 40 x 30 & a draining room 60x40 also made of brick & covered in iron. I had two Steam Engines one of fifty horsepower to drive the cane mill which was a very fine and large one as you may conceive when I tell you that the top roller weighed 5 tons! Everything on the premises was in unison, there were two ranges of boilers for evaporating cane juice, each one of the five kettles the largest in each range 500 gallons, & at the head of each range, a steam pan for granulating; a second Engine of 8 horse power ran my grist & saw mill & supplied water to boilers which supplied the steam pans with steam, & ran a draining machine during the rolling season." –

The excavations at the Gamble mill began with AIA support in the summer of 2019. The project focused first on mapping the site and developing a methodology for 3D visualisation and a three-dimensional digital surrogate was made of the visible surface features of the Gamble mill complex. Trenches were laid in 3 strategic areas, in particular the area where documentary resources suggested the sawmill was located. Further excavations are required to fully understand the site. Future plans include a continuation of excavations as well as a large-scale soil sampling survey. This survey will utilise previously tested methodologies to examine the environmental impacts and legacies of industrial production for human and environmental health.

AIA Research Grants

Charlotte's research trip to Florida in 2019 was supported by a research grant from AIA. This scheme is available to help anyone from the UK carrying out research into industrial archaeology subjects anywhere in the world. Last year, the scheme also supported a project to record graffiti at the Dinorwic Quarry Hospital in Llanberis. The total amount available each year is £1,500. More information can be found on the AIA website.

Early Electrically Powered Canal Boats

For many centuries, canal boats were propelled by men, horses or mules from the towpath. However, before diesel power took over, engineers had developed several methods powered by electricity: – trolley boats which drew their power from overhead lines in the same way as trolley buses, boats attached to moving cables and electric mules. One trolley boat line is still in use. Most of this happened around the beginning of the twentieth century, mainly in France and to a lesser extent in Germany, in Belgium and (only experimentally) in the United States.

Chris Barney

Until the second half of the nineteenth century, canal barges were the main means of transporting goods over longer distances, through regions where no good natural waterways existed. In the whole of Europe, by the end of the 1800s, there were between 19,000 and 24,000 kilometres (12,000 and 15,000 miles) of canals. In the US in 1880, the total length of canals was about 7,200 kilometres (4,500 miles).

From the 1840s onwards the rapid progress of railways threatened to make these canal networks obsolete, already, by 1880 3,200 km (2,000 miles) of canals in the US had fallen into disuse.

Canal boats, which in Europe in the second half of the nineteenth century had a capacity of up to 240 tons, were towed by horses or mules on the tow path (sails were not an option on most canals). This method was very efficient compared to non-motorised land-based transport; horses could draw at least ten times more cargo in a boat than was possible when hauling a wagon. Compared to the new railways, however, the cargo capacity of animal powered barges was limited and the speed was low.

In most countries, animal traction remained the only method in use on the canals, until it was superseded by diesel engines in the 1930s or later, or until the canals fell into disrepair altogether. But, faced with the decline in traffic at the end of the 1800s, some governments and canal companies employed engineers to look for new and efficient ways of boat propulsion to compete with the railways.

Steam engines were an obvious solution - the same technology that powered the trains. Some canal barges were indeed converted to independent steam power or were drawn by steam tugs, but it soon became clear that this had problems when applied to large numbers of boats. The wash created by propellers destroyed the unreinforced banks of the early canals and the bulky engine and fuel, usually coal, reduced the cargo space.

Engineers found several solutions in electric propulsion:

1 – Electrically powered boats using batteries;

2 – An electric motor on the boat working a propeller drawing power from fixed overhead cables through a 'trolley';

3 – A motor on the boat hauling on a submerged chain or cable drawing power from fixed overhead cables;

4 – Funiculars – a moving cable operated by an engine on the bank to which the boat can be attached.

There were also electric mules either manned or unmanned hauling the boat from the bank, but these are not considered here.

Apart from some regional success stories, none of these technologies found widespread use, in spite of many successful tests. Most countries chose to deepen and reinforce their canals in order to allow self-propelled steam and, later, diesel boats.

Battery powered electric boats

The battery technology available limited this severely and the size and weight of the batteries reduced cargo capacity. Nevertheless, battery powered tugs were used to draw unpowered boats through tunnels .

Trolley supply powering a propeller

Overhead twin cable support and trolley attached to boat

One of the first alternatives for animal power was the trolley propeller system. Only four years after the first experimental trolleybus, Frank W. Hawley adapted an ordinary steam canal boat to a trolley boat (named after him), which was tested on the Erie Canal in the US in 1893.

The two 25 HP electric motors powered screw propellers and received current from a pair of wires suspended over the canal. As the boat was not confined to a fixed track, the contact arrangement had to be flexible, and as the canal could not be used as a return, a double metallic circuit had to be used. This necessitated two wires for boats going in each direction.

The trolley boat turned out to be a better option than the battery powered electric boat, because the cargo space was mainly left intact - electric motors were smaller than steam engines and no batteries were needed. Moreover, the range of the boat was unlimited.

However, as with battery powered electrical boats and steam barges, the propeller created a wash and thus similarly eroded the canal banks. The only way around this was to lower the speed, which made all propeller driven boats less attractive.

Steam tug hauling on submerged chain

Trolley supply operating on a submerged cable or chain

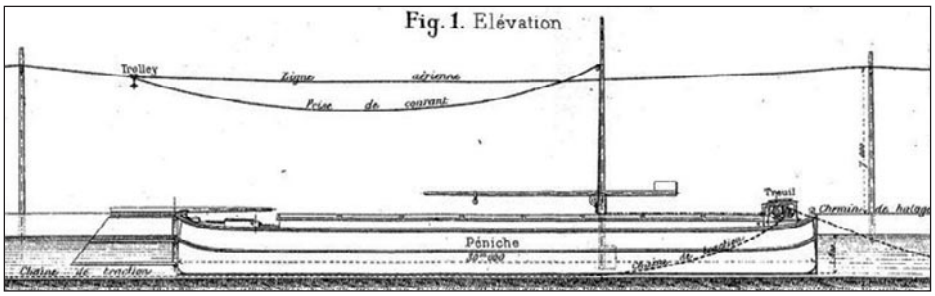
In Germany, France and Belgium, another system was tried – an onboard engine working on a submerged chain. The chain or cable was laid on the bottom of the canal. It was lifted and passed over rollers on the boat, which firmly gripped the chain or cable and pulled the boat along the waterway.

Initially steam engines were used but some of these were later replaced by electric motors, drawing power from an overhead cable.

This electric version was first put into practice by French engineer, François Galliot, who combined the trolley system described above with this means of propulsion: The general arrangement of the power supply was very much the same as in the trolley propeller method, but instead of turning a propeller, the motor would drive the hauling drums . The drums could be either on the deck of the barge or on the side as illustrated below.

The important advantage was that the system did not create a wash and was thus compatible with the shallow and delicate canals.

Another advantage was that, instead of having a double contact wire and double contact trolley carriage, the cable could be used as the



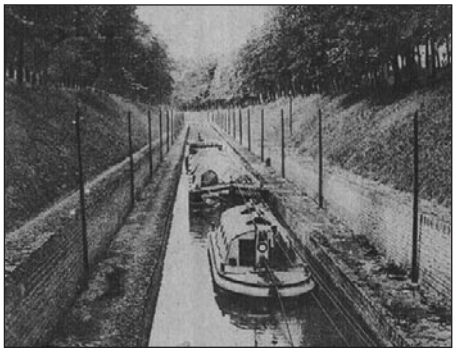
Trolley supply – cable hauled by side mounted motor

return conductor which was much simpler and thus cheaper.

Steam powered cable haulers were already operated by the end of the 1860s, mostly on rivers. Two of these navigated on a 125 km (78 miles) stretch of the Erie Canal in the US from 1873 to 1880, but they were said to interfere so much with other traffic that their use was discontinued.

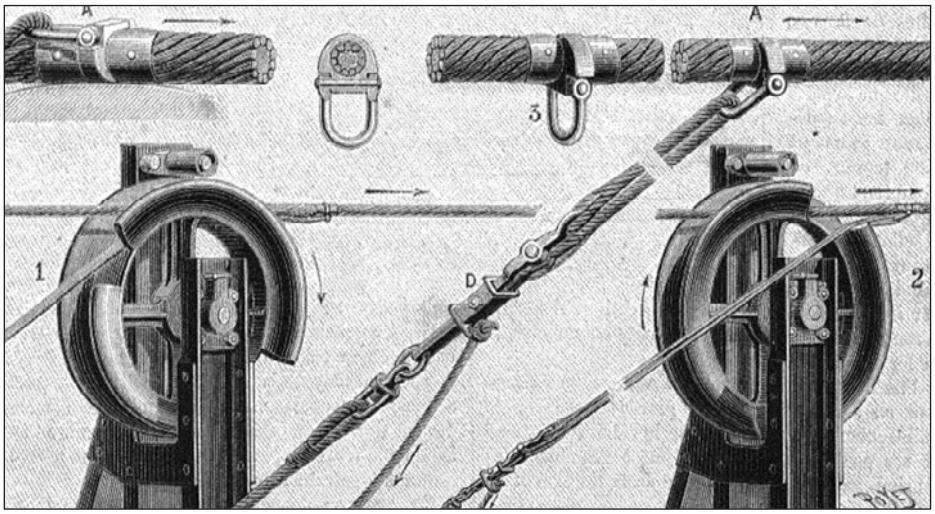
Barge entering lock pulling on fixed cable – Electrc 'mules' on bank

Towards the end of 1893 the first electrically powered submerged flexible cable system was installed on the Bourgogne canal in France. The line remained in service for more than 20 years and proved very satisfactory. It was the first electrical boat propulsion system to be operated on a practical, commercial basis. Moreover, it was a zero-emissions transport system - the electricity was generated by means of turbines placed at the weirs of two successive locks with a fall of 7.5 metres (24.5 feet). Apart from the ecological advantage, probably not appreciated at the time, the use of own-generated electricity reduced the cost of operation.



Overhead cable to power chain hauling system

Much later, in 1933, another line was set up on the Canal de la Marne au Rhin. This system is still in use today but, in this case, the trolley line is in a tunnel, almost 5 kilometres (3.1 miles) long.



Details of funicular system

The method had two major disadvantages which prevented it from being used on a larger scale. The first was the difficulty in negotiating curves and secondly, locks required picking up and dropping the cable which caused considerable difficulty and loss of time. For these reasons submerged cable towing was realistically limited to straight stretches of canals with no locks.

Cable towing (funiculars)

The French engineer, Maurice Lévy, was inspired by funiculars instead of trolleybuses and in 1888 he conducted several experiments hauling boats by attaching them to a moving cable.

Contrary to the systems described above, there was no motor or engine placed on the boat itself. The boats were propelled by a moving cable on each bank, carried on supports, provided with pulleys, and operated parallel to the canal. The cable was moved by a fixed motor, also placed on the banks of the river, and the boats were attached to the cable by means of hauling ropes. This was an adaptation of the same technology used for aerial ropeways and wire rope power transmission.

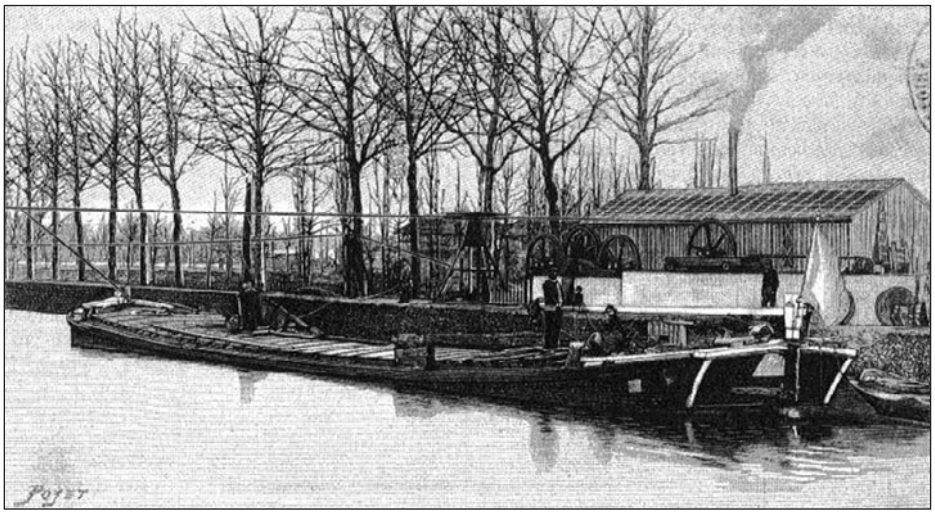
Protruding from the boat were suitable arms that were adapted to grip and hold the moving cable. The boat could be started or stopped by connecting or disconnecting the grip on the cable and the system operated at 4 kph (2.5 mph).

The cable was installed a few yards from the edge, in order to leave the tow path free. The method was thus easy to combine with horse and mule powered canal boats.

Cable towing had some interesting advantages over the previous method. Just as with submerged chain towing, no wash was created. Furthermore, there was no need to place an engine onboard, which meant that no cargo space was sacrificed, and that existing barges could be used without any further adaptations, or without the use of a towboat. Moreover, taking turns and passing sluices went much more smoothly than with the submerged chain method described above.

In spite of obvious advantages, the experimental line was dismantled after some years and Lévy installed his only commercial system on the Aisne-Marne Canal, towing barges through the 2.6 kilometre (1.6 miles) long Mont-de-Billy tunnel. It remained in use until 1940.

The information and illustrations in this article are largely drawn from Kris de Decker's *Low Tech Magazine.*



Barge attached to funicular cable

Digging at Worsley Green

Between 22 and 25 July and the 29 July and 1 August a research and community dig was conducted on the site of the former canal workshops at Worsley Green, in the centre of Worsley about six miles west of Manchester. It was led by the University of Salford with group members from the Greater Manchester Archaeology Federation also participating, including members from Salford Archaeology and History Society, the South Trafford Archaeological Group and the South Manchester Archaeology Research Team.

Mike Nevell

Image of tram line within the 19th century workshop being excavated

The project aims to understand better the development of the Worsley Yard canal workshops, established on the site of Worsley Green in the 1760s by the Duke of Bridgewater and his estate manager, John Gilbert. These industrial buildings serviced the Worsley coal mines, and the boats using the Bridgewater Canal and underground canals at Worsley. They were closed around 1904 when the workshops were moved to Walkden. Permission to demolish the old buildings at Worsley Yard was given by the then Earl of Ellesmere to Captain Henry Hart Davis, Chief Agent of the Bridgewater estate, in 1904. The demolition of the yard buildings and the creation of a grassed green were part of a wider programme of gentrification, to turn the area into a garden village. By 1910 there was a new road, The Green, lined with 30 newly built estate houses to the west, south, and east of Worsley Green, and a new bridge across the canal to the south. Other industrial buildings demolished at this time included the flour mill and canal warehouse by The Delph.

Five test pits dug in the summer of 2018 by the Salford Archaeology and History Society revealed archaeological remains from the eighteenth and nineteenth century just below the turf in the area of the Manor House, close to Worsley Road.

In 2019 the Manor House building was further explored with additional trenches opened to locate the railway buildings and tracks to the south of the manor house. The Tameside Archaeological Society also undertook a geophysical survey of the central and eastern part of the Green in order to trace the mid-nineteenth century railway tracks.

Eight trenches were dug in 2019, four in the area of the Manor House, three over the site of a railway workshop to the south, and one over the line of railway tracks north of the Bridgewater monument. The four trenches in and around the Manor House revealed that the outbuildings to the west in one trench had several phases and that the area had been used as a rubbish dump for kitchen waste. Pottery recovered was mostly from the eighteenth and nineteenth century, but there was also some slipware from the late seventeenth century/early eighteenth century and a few sherds of Cistercian ware from the seventeenth century. Two trenches were excavated within the brick-built house, where it was discovered that both the southern-most rooms were cellared, and lime-washed. The eastern Manor House trench, 1m by 1m, was full of demolition rubble and quickly backfilled. In the largest trench, 4m by 5m, the brick barrel-vaulting and stair access into the cellar was found to survive in the south-western corner of the house. The handmade brick sizes suggested that this part of the building was built in the late eighteenth century; only late nineteenth century and early twentieth century material came from the demolition infill of the cellars. A fourth trench, 1m by 1m, to the north of the Manor House only located brick demolition rubble.

Three trenches were dug over the site of a railway workshop to the south of the Manor House. The largest trench, 2m by 4m, was located in the centre of the open-sided shed shown on the OS 1891 map. This contained a clay bed about 0.2m deep for a railway line within the structure. This bed retained the impression of two wooden railway sleepers. Beneath this was a deep foundation deposit (0.5m plus) of ash, cinders, and clinker above a clay level. This was the area of the early nineteenth century gas holder and it is possible that this foundation layer was created when that structure was demolished in the mid-nineteenth century. A second trench, 2m by 2m, to the north located an area of flooring covered in iron metal residue, up to 0.15m deep and a narrow metal pipe running beneath this layer. A small trench, 1m by 1m, was dug on the northern side of the workshop in the hope of locating the northern wall. This located another part of the internal floor area covered in iron metal residue.

Finally, a single trench was dug over the line of railway tracks north of the Bridgewater monument. This located cinder, ash and clinker foundations spread over a 4m width and surviving to a depth of c 0.30m. This was interpreted as the track bed for the railway points shown in this area on the 1891 OS map. A few nineteenth century earthenware sherds came from the track bed make-up, while beneath was a clay layer.

The work during the second season at Worsley Green located one of the largest workshops built in the nineteenth century and confirmed that the parch-marks seen as rows of parallel lines on the grass were the shadows of the railway tracks built on the green in the mid-nineteenth century. Furthermore, the remains of the Manor House were found to be more substantial than previously known.

The Society for Industial Archeology (SIA) 48th Annual Conference, Chicago, 2019

Basic Oxygen Furnaces installed at ACME steel in South Chicago in 1959, believed to be the oldest working in USA. The owner now is Arcelor Mittal. Visited on SIA tour. *photo Mark Watson*

The Windy City was well attended, and there was a full day of paper presentations- so many that they frustratingly occupied four parallel sessions. One of these was to look at the revised tentative list for future nominations to the World Heritage List (the USA has not fully withdrawn from UNESCO). Brooklyn Bridge is one of these, and participants heard the UK experience regarding the Forth Bridge, and also about TICCIH comparative studies into various types of industry. A separate room for "Pontists" housed the annual bridge symposium, and the late Eric DeLony (chief Architect at HAER, the Historic American Engineering Record) was of course remembered there.

SIA tours always emphasise process tours that show active industry. It is noticeable that there are more of these to choose from in USA than in the UK. – Many members sport their own hard hats, but they are will be supplied by hosts just in case. – Tours went to sites connected to steel making and rolling, water supply, deep underground, nuclear power and sausage-making. They heard about the redirecting of a river away from Lake Michigan, sending its pollution instead to the Mississippi. The celebrated Pullman company town was among those seen, the non-residential part now being taken on by the National Park Service. It had early been an employer of African Americans in the Pullman cars across USA, and in a separate part of the company town here, which featured in the Fugitive film, along with the "El", elevated railway that rattles around downtown. The conclusion was a spectacular cruise on the River Calumet, past blast furnaces and under the lifting bridge made famous by the Blues Brothers.

If I may be permitted some observations, it is that Americans like their creature comforts, so the conference hotel is always going to be relatively plush, unless you break away and find a hostel instead. Set against those high costs is the possibility of student travel grants (one of the successful applicants travelled from Eire). Deadline for applications for these this year is 31 March. Poster presentations were done to a high standard, mainly by students.

The SIA 49th Annual Conference in Pennsylvania in 2020 takes place in the Lehigh Valley, Pennsylvania, May 28–31, 2020. The presentation sessions will be held at Bethlehem on Sat., May 30. Conference sponsors include the Anthracite Heritage Museum (Scranton), the National Canal Museum (Easton), and the National Museum of Industrial History (Bethlehem).

While Bethlehem Steel closed in 1995 and ceased operations completely in 2003, the region still maintains active and growing industries including cement, musical instruments, medical supplies, truck production, manufacturing, railroads, industrial components, food production, and disposable cups, and close by are active slate quarries and anthracite coal mines. The many industrial heritage sites in the region including the preserved Bethlehem Steel Complex (Steelstacks), the National Museum of Industrial History, The Delaware and Lehigh canals, the National Canal Museum, Eckley Miners' Village, steam railroads, 19th century blast furnaces, Historic Bethlehem, plus historic sites from the 18th and 19th centuries and many recreational opportunities.

SIA invited proposals for presentations and poster displays on all topics related to industrial archaeology, industrial heritage, history of technology, social change related to industry, and historic industrial structures and bridges. Papers about anthracite coal and on canal history were particularly encouraged. Proposals on historic bridge-related topics were considered for inclusion in the 27th Historic Bridge Symposium. Poster displays can be on works in progress or finished projects offering both interpretation and synthesis of data. The deadline for proposals was January 31, 2020, so do plan ahead for 2021!

Lastly, and perhaps this will strike a chord with members of AIA, the SIA has published a survey of its members. The summary states that "there are those who say change, those who say don't change, and those who are not concerned with it either way… The most direct question simply asked "What is the most important thing SIA needs to change?" As this was an open-ended response, the response rate was lower (only 104 responses, and of these, 33 said that nothing needed changing), and very nearly 75% of respondents did not take the opportunity to identify changes. But that also means that just over 25% of people felt that there was room for change. – Of the 71 responses that suggested change, the largest area of concern was the perennial anxiety that SIA needed younger/new member (28%, 20 people). A dozen people (17%) said that regional representation needs to be included in the decision making, 11 people (16%) said that better visibility and outreach programs/projects were needed to make people aware of SIA, 9 people (13%) said that new ideas were needed, 8 people (11%) that the journal needed improvement, and 5 people (7%) said that the SIA needed to reduce costs. The remaining 8% (7 people), said that we need to "stay relevant", have better meetings, and improve tours."

Steve Walton, conducting the survey for SIA, concluded that these "These are of course all legitimate concerns, though in some cases it is difficult to know how we would actually effect change to address them."

Mark Watson

Shotton, the Dee and Hawarden Bridge

This Shotton is in Flintshire, in northeast Wales - not Durham. Welsh Shotton and its neighbourhood seems to have been somewhat neglected by industrial archaeologists in recent years – but now, all of a sudden, reports have appeared. In the *Industrial Archaeology News 191*, it was announced on page 25 that a listed Edwardian office building there, in imminent danger of demolition, had been saved and is being taken care of. The great Victorian Prime Minister William Ewart Gladstone used to live in Hawarden castle which is just to the south of Shotton and in the recent *Newcomen Links 252*, David Perrett describes a visit he made to the wonderful library there set up by Gladstone. A large collection of printed works on the history of technology has been bequeathed to this library by Richard Hills. The collection has now been catalogued and is available for the general public to use. Moreover, the opening hours of the Library are very generous, 9am to 10pm, seven days a week.

As well as giving more information about the listed Edwardian offices, this article provides some background and a reason for their existence. At first sight the offices might appear to be in the middle of nowhere but to the west there was a major industrial enterprise, Shotton Steelworks. – These works are now very much diminished but before 1980 they were vast.

The River Dee flows from south-east to north-west, just to the north of the town of Shotton. It is constrained in a narrow artificial channel constructed in the eighteenth century and the current can be exceptionally fast. Near Shotton the south of the Dee is embanked. Up to the mid-nineteenth century there was no bridge until well upriver, almost to Chester but, in 1847, Robert Stephenson built a cast iron railway bridge just to the west of the city. This bridge failed when a train was passing over it and the aftermath of this infamous disaster was depicted in The Illustrated London News in a well-known illustration which shows the wreckage. The view is looking north and shows some small ships with tall masts in the distance; this was then the limit of navigation, even for these small sailing vessels.

In the 1880s The Manchester, Sheffield and Lincolnshire Railway (MS&LR), together with an ally, intended to complete a line from Wrexham to Bidston. This needed to cross the River Dee near Shotton. As small sailing ships still required access to Chester, a fixed bridge was out of the question. It was necessary to build a swing bridge - a mighty undertaking. The resulting fine bridge, the Hawarden swing bridge, still exists and is now listed.

The giant wing sections for the A380 Airbus are manufactured at Hawarden Airport outside Broughton, west of Chester. They are too huge to be flown to Toulouse so they are exported by sea, to Bordeaux on a purpose-built ship from Mostyn at the mouth of the Dee. They travel down the river on a specially-built barge which, with the wing laying flat, will pass beneath the bridges, including the Hawarden bridge.

Now turning to the Edwardian office building mentioned in *IA News191*, these were the former general offices for John Summers & Sons Ltd, Shotton steelworks. – Designed by James France, in the Manchester Edwardian school of terracotta and red brick, they were listed grade II in August 2005. They were built in 1907 following expansion of the James Summers Steelworks. The clock tower and is an important landmark in Flintshire.

These works north of the Dee opened as the Hawarden Bridge Steelworks in 1896. Harry and James Summers together with their four brothers were enlarging the family business founded by their father John at Stalybridge, eight miles east of the centre of Manchester, in the 1840s. The old site was becoming too cramped and larger premises were sought. They bought 40 acres of Dee marshland and the production of galvanised steel sheeting began. After further purchases, they had a total of 10,000 acres and the general office was built at the works entrance, dominating the view on the banks of the River Dee.

John Summers & Sons Ltd was absorbed into British Steel in 1967; British Steel became Corus in 1999 and was then taken over by Tata Steel in 2007. In 2010 the real estate company Pochin Goodman bought 200 acres of surplus land from Tata for five million pounds which included the general office and four other buildings.

At its maximum, the John Summers & Sons Steelworks were huge, up to 8 miles wide. The site will be long remembered as the place where in 1980 on the 31 March, 6500 jobs were lost - the biggest industrial redundancy on a single day ever experienced in Western Europe. British steel production has never recovered, and the current neglected state of the general office building is a sobering reminder of a major world industry that Britain lost and may never reclaim.

The John Summers offices were at the southeast corner of the steelworks, close to the north end of the Hawarden swing bridge. Designed by CA Hobson and opened in 1889, Hawarden Bridge has three steel spans and the swing bridge section at the north end is 287 ft long. When inaugurated, it was the largest swing bridge in Britain. In 2010 - 14 the bridge was refurbished and upgraded, enabling speed and axle load limits to be raised. The Hawarden Bridge now has a full RA10 rating which means that it is usable by any locomotive that fits within the British loading gauge. It was listed grade II in May 2005.

Three spans of steel hogback N trusses carry two railway tracks over the River Dee. There are two fixed spans each of 125 ft, and at the north end is the swing bridge itself which originally rotated through 90 degrees to allow the passage of ships. This movable span originally weighed 750 tons and could rotate between its closed and open positions - it was said - in just 40 seconds. The moving span was operated from a control tower at the north end but this was demolished in 1976. There was originally a steam-powered hydraulic pumping station. Electric pumps were installed in 1929 with the steam plant being removed soon after.

The bridge can no longer open and in fact it has been welded shut having last opened in 1960. Remains of the bridge mechanism, hydraulic cylinders attached to a drive chain and sprocket, are still visible beneath the bridge,.

Returning to The John Summers & Sons office

John Summers and Sons offices *photo Robert Carr*

Hawarden Swing Bridge now secured closed photo Robert Carr

building, this was listed shortly after the Hawarden swing bridge but had become one of the UK's most at risk buildings, being repeatedly vandalised since it was boarded up about 10 years ago. It has been on the Victorian Society's Top 10 most endangered buildings list so it is particularly good news that it is being acquired by a foundation which will convert the building into a community hub at a cost of over 5 million pounds. The construction firm Pochin, which bought the building three years after it closed in 2006, is about to sign it over to a local enterprise group – the Enbarr Foundation. This is a coalition of volunteers, social organisations, businesses and the public - working together to transform the area. Pledges of time and materials have reached £1.5m and there has been a grant from Cadw to remove asbestos.

Quite substantial house building is now taking place in the area. At Sealand to the north of the Dee, Countryside Properties is building 283 new homes on the site of the former RAF South Camp.

The MS&LR changed its name to the Great Central Railway in 1897. There is still a Central Hotel in Shotton close to Shotton railway station which is now a Wetherspoon's and as this is Wales there are some Welsh items on the menu. Shotton steelworks is still in production but on a much smaller scale than in its heyday.

Robert Carr

Thanks are due to Tim Smith for supplying additional information.

ERIH UK

In September the autumn meeting of ERIH UK (European Route of Industrial Heritage) was held at Port Sunlight on the Wirral in Merseyside. The host was the Port Sunlight Village Trust.

It was well attended by around 25 delegates from industrial heritage sites and heritage organisations from across the UK. The twin themes were living with planned industrial communities and skilling volunteers. There was a series of talks on these themes and around potential sources for funding. Mark Watson began the morning by talking about planned industrial communities (of which Port Sunlight is one) in the UK and the rest of Europe. His emphasis was on the balance between their conservation and the need to maintain them as living communities.

This was followed by Katherine Lynch of the Port Sunlight Village Trust who talked about the stresses and strains of dealing with a heritage site in which people lived and some of the potential areas for misunderstanding and mis-communication.

Mike Nevell from the AIA then talked about skills in the industrial heritage sector, and the main pools of expertise and the need to maintain the skills of the volunteer base.

Finally Julia Birch of the British Council talked about the Creative Europe Programme funding stream. This European-wide scheme is open to both EU and non-EU countries. The Creative Europe Desk UK (http://www.creativeeuropeuk.eu/) – – has a team based in London, Manchester, Edinburgh, Glasgow, Cardiff and Belfast who organise workshops, seminars and events to promote the fund. It is open to volunteer organisations such as industrial heritage groups and trusts. So far few such organisations have applied in the UK. Thus, Julia urged ERIH UK members to take advantage of this funding for skilling volunteers and supporting industrial heritage projects.

There was a tour of the Port Sunlight Village after lunch.

Mike Nevell

EFAITH

The AIA remains part of the EFAITH network (http://www.industrialheritage.eu/). EFAITH ***(European Federation of Associations of Industrial and Technical Heritage)*** is devoted to cooperation between industrial and technical heritage associations and volunteers in Europe.

The website is a platform for promoting contacts and co-operation between volunteers and non-profit volunteer associations in Europe. It supports member's activities and campaigns (such as to preserve industrial chimneys and cranes), as well as promoting the valuable role of – – volunteers and voluntary associations researching, saving, interpreting and opening to the public the many industrial heritage sites and collections across Europe. There is a regular newsletter and EFAITH is very active on social media, as AIA followers of our twitter account and our Facebook pages will have noticed.

The second edition of the new AIA e-News has now been published – sign up to receive these quarterly bulletins on the AIA website. Just under the AIA logo click on mailing list and subscribe.

Restoration Projects

Sudbury Gas Works

Sudbury Gas Works before restoration

In 2018 the AIA made a Restoration Grant of £15,500 towards the restoration of the retort house at Sudbury Gas Works. This work was the first stage in a much larger project which has now obtained £1,377,800 from the National Lottery Heritage Fund.

The Sudbury Gasworks Restoration Trust (SGRT), the charity behind the project 'Rescuing and Restoring Sudbury Gasworks', will re-develop the disused gasworks building in Sudbury, Derbyshire by – preserving and refurbishing the structure and site of the 1874 Sudbury Gasworks, extending the building sympathetically on the footprint of the former gasholder and securing the long term future of the building through a range of new public uses. Other funders including the Pilgrim Trust, The Historic Houses Foundation and The Derbyshire Dales CVS, the project will create a flexible, vibrant and accessible community facility.

The Grade II listed 'at risk' building is attributed to George Devey, an architect known for his work on English country houses and estates. – The original purpose of the building was to manufacture gas from coal to supply Sudbury Hall (now a National Trust property) and village. The gasholder was dismantled in the 1930s, and the building now stands empty with noticeable deterioration and moderate collapse to the roof. –

Following building work, which is expected to start in summer 2020 and last for around twelve months, Sudbury Gasworks will be used for a variety of purposes; meeting the twin aims of providing community benefits and creating income streams to support the ongoing maintenance of the site.

A 'drop-in heritage' space will be created in the former retort house (where coal was heated in retorts to produce gas), to allow people to find out more about the building and the locality, while a new-build circular main hall will be constructed on the footprint of the demolished gasholder, accommodating up to 100 people for a range of events, including as a wedding venue. –

Throughout the restoration phase, a programme of events and activities will be held to fully involve members of the local community and visitors in the process, including:

- 'Hard hat' tours during the building works to show people the progress;
- Family activity holiday days and weekends;
- Tea and talks;
- An in-depth three-year project with Sudbury Primary School and Hatton Heath Fields Primary School;
- Temporary exhibitions and Community inspired heritage drama productions.

SGRT will also work closely with Sudbury Hall and the National Trust Museum of Childhood, Sudbury Estate and HMP Sudbury to help strengthen local partnership working. –

To meet their own fundraising targets, SGRT will be launching a programme of events from February 2020. – Keep an eye out on their website and social media for further details. – Search Sudbury Gas Works

Big Pit headgear scaffolded for repair

The Big Pit

In 2019 the AIA awarded a restoration grant of £20,000 towards the cost of restoring the Grade II* listed steel headframe structure at the Big Pit National Coal Museum. The Museum is making excellent progress and has sent this interim report.

JJ Williams Ltd from Bridgend, was appointed on 8 August 2019 to carry out the work on the headframe structure. – Shortly following this, on 19 August, the access scaffolding around the headgear was erected and work started on 2 September. – The headgear was cleaned, painted and restored and ran to time, finishing at the end of September.

Information panels were installed near the headgear at the start of the project and have been in place during the entire restoration. – These will shortly be moved but still kept on site as a legacy of the project.

The preservation of the winder has enabled us to further develop tours for different groups for whom the significance of this personal history is important but who are traditionally excluded from the museum experience. Over the last three years, we have been working in collaboration with local ageing and dementia friendly organisations. This in turn led to the launch of dementia friendly underground tours. Feedback from these tours further highlighted the importance of retaining as much of the original miners' experience to enable people to remember and connect with their own personal histories. – We held our first dementia friendly surface tour on 25 September. – The repair of the winder has enabled us to continue to provide this authentic underground experience as part of the dementia friendly tours. We have also engaged with the intergenerational group at Big Pit so that young people too can learn about the importance of the winding headgear and the site's heritage status and why this project is needed. An Intergeneration Group Workshop took place on 23 September.

We will now evaluate the project in detail and report on the results and outcomes in our final report.

Plaque now fitted on the Henry Frederick Swan

Henry Frederick Swan

The North East Maritime Trust were pleased to report that the 1918 ex-RNLI lifeboat, *Henry Frederick Swan,* was launched in July 2019 and then underwent her sea trials. See the front cover. The work was partly funded by an AIA Restoration Grant in 2015 and it had been hoped to complete the necessary tasks by 2017 but the restoration was delayed by the need for additional extensive essential work.

The work was entirely performed by volunteers some of whom had to be trained in traditional methods and technique. However, all is now complete and the boat is in very good condition and held in high regard by the RNLI, Civic Trust and Trinity House. She will remain on the water as a true floating exhibit of a lifeboat that entered service at the end of WWII with sail, oars and engine. She will sail on the east coast to events and gatherings and continue to raise funds to carry out annual and other maintenance as necessary.

The Trust has now embarked on the restoration of the 1886 South Shields built lifeboat *Bedford* and her 2.5 ton wooden wheeled carriage, believed to be the only matching pair in the world.

AIA Council meeting October, 2019

Restoration Grants - starting this year there will be a new category for small projects with a grant limit of £5,000 and for which the total cost must not exceed £10,000. Twenty percent of the available funds will be allocated to this strand. The maximum for the large grants remains unchanged at £20,000. All details are on the web-site.

Orders for **AIA publications** can now be placed online.

AIA Practical Weekend: North Wales Slate Industry, 24-26 April 2020. This will be based in the National Slate Museum in Llanberis. The main speakers are Dr David Gwyn, author of *Welsh Slate,* and Dr Dafydd Roberts, Curator of the National Slate Museum. Full details and booking arrangements will be on the website when finalised, they will also be sent to all who are on the AIA's Mailing list.

The theme for the **Friday seminar** at the Annual Conference, Liverpool 20 to 27 August 2020, will be on **Climate Change and Industrial Heritage**. Booking for both seminar and conference will be open in spring 2020.

It was confirmed that the venue for the Annual Conference in 2021 will be the Dublin City University.

The Outstanding Scholarship Award for 2019 was presented to John Barnatt on 15 October at the Peak District Mining museum.

Publication Awards – rather than differentiating between commercial publications and those produced by voluntary societies there will be just the one category with up to three awards a year from a pot of £600. Judges will seek to recognise the contributions of local and voluntary societies.

Dissertation Awards – it was agreed to abandon the restriction of one award per university and also the distinction between undergraduate and postgraduate awards, and to allow dissertations written within the last two years.

Award Deadlines — For 2020 the deadlines for all awards will be unchanged, but from 2021 onwards the deadline will be 1 January. It was also resolved that two years' free AIA membership be offered to award winners.

Marilyn Palmer and the Secretary, David de Haan, will revise the award criteria and once finalised they will be put on the web-site.

Finance and Membership – the Treasurer reported that a small operating surplus is expected for the end of the financial year. The year 2023 will be the 50th anniversary of the Association. How this will be marked has yet to be decided, but in the meanwhile the level of our reserves will be maintained to enable us to finance the agreed celebrations.

Membership is holding up and is expected to remain the same as last year's, i.e. 500 members.

Planning and Casework – Our new relationship with the Ancient Monument Society (AMS) is working well and Council thanked Amber Patrick for her work. The AMS notify us of industrial cases that are the subject of listed building or planning applications. In this way 19 potential cases have been reported to us and comment has been made on four of these and another two are outstanding. Two cases have been reported to Amber directly, one commented on and one outstanding.

Industrial Archaeology Review – the first 2020 issue is on course for publication at the end of May. Likely contents include articles on sulphur mining in Chile, approaches to the examination of industrial development in the Derwent Valley in north-east England, and an early railway that crossed the Cheshire/Staffordshire border.

Good News

The AIA Treasurer was delighted to announce that he had received a cheque from an anonymous donor for £100,000. Together with the tax credit this will give £125,000 to be distributed to AIA Restoration Projects.

Apologies

The account of the AIA prize-winners for 2019 failed to mention that the Voluntary Society Publications Award went to Staffordshire Industrial History Society for the Golden Jubilee edition of their Journal, which traced their many activities over 50 years including their meticulous recording work. Anne and Jim Andrews gave a detailed presentation on this at the conference in Bridgwater.

AIA Library

The Ironbridge Library is a reference library, not a loan one, but it holds one of the best collections on industrial archaeology in the country, including material deposited by the Association of Industrial Archaeology, material on loan from the Historical Metallurgy Society and extensive collections on the Industrial Revolution of national importance. It is open by prior appointment Monday to Friday 10.00 to 5.00 but closed at weekends. To book a place, email, post or phone to Joanne Smith, Ironbridge Gorge Museum Library, Coalbrookdale, Telford, Shropshire, TF8 7AW. Tel: 01952 432141. Email: joanne.smith@ironbridge.org.uk.

Peter Neaverson Award 2019

John Barnatt and Marilyn Palmer in front of the Wills Founder Engine and Pump in the Peak District Mining Museum. The engine was made in Coalbrookdale in 1819 and excavated from a shaft in Winster in 1976.

The Archaeology of Underground Mines and Quarries in England, by John Barnatt, published by Historic England, won the 2019 Peter Neaverson Award for Outstanding Scholarship. – Until his recent retirement, John was the Senior Survey Archaeologist with the Peak District National Park Authority, and a prolific writer as well as a professional archaeologist who worked alongside volunteers for much of his career. His book, based on a report written for Historic England, introduces the reader to the largely unknown world beneath the more familiar surface mining sites. It contains some spectacular images of underground exploration and archaeological remains such as winches, waterwheels and underground railways and even canals.

Since John was unable to attend the Annual Conference to receive his award, this was presented to him by AIA President Marilyn Palmer at a very well-attended lecture he gave in the Peak District Lead Mining Museum in Matlock Bath in Derbyshire on October 15, 2019. He will be speaking again at the 98th EMIAC in the same venue on 2 May, 2020.

A warm welcome to our new members:

Ross Cook of Lampeter
Otis Gilbert of Sheffield
Kenneth Jackson of Skipton
Mark Seaborne of Dunfirmline
Alastair Weir of Kilwinning.

PS Waverley appeal successful

Thanks to continuing support, the fundraising appeal to save paddle steamer Waverley has reached its £2.3 million target just seven months after it was announced that the famous steamship would not operate in 2020.

The Boiler Refit Appeal has attracted donations from over 8,000 individuals with support from the Paddle Steamer Preservation Society, several trusts and £1 million from the Scottish Government. Arnold Clark and the Swire Charitable Trust have both just confirmed their support taking the appeal to its target.

Eddie Hawthorne, CEO & Group Managing Director for Arnold Clark, made the following statement: "I'm delighted that we're able to contribute £50,000 towards the restoration of the Waverley. Arnold Clark understands how significant the ship and its heritage is to Glasgow and we were keen to help towards the £2.3m fundraising target. I'm looking forward to seeing the Waverley on her way back 'Doon the Watter' soon.'

Waverley will be moved from Glasgow to Greenock, under tow in January, where the major "open-heart surgery" will take place. The full works are expected to take around four months to complete allowing Waverley to undertake her regular cruises around the west of Scotland, the Mersey, Bristol Channel, South Coast and the Thames in 2020.

One of Waverley's boiler shells after being rolled and welded

The order for Waverley's new boilers was placed in July and after an extensive design phase both boilers are now being constructed at Cochran's workshop in Annan. Our operations director visited Cochran's recently to observe progress. He was impressed by the quality assurance processes in place and the high standard of work being carried out.

HMT Viola

The splendid photograph of the trawler *Arctic Corsair* showing her beautiful seaworthy lines, which appeared in *IA News 191* brings to mind the possibility that another historic trawler might fairly soon join the *Arctic Corsair* as a museum exhibit in Kingston upon Hull.

This is the *Viola*, a steam trawler built in 1906 near Hull. She is the oldest surviving steam trawler in the world. Currently beached at Grytviken in South Georgia, there are now plans to return her to Hull. The *Viola* was built in 1906 by Cook, Welton & Gemmell at Grovehill, Beverley, on the River Hull. Here, the river being narrow, vessels were launched broadside. She is just over 108 feet long and 182 tons gross.

Viola became part of a fleet of fifty vessels owned and operated by the Hellyer Steam Fishing Company. She was with them from 1906 to 1914 and then entered Admiralty service. In 1918 she sailed from Humber Dock, now Hull Marina, never to return. She was subsequently involved in whaling and sealing and also served as a support vessel for expeditions in the South Atlantic. In 1919 she had been renamed *Kapduen* and in 1926 the name was changed to *Dias*. The whaling station at Grytviken closed in 1964 and along with other vessels *Dias* was laid up, and subsequently decayed.

Dr Robb Robinson of the University of Hull's Maritime Historical Studies Centre said initial discussions have taken place with businesses about the logistics of acquiring the *Viola* and bringing her back to Hull. There have also been talks with Hull City Council about putting the *Viola* on permanent display.

Robert Carr

Hull Museum

Hull Maritime Museum closed its doors on 19 January as a major refurbishment project got under way.

The site's improvements are being undertaken as part of the Hull - Yorkshire's Maritime City initiative. This overarching project has received a National Lottery Heritage Fund grant of £13.6 million, in addition a £10m commitment from the city's council.

The Arctic Corsair, North End Shipyard, Spurn Lightship and Dock Office Chambers join the Hull Maritime Museum as recipients of this financial support.

Before work begins inside the Museum, over 50,000 artefacts will be checked, documented, conserved and packed prior to being shipped to storage facilities. This laborious process will take the team just over a year, meaning work will not begin until next spring.

From that point on it's hoped a 19-month timeframe will be sufficient to complete the refurbishment. Late 2023 is the closest the Museum has come to giving a date for reopening.

Once the Museum is stripped back, visitors will have the rare opportunity to visit the empty maritime building before construction works start. Four touring exhibitions will also be launched during the closure, travelling to venues around Hull and then the wider region.

Award for the Cambridge Museum of Technology

As two museums received the same score and had equally high praise from their mystery shoppers, the Cambridge Museum of Technology and the Museum of Zoology were jointly given the accolade of Large Museum of the Year at the Museums in Cambridgeshire Awards 2019.

The judges said, "the Museum of Technology, the first of our winning museums has undergone a complete transformation over the past year. Its painstaking refurbishment and the dedication of its staff to putting its collection at the heart of everything it does means that the museum not only meets the expectations of a 21st century visitor, but as a leading repository of information about Cambridge's industrial past, places itself at the heart of Cambridgeshire's heritage offer. Judges were delighted to see the museum developing programmes celebrating women in STEM and constantly finding creative ways to engage new visitors and business partners, from local manufacturers to tiny alien beings that crash landed their spaceship at the museum entrance. Their team of staff, trustees and volunteers are exceptional."

The redevelopment, supported by the National Lottery Heritage Fund and Historic England, has included repairing the historic boiler system to run the steam engines again, creating new displays on local industries and technology, and improving visitor facilities and disabled access.

One Facebook user commented, "The Museum is the Jewel in Cambridge's Crown!"

Planning Casework Report

In *IA News 191* there was a report on the AIA's help in saving the gatehouse to a former mill in Bradford. The report made the local press, the *Bradford Telegraph and Argus.* Such newspaper reporting is rare. However, that does not mean no account is taken of the AIA's comments. Two cases have either directly or indirectly been influenced by such comments.

The first was H. A. & E. J. LittleJohns, Westcombe Lane, Bideford (Torridge Council). The AIA is not mentioned specifically but the changed plans submitted clearly reflect our comments with regard to demolition. The proposal, made in 2018, was to demolish both the former mill and the coal yard buildings and replace them with 14 residential units (town houses and flats). The building started as a corn mill, first water and later steam powered. Following this it was converted to a collar manufactury, powered by a gas engine but collar production ceased at the end of the first quarter of the twentieth century. It is worth noting that the textile industry, in this case collar manufacture, was successful in Bideford, particularly as an employer of female labour. The mill and the coal yard were one of the few surviving pieces of Bideford's industrial heritage and were an interesting example of reuse. The AIA argued that the loss of these buildings, most notably the mill, would remove an important piece of the town's textile industry history. Although this application made at the beginning of 2018 remains undetermined, there has been a subsequent, new application in October 2019 which has retained the mill building.

The second success is in respect of The Old

The Old Malthouse, Banbury – photo Amber Patrick

Malthouse, St John's Road, Banbury (Cherwell Council). Here the first application made in 2017 was for a change of use from offices to a dense 25 residential units. The conversion of the malthouse would have resulted in the more or less open spaces, so typical of a maltings being split up and in the process the rather spectacular roof structure being hidden. Although this malthouse was neither externally typical nor easily recognisable as such, it was both an important survivor of Banbury's once extensive malting industry and significant for its association with the Austin family. Fortunately the application did not succeed. The most recent application documentation specifically referred to the AIA's previous comments. The new application is for the Malthouse to remain in its previous use as offices and although there are internal subdivisions these are reversible and the interesting roof structure will be visible.

Finally, if it seems these two applications have taken a long time to come to fruition, then, it is worth noting that in respect of Bulcote Model Farm, Bulcote, Nottinghamshire, The application first came to the AIA's attention in 2015 when a comment was made and again in 2017/8 and most recently in November 2019.

Amber Patrick,
Planning Casework Officer

Heritage Manifesto

The Heritage Alliance published its manifesto, ahead of the General Election, and set out the priorities for the Heritage sector and its key asks for the future Government, Parliament and other decision-makers.

Industrial heritage is, of course, only a part, but an important part, of our national heritage which creates vibrant places and defines our towns, cities, countryside, and coasts, encouraging inbound tourism, uniting communities and enhancing our nation's soft power internationally. It tells our story as a nation and supports social cohesion, rootedness and identity. Heritage drives beneficial change, contributing to our well-being, enhancing biodiversity and supports long-term environmental sustainability.

England's heritage industry directly contributes £13.1bn in gross value added (GVA). This is larger than the security industry, defence industry and the aerospace industry in the UK and indirectly contributes £29bn, equivalent to 2% of national GVA.

Heritage is popular. Nearly 15 times more people visited heritage attractions in 2016-17 than attended Premier League football matches.

The Heritage Manifesto sets out five key political priorities for the future:

1. Champion our unique heritage sector on the world stage;
2. Maintain and improve the protection for heritage;
3. Promote heritage assets as part of creating vibrant places to live in, and build sector skills and capacity;
4. Reform the tax regime to promote the repair and maintenance of our nation's irreplaceable heritage assets, while tackling climate change;
5. Continue to back Lottery funding for heritage.

Sections of the full text which are particularly relevant to industrial heritage include:

Maintain and improve the protection for heritage. Everyone benefits from a good local environment, so we need to see the National Planning Policy Framework maintained as the bedrock of an effective planning system. The system can be enhanced by making it easier for owners to make sensible changes without being strangled in red tape. In turn, local authorities need improved capacity, funding and skills to run the system effectively and ensure sustainable development. The inadequacy of heritage and planning resourcing in local authorities leads to uncertainty, delays, and extra costs to developers, as well as damage to heritage. Public bodies are under pressure to dispose of historic public buildings, but must seek to achieve the best outcomes for the buildings' future, not necessarily the highest price. A statutory requirement for local authorities to provide historic environment services and Historic Environment Records, interim protection for assets under consideration for national designation, and removal of permitted development demolition loopholes would be effective practical improvements, and would help to protect our heritage from the unforeseen consequences of the changes to the planning system and to permitted development. We should ensure that our valuable mobile heritage assets are not inadvertently caught by emissions targets and restrictions on their limited but essential fuel use. Consistent implementation of policy on underwater cultural heritage across government is an achievable step towards protecting our important maritime heritage.

Reform the tax regime to promote the repair and maintenance of our nation's irreplaceable heritage assets, while tackling climate change. We need a more positive, and simpler, tax regime for repair, maintenance and conservation. Work to historic buildings is subject to 20% VAT, yet no VAT at all is charged on demolition or new build. This creates a perverse incentive to demolish old buildings rather than repairing, maintaining or altering them. Incentivising repair and measures for improving energy efficiency of historic buildings in a sympathetic way is much better for the environment. VAT should be permanently reduced to 5%, and ultimately 0%, on the repair, maintenance and improvement of dwellings, and the income tax on heritage maintenance funds should be reduced from 45% to 20%. This would release investment, boost jobs and reduce the carbon effects of demolition and re-build. This approach would also help the Government meet the target of net zero emissions by 2050. Repair and maintenance work on historic buildings generated £6.6bn in construction sector output in England in 2016. – At present the tax incentives for owners are inefficient – a smarter fiscal system would promote better outcomes, for heritage and for society.

Continue to back Lottery funding for heritage The National Lottery Heritage Fund has transformed the way we care for our heritage. We call on all political parties to protect the 20% share of National Lottery funding for The National Lottery Heritage Fund. Historic England and the Arts Council join the Heritage Fund as the bedrock of the sector. Their future stability and adequate funding is crucial.

Digital sources for Research

Access to digital archaeology data online is growing all the time. Knowing where to begin to access this data can be very confusing. Amongst the many different websites available four, free-to-use, online resources that encompass industrial archaeology and heritage are essential starting points for accessing archaeological research online.

The first is the Archaeological Data Service – (www.archaeologydataservice.ac.uk). ADS is a UK-wide open access digital archive for archaeological research from academics, professionals, museums and voluntary groups working in archaeology. This is the only accredited digital repository in the UK for heritage data and has been going for more than 20 years. Hosted by the University of York the ever-growing site includes over 10,000 digital professional archaeology reports (grey literature as it is known), from buildings surveys to excavations, and is a repository for thousands of datasets generated by archaeology projects. There is even access to summaries of some of the local authority Historic Environment Records (HER) data. There is a powerful search facility which makes navigating the site relatively easy.

The second resource is CANMORE (canmore.org.uk/), the online catalogue for Scotland's archaeology, buildings, industrial and maritime heritage. It is hosted and run by Historic Environment Scotland and contains more than 320,000 records and 1.3 million catalogue entries for archaeological sites, buildings, industry and maritime heritage across Scotland. – CAMMORE contains information and collections from all Historic Environment Scotland's survey and recording work, as well as from a wide range of other organisations, communities and individuals.

The third resource worth highlighting is the Historic England website. Although not as easy to navigate as CANMORE nor as easy to search as ADS, the HE website is full of free-to-use material. This includes an interactive database and map for all the listed buildings and ancient monuments in England, monument guides to building types such as textile mills and barns, guidance notes and reports on issues such as climate change heritage, laser scanning and wellbeing and heritage engagement, as well as access to HE's own specialist reports and copies of their research magazine.

Finally, Archwilio (archwilio.org.uk/arch/) provides online public access to the historic environment records (HER) for each of the local authorities in Wales. It encompasses tens of thousands of historic sites and is accessed through an interactive map. The site is run jointly by the four Welsh Archaeological Trusts

Mike Nevell

Clay tunnels revealed after 50 years

A little known network of tunnels lies under the Shipwreck Museum in Charlestown, Cornwall, which operated as the Lovering Clay Dry from 1907 until 1968.The tunnels are now open to the public, and feature the original rail system, as well as the gurneys used to shift clay onto the waiting ships.

Charlestown was a busy port during the nineteenth century and, with the decline of St Austell's copper mines during the initial years of the twentieth century, the clay and stone business became the main industry. The building which now houses the Shipwreck Museum, the Lovering Clay Dry, and the tunnels were constructed at the same time and they remained operational until 1968.

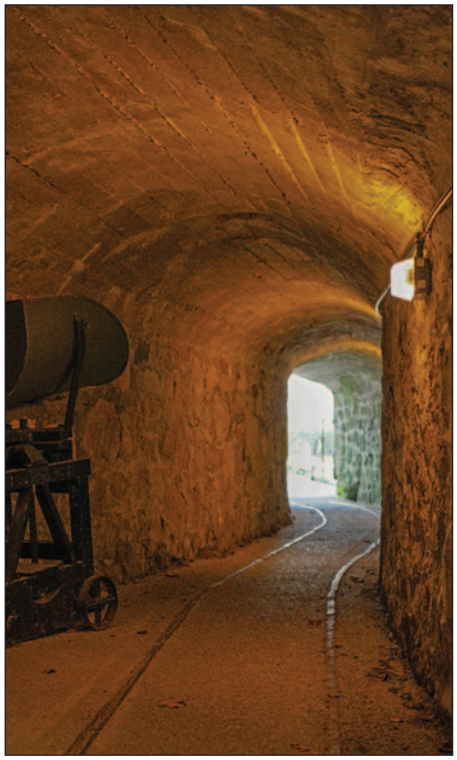
The chimney is listed Grade II as a strong visual reminder of the china clay industry in Charlestown. The tunnels had fallen out of use due to improvements in road and rail infrastructure as well as the slow demise of St Austell's China Clay Industry.

The deep-water harbour, conceived by John Smeaton in 1792, was the focus of the principal industries in the area: copper, clay and pilchard fishing. Copper and clay were heavy products, with no end use in the county, so they were exported by sea to South Wales and Staffordshire respectively, with pilchards exported to Catholic Mediterranean countries.

The two china clay dries at the north and south ends of the settlement were built in 1906-8. By this time, the St Austell copper mines were in decline, and china clay and stone had become Charlestown's main industry. The south dry is known as Lovering's after the company it was built for.

On 19 September 1907, the Royal Cornwall Gazette reported that Messers Lovering & Company had acquired certain clay rights at Charlestown and were contemplating erecting a new dry there. The report noted that the clay was to be piped as slurry from Carclaze to the dry. The dry was the last significant structure to be built in Charlestown, and it is from this point that the village's virtually unaltered appearance dates.

When built, the dry (also known as a pan kiln) was 380 feet long and 18 feet wide, with six attached tanks having a capacity of 8,000 tonnes, and the drying shed a capacity of 10,000 tonnes. By 1933 the two northern tanks had been divided to create eight tanks in all. The drying shed had a furnace at one end and worked on the hypocaust system with a series of flues running beneath a floor of porous tiles, connected to the chimney at the other end of the shed. The tanks were filled with clay slurry, transported directly from Carclaze China Clay Works, 1.5 miles to the north, through a pipeline formed from a deep-level adit, an idea Lovering took from William Pease in 1859. Once the slurry had settled it was run onto the shed floor (the pan) and the hot flue gases would draw the moisture through the porous tiles and out through the stack in a white plume. The stack provided a draught for the furnaces. The dried clay was cut into blocks and stored in an adjacent linhay, and then transported to the harbour stores by the covered tramway tunnel, an innovative system built as part of the dry complex. The dry produced around 450 tonnes of clay each week.



Clay tunnels now on show

Thanks to Neil Preston for bringing this to our attention.

Humber Bridge, Grade I listed

Construction of this iconic bridge started in 1973 and it was officially opened by the Queen, on 17 July 1981.

In a first for a long span suspension bridge, reinforced concrete was used to create the 155m (510ft) towers. This was made possible by advances in the reliability of concrete. At 1,410 metres, it had the longest single bridge span in the world, a record it maintained for 16 years. This formidable engineering feat was needed because of the location of the bridge; the wide estuarial crossing of the Humber was fraught with engineering difficulties. Even now it remains in the top twelve longest spans worldwide.

The functional robustness of the bridge was, of course, tantamount, but the engineers, Freeman, Fox & Partners were aware of the impact such as large structure would have on the open setting of the estuary. They paid attention to design detail and the aesthetic quality of materials. Therefore, despite its great size and strength, the Humber Bridge has a simple elegance in harmony with the landscape.

Europa Nostra most endangered list 2020

Europa Nostra's annual shortlist for the Most Endangered Buildings in Europe has been published with fourteen structures listed.Just two of these are industrial – an abandoned power station in Poland and a tramway depot in Madrid.

Cuatro Caminos Metro Depot, Madrid

Szombierki Power Plant, Bytom, POLAND
A modernist power plant with huge potential for reuse is threatened with demolition. Szombierki functioned for almost 80 years and is one of the last hard-coal fired electric power plants in Europe. For the past two decades, it has been vacant and slowly deteriorating despite several efforts to turn the site over to cultural uses.

The monumental modernist architecture is characterised by its grand facades of dark red brick and its three slender chimneys. In size and capacity, it can take inspiration from similar power plants found in the UK, such as the Battersea Power Station and the Bankside Power Station (Tate Modern), both of which have been successfully converted to cultural use.

Leaking roofs and windows together with vandalism and theft have accelerated the degradation of the site. Little maintenance has been carried out by the private owner, nor has financing been made available to adapt the site to new uses. If solutions cannot be found for Szombierki, the plant will face demolition.

Cuatro Caminos Metro Depot, Madrid, Spain
After more than 100 years of continuous use, this metro depot in the northern neighbourhood of Cuatro Caminos in Madrid now faces the threat of demolition to make way for a large apartment building.

The depot was the first to be built for a metro system in Spain. It is rare in Europe and the rest of the world for its borrowing of the architectural typologies of the New York subway system, such as the sawtooth roofing used in its sheds. As such, it is an essential part of the history of the Madrid Metro.

Although some sheds from the depot have been lost, the remaining structures are relatively well-preserved. Its misuse and lack of maintenance, however, coupled with the use of inappropriate materials such as asbestos, mean that urgent intervention is needed.

Other buildings on the Europa Nostra list include an iconic government building in Oslo which is set to be demolished after damage by the 2011 terrorist's attack; an impressive fortress in Belgrade, deeply rooted in European history, which is threatened by a harmful cable-car project; one of the most prominent cultural centers in Albania and an important social and public space in its capital, which now faces the imminent threat of demolition; – and a spectacularly ornamented nineteenth century castle in Tuscany, which has fallen victim to deterioration, neglect and vandalism.

Nominations were submitted by a civil society or a public body which form part of Europa Nostra's network of member and associate organizations from all over Europe. An advisory panel, composed of 15 international experts, selected the most endangered heritage sites on the basis of their historic and cultural value and the urgency of the threat they are facing. It also takes into account the community engagement, the commitment of public and private stakeholders, the long-term sustainability and the socio-economic potential of the site.

The final list of 7 most endangered heritage sites in Europe will be announced in March 2020.

Szombierki Power Plant Byton Poland

Queen Street Mill

The future of the Queen Street Mill and Helmshore Mill textile museums in Lancashire remains unclear. However, Lancashire County Council is working on a long term plan and has committed funding to keep both museums open to the end of the financial year 2020/21.

Both sites have been open again this summer and autumn. A partnership led by Lancashire County Council and the National Trust is exploring options for the future operation of both sites. It is hoped that new arrangements for running the two museums can be announced soon.

"The way they came down, ...

.....there was the bang, then they just disappeared into a puff of smoke – they took so many years to build and they were gone within an instant."

Lesley Titley, 73, of Ironbridge, remembers the day they were built and said it was an emotional moment to see them go.

Minutes after the explosion which took down the towers that have dominated the landscape for more than 50 years, Mrs Titley said: "I just can't believe they have gone.

"I must admit I'm a little sadder than I expected myself to be. I've grown up around them and we've grown old together, it's almost like losing a familiar face among the town, but I suppose we live in a changing world and change we must."

At 11am on Friday 6 December, the four Cooling Towers at the Ironbridge Power Station were demolished. The blast was heard from as far as Wolverhampton, with people in Donnington and Muxton reporting a sound like thunder while the towers fell.

Thanks to the Shropshire Star

Woodhouse Colliery

Plans for the UK's first deep coal mine in decades will go ahead after the government decided not to intervene.

West Cumbria Mining said the new mine - near the site of the former Haig Colliery in Whitehaven which shut in 1986 - would create 500 jobs. Cumbria county councillors gave it the go-ahead in March, but this sparked a number of objections, including a call for government scrutiny.

However, ministers have now said the council should take the decision and Councillors have ratified their support for the plans.

The Woodhouse Colliery will extract coking coal from below the seabed off St Bees, with a processing plant on the former Marchon site at Kells.

Wingfield Station to be rescued

Wingfield Station – better days ahead *photo Peter Barr*

One of Derbyshire's top ten most important 'at risk' buildings - Wingfield Station – - has been rescued thanks to Derbyshire Historic Buildings Trust (DHBT), Amber Valley Borough Council (AVBC) and The National Lottery Heritage Fund.

AVBC compulsorily purchased the building after more than 30 years of concern over the deteriorating condition of the Station which is in urgent need of repair and conservation.

The DHBT took ownership of the buildings from AVBC on 10 December and will carry out essential work to save it for future commercial and community use.

Built in 1840, the Grade II* Wingfield Station and Parcel Shed closed in 1967 and is one of the earliest stations built in England - possibly the world. It is also the last surviving example of railway architect Francis Thompson's best work on the North Midland Railway.

Francis Thompson was commissioned by Robert Stephenson to design 24 stations along the Derby to Leeds section of the North Midland Line. Wingfield Station is the only one to survive.

Development funding of £137,000 was awarded to DHBT by The National Lottery Heritage Fund to start the project and an application for a further grant to complete the work is planned.

During the restoration of the nationally significant buildings, DHBT is planning to offer a host of activities such as:

- Living History events detailing the story of the Station and the North Midland Railway line;
- Bursary placements for young people's training in traditional skills;
- Open days for the public and local community.

The Trust will also be recruiting volunteers to help with the project as well as collecting memories and experiences of those who used to work, or had families who worked, at the station or on the local railway.

Waltham Locomotives to be Restored

Following a review of their locomotives and rolling stock, Waltham Abbey Royal Gunpowder Mills Company Ltd. (WARGM) have decided to concentrate on their 2ft 6inch Narrow Gauge Railway known as the "Gunpowder Railway". This left the 18" Locomotives, "Woolwich" and "Carnegie" and five carriages together with an 18" Powder Wagon, surplus to their requirements. Both the locomotives are unique heritage items and in sore need of restoration and placing in operation.

WARGM identified Statfold Narrow Gauge Museum Trust Ltd (SNGMT) as the best possible charity to have this unique 18" collection. WARGM and SNGMT have also agreed that WARGM will transfer ownership of "Woolwich", "Carnegie", five carriages and the 18" Powder Wagon to SNGMT. SNGMT have agreed to renovate all back to full operating condition and run on their 18" line, which they will also extend. They will also donate to WARGM a fully operational 2ft–6inch gauge locomotive to WARGM for operation on the "Gunpowder Railway" on WARGM's site at Waltham Abbey, Essex.

Sllvertown Quays

The redevelopment of the 63 acre derelict area obtained planning approval in December.

Phase 1 will include about 1000 homes with 20 per cent 'affordable' and reuse the Millennium Mills and a listed concrete grain silo – Silo D - built in the 1920s. There will also be a public space called Mills Square and a park alongside the dock. The project is expected to take 15 years to complete.

The site which was largely abandoned in the 80s when the Royal docks closed is now owned by the Australian Company, Lendlease and US investors, Starwood Capital.

A village defending its chimney

Saint-Quentin-la-Poterie is a small picturesque village of about 3000 inhabitants, in the French department of Gard, near Nîmes. Since the neolithic period, the history of the village is linked to the terracotta industry thanks to the clay deposits and refractory sands of its district.

Peaceful protest – Saint Quentin la Poterie

A project to build houses was launched on the grounds of the former pipe factory Job Clerc. However, to do this, the last intact chimney of the village and its surroundings would be destroyed. Built at the end of the nineteenth century and 29 meters high, it is a symbol of the terracotta industry in the Uzège region. It is listed.

The inhabitants of the town are wondering how one could destroy this chimney, symbol of the village and a witness of its industrial past.

International Early Engines Conference (IEEC2)

15th May 2020 @ 12:00 pm – - – 17th May 2020 @ 12:00 pm

Building on the success of IEEC1, we are pleased to confirm that the second International Early Engines Conference (IEEC2) will be at the Black Country Living Museum (BCLM) on 15-17 May 2020

The event will run from noon on Friday 15th until noon on Sunday 17th May 2020 and we intend that it coincides with the BCLMs 2020 "Red by Night" evening of Saturday 16th when many of their engines will be working into the night. This date is still to be finalised by the BCLM and if confirmed, will incur an additional entry charge

On the Friday evening delegates travel by coach to Sandfields pumping station for a buffet dinner and access to and talks about the 1873 Cornish engine and house being conserved by our hosts the Litchfield Waterworks Trust.

Additional excursions and visits may be arranged.

We are determined that the culture of the event will again be inclusive, co-operative and non-elitist and the format will be similar to that of IEEC1 including publication of the Conference Transactions.

We already have papers offered on topics such as John Curr's Attercliffe Engines, the oldest B&W Engine House, Early Engines around Swansea, Boiler Making and Water Management.

Full Ticket £135

Day Tickets £40/£45 and £30 (see separate booking form for details – noting 10% early bird discount)
Web Site – – www.earlyengines.org – – – E Mail – – admin@earlyengines.org
Facebook – – International Early Engines Conference

51st SOUTH WALES AND WEST OF ENGLAND REGIONAL INDUSTRIAL ARCHAEOLOGY CONFERENCE (SWWRIAC)

SATURDAY, 4 APRIL 2020
ELIM CONFERENCE CENTRE, WEST MALVERN, WORCESTERSHIRE WR14 4DF

The Worcestershire Industrial Archaeology and Local History Society (WIALHS) are pleased to invite you to attend this conference which we are proud to host in our 50th year since founding in 1971. We have chosen the splendid venue of the Elim Conference Centre in Malvern. As a residential college, the venue can offer accommodation to those wishing to arrive on Friday 3 April. Delegates to the conference should contact the venue directly on 01684 588967 to book. A special rate from £45 B&B has been negotiated, but spaces are limited. Why not come early and book a visit to the Morgan Motors factory in Malvern—01684 892295 for details?

The draft programme includes

Dr Dennis Williams – *The Industrial Archaeology of Croome Park, RAF Defford, and the Museum of Jet Flight.*
Pamela Hurle – *Stephen Ballard, Canal and Railway Engineer and entrepreneur of Colwall.*
Dr John Harcup – *The Magic of Malvern Water - The Springs of Malvern and the Water Cure.*
Mike Napthan – *The Industrial Archaeology of Worcester's Shrub Hill Station*

Visits after the conference are to be confirmed but include:

Malvern Town Centre, the Priory and water spouts
Great Malvern Station
Geology of the Malvern Hills
Elim Conference Centre - originally the large mansion of Lord Howard de Walden

The conference fee of £23 is inclusive of refreshments morning and teatime and a three -course hot lunch.
The programme and booking form is now available on our website at www.wialhs.org.uk. Any queries phone Christine Silvester 01905 354679 or email conference@wialhs.org.uk

The 7th International EARLY RAILWAYS CONFERENCE

NATIONAL WATERFRONT MUSEUM, – – SWANSEA, SOUTH WALES
10th – 13th June 2021

CALL FOR PAPERS

This seventh international conference continues the sequence of both the Early Railways and Early Main Line Railway conferences. – – These two themes will henceforth be combined. – – Researchers into early railway history, from its origins in the seventeenth century right through to the developing main line and industrial railways of the 1870s, are invited to submit papers, arising from previously unpublished research, to be delivered at the conference. – – One day will be allocated to the pre-main line era, and the remainder of the programme will be devoted to the development of main line railways in their earliest years. – – Papers are particularly sought on:

> Political and statutory influences and context, economic evaluation, capitalisation and finance, management, staffing and administration, Engineering, including all civil and mechanical aspects, including locomotive and winding engines, rolling stock, infrastructure and buildings,
>
> Social context and cultural impact,

Papers from around the world are encouraged, to provide international context.
Written versions of the papers presented to the conference will be considered for publication in the conference proceedings, Early Railways 7.
Proposals for papers, accompanied by short synopses, should be e-mailed to the organising committee (email: er7@rchs.org.uk) by June 30th 2020.
– – Authors selected to present papers should provide a 200 word abstract by 31st December 2020 for assessment by the committee.

Sponsored by: The Newcomen Society, Railway & Canal Historical Society, National Railway Museum, Institution of Civil Engineers, The Stephenson Locomotive Society

TICCIH CONGRESS XVIII 2021: CALL FOR SESSIONS

Industrial Heritage Reloaded
Industrial Territories, Changing Cultural Landscapes

Montreal, Canada, 30 August - 4 September, 2021

Beyond Obsolescence. Discuss the Futures of Industrial Heritage

CALL OF SESSIONS IS OPEN!

More than ever, the legacy of industry is at the forefront of current events, across the planet and even beyond. It is no longer solely made up of obsolete machinery and of 'castles of industry'; it is the legacy of territories, of knowledge, of social groups, of space stations as much as nuclear facilities and workers' houses, as well as steel complexes, all of which challenge our views and practices. In the face of profound changes in industry and in its social status – both political and economic – industrial heritage raises issues and offers possibilities that go beyond, from this point on, simple conservation.

This 2021 TICCIH Congress in Montreal will encourage a redeployment for reflections and practices and to further decompartmentalize industrial heritage. While reserving a space for discussion on buildings and their conservation, as well as, naturally, other industrial infrastructure and artefacts, the congress aims to renew research and exchanges on less-discussed areas, by addressing the identity of industrial civilization from the angle of its representations, culture, territories, of its inheritance (positive or negative) and of their documentation and development.
The theme 'INDUSTRIAL HERITAGE RELOADED' is designed to encourage a redeployment of reflections and practices beyond classical 'post-industrial' formulations coloured by escheat and obsolescence. – As such, beyond the manufacturing industry, the congress questions what is 'the industrial' in the contemporary world, both in terms of what remains and with regard to current productions: is the knowledge economy an industry? How does the major multinational industry of the twentieth century view itself, faced with 'castles of the industry' and at the time of its own demise? Beyond a generic narrative on progress, how can we address the legacy of the scientific breakthroughs that supported its expansion? How to discuss neighbourhoods where the working class identity is disappearing? Or how, conversely, to preserve the brand of industry in the urban centres that it forged, including modern cities, company towns, or working-class neighbourhoods undergoing significant economic, social, and cultural changes? One can, likewise, question the methods and practices beyond mere preservation, what are the contributions and issues of increasingly popular oral history? What about branding strategies, which have positioned vast requalification operations on a planetary scale? How to conciliate environmental assessment and heritage assessment? How can industrial tourism adapt to the new desires of visitors whose relationship with the industry is more and more distant?

In the wake of such questions, the Congress will welcome especially proposals of research or intervention on industrial heritage that will bring to discussion, together with a more traditional corpus or a new one, with a specific case or with a more theoretical reflection, themes like:

- Functional or symbolic requalification;
- Belonging and social acceptability;
- Social engagement with the scientific discourse;
- Memory and people's participation;
- Sustainable development;
- Uses and aims of heritage;
- Environmental challenges of industrial heritage.

These questions and themes aim to 'reload' the industrial heritage by targeting its social and territorial realities, to reflect on its new or potential identities and to situate it in the changing cultural landscapes of our times.

Heritage of Industry – 2020 Programme

2nd - 5th April 2020 An Industrial Explorer Weekend in West Yorkshire - *Now open for booking*
The West Riding has long been associated with the woollen industry and Sue Constable will lead us in looking at some of the surviving buildings associated with the processing of wool and the making of cloth. We will also see how some of the wealth of the area was used to 'improve' the towns leading to the building of grandiose Town Halls and other civic buildings. Railways and canals will be included, in particular a look at the Leeds & Liverpool canal at Bingley with the famous 5-rise locks. You can find full details and book online at the Heritage of Industry website.

11th - 17th May 2020 The AIA Spring Tour to Poland - *Now open for booking*
The tour starts in Gdańsk where we look at the former shipyards and the Elbląg Canal ship lifts.
We then move south via the Salt Works at Ciechocinek to the textile city of Łódź in some ways similar to Manchester with some magnificent mill buildings still remaining.

Then south again to Katowice in Silesia where we will descend to the deepest mine in Europe still open to the public at 320m underground, see also something of water supply, workers' housing and more.
Full details via the AIA website

29th June - 3rd July 2020 Country House Comfort & Convenience - East Anglia
Based in Cambridge and then the beautiful north Norfolk coast, our President Marilyn Palmer will lead us as we explore East Anglia with some magnificent examples of the great Country House from a Royal Palace to a property described as one of the coldest houses in Britain! More details and register interest go to the Heritage of Industry website

3rd - 6th September 2020 City Safari - Hamburg
Sue Constable will again be our leader taking a look at the city from its position as a member of the Hanseatic League in the medieval period to the lively modern city and port. More details and register interest go to the Heritage of Industry website

21st - 25th September Country House Comfort & Convenience Bucks - Oxon & Surrey
Based in the historic town of Old Amersham, led by Marilyn Palmer we will explore some magnificent examples of the great Country House in Buckinghamshire, Oxfordshire, and a day in Surrey, in which counties we include houses owned or occupied by a great military hero, bankers and industrialists!

More details and register interest go to the Heritage of Industry website

6th - 18th November 2020 Australasian Engineering Heritage Conference - pre-pre-Conference tour
We are working with Engineering Heritage New Zealand to plan this exciting, not-to-be-missed, excursion taking in all the best bits of engineering heritage in NZ whilst at the same time enjoying some of the most spectacular scenery anywhere. Plans are well advanced, see more details and register interest go to the Heritage of Industry website.

South East Regional I A Conference SERIAC2020

Goldsmiths College, New Cross, London
Saturday 2 May 2020

The Conference coincides with a number of major anniversaries and two of these, the bicentenary of the Regents Canal and 150 years of the Victoria Embankment are commemorated in talks to be given.

0915 -1000 Registration

Speakers

Jo Livingston - Baron Marks of Woolwich: – Forgotten Engineer and his Cliff Railways –

Carolyn Clark - 200 years of industry on the Regent's Canal –

Doug Bateman - Greenwich and other Timeballs: from inception to today – – –

Films etc. – Recordings made by GLIAS over 50 years – –

Prof David Perrett – - Bazalgette's Victoria Embankment @150 – – –

Alan Burkitt-Gray - SE London: Birthplace of the global telecoms industry

Tbc - Brunel's Tunnel and its future direction –

For Booking form and general SERIAC2020 enquiries see – – – www.Glias.org.uk – or email SERIAC2020@GLIAS.org.uk or phone 020-8692 8512

£14 per person – includes morning coffee & afternoon tea. Lunch available £11. – – – – Booking closes 24 April

CUMBRIA INDUSTRIAL HISTORY SOCIETY

Spring Conference - Saturday 25 April 2020

The North Lakes Hotel, Penrith, CA11 8QT

IRON-MAKING IN CUMBRIA

09.30 – 10.15 Coffee and reception –
Displays and bookstalls to browse

Talks

MANAGING WOOD SUPPLIES FOR THE IRON INDUSTRY IN THE 18TH CENTURY : Peter King –

BACKBARROW IRONWORKS – PAST, PRESENT AND FUTURE : Richard Sanderson – –

—

LUNCH – Cold and hot dishes, including a vegetarian option, plus choice of sweets. The hotel bar will be open. –

—

ULVERSTON FOUNDRIES : Dan Elsworth

RISE AND FALL OF THE IRON AND STEEL INDUSTRY ALONG THE CUMBRIAN COAST : John Lawson

—

£32.00 each including lunch, with morning and afternoon refreshments.

Enquiries and booking form : CIHS Bookings, 2 Beckside Court, Kirkby-in-Furness, Cumbria LA17 7TQ, phone 01229 889976, or email biarmicus@live.co.uk .

Local Society and other periodicals received

Abstracts will appear in *Industrial Archaeology Review.*

Cumbria Industrial History Society Bulletin, 105, December 2019
Greater London Industrial Archaeology Society Newsletter, 304, October 2019; 305, December 2019
Hampshire Industrial Archaeology Society Focus on Industrial Archaeology, 93, December 2019
Histelec News: Newsletter of the Western Power Electricity Historical Society, 73, December 2019
Historic Gas Times, 101, December 2019
ICE Panel for Historical Engineering Works Newsletter, 162
Irish Railway Record Society Journal, 200, October 2019
Manchester Region Industrial Archaeology Society Newsletter, 162, Winter 2019
Midland Wind and Watermills Group Newsletter, 125, December 2019
The Mole: newsletter of the friends of Williamson's Tunnels, 33, September 2019
Northamptonshire Industrial Archaeology Group Newsletter, 152, Autumn 2019
North East Derbyshire Industrial Archaeology Society Newsletter, 76, November 2019
Piers: the Journal of the National Piers Society, 133, Autumn 2019
Somerset Industrial Archaeological Society Bulletin, 142, December 2019
Surrey Industrial History Group Newsletter, 224, November 2019
Sussex Industrial Archaeology Society Newsletter, 184, October 2019
Sussex Mills Group Newsletter, 184, October 2019
Triple News: Newsletter of the Kempton Great Engines Society, 54, Autumn 2019
WaterWords: News from the Waterworks Museum, Hereford, Autumn 2019
Welsh Mines Society Newsletter, Autumn 2019

PEAK DISTRICT MINES HISTORICAL SOCIETY EMIAC 98

18th & 19th Century Metal Mining
Saturday 2 May 2020

At the Peak District Lead Mining Museum,
Matlock Bath, Derbyshire DE4 3NR – .
9.00am – 10.00am – Registration

Speakers –

Lynn Willies: 'Eighteenth and Nineteenth Century Lead Mining in the Peak: An Overview'.
John Barnatt: 'Excavating 18th and 19th Century Steam Engine Houses at Peak District Mines'.
Adam Russell: 'Setting the Record Straight – Three Derbyshire Case Studies for the Use of Underground Exploration in Advancing Knowledge about Mines'.
Richard Shaw and John Barnatt: 'Diving to Depth at Deep Ecton Mine – 2019 Discoveries made using Submersibles to Explore the 300m of Flooded Workings at one of the Richest Copper Mines in Britain in the 18th Century'.

Afternoon visit to Magpie Mine

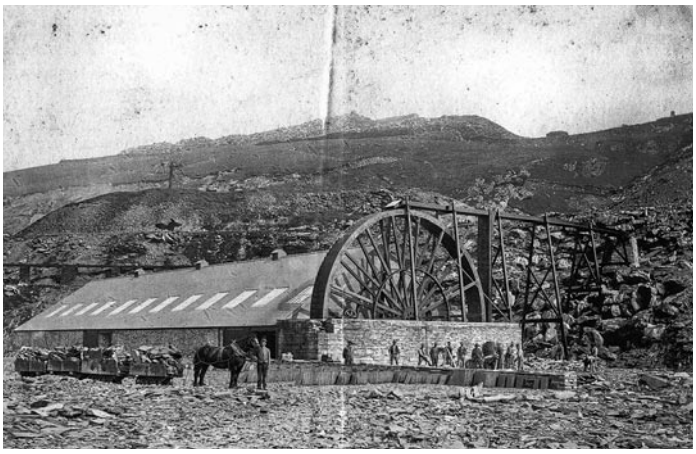
Probably the best example of a nineteenth – century lead mine anywhere in the UK. – The mine has a fascinating history spanning more than 200 years of bonanzas and failures, of bitter disputes and fights resulting in the "murder" of three miners, and a Widows' Curse that is said to remain to this day.

For booking form search EMIAC 98
or email webmaster@derbyshireas.org.uk.
or phone the Peak District Mining Museum at 01629 583834

North Wales Slate

AIA Practical Weekend
10am Friday 24 - 1pm Sunday 26 April

Our 2020 Practical Weekend is located at the
National Slate Museum in Llanberis. –



The North Wales slate industry had an enormous impact on the landscape of the region and at its peak in the 1890s the industry employed sixteen thousand men. – Today there are spectacular remains to be seen, not just of the quarries themselves but of the associated workshops, sawmills, railways and docks. –

During the weekend expert speakers will describe the growth of the industry, its impact on the communities which provided the workforce and the often ingenious means by which power was provided in the quarries. – We will hear about the bid to have the remains of the industry inscribed as a World Heritage Site and during the weekend there will be time to see both the museum and some of the quarry remains in the immediate vicinity.

The museum

The museum complex was originally the Gilfach Ddu workshop, built in 1869-70 to serve the Dinorwic quarry. – A remarkably strident assertion of patrician power, it was built of high quality materials on a grand scale. – – A 50 foot diameter waterwheel, the largest surviving example in mainland Britain, provided the power for an iron foundry and extensive machine shops.

The cost

The cost of the weekend is £65, to include attendance, together with tea, coffee, lunch and dinner on Saturday. – Members of the AIA receive a £10 discount and any non-member who pays £65 can have the discount refunded to them by cheque if they join the Association during the weekend or within seven days afterwards.

Booking may be made via Eventbrite: – www.eventbrite.co.uk/e/north-wales-slate-weekend-studying-the-history-of-the-industry-tickets-89474654099?aff=ebdssbdestsearch

Accommodation

There is a wide variety of accommodation available in Llanberis and the surrounding area. – See – www.gonorthwales.co.uk/where-to-stay

East of England I A Conference – EERIAC

Saturday 6 June 2020 – Kick Off at 0930

The Cambridge Museum of Technology
The Old Pumping Station
Cheddars Lane
Cambridge CB5 8LD

16 February 2020 – REVISED DATE FOR HERITAGE DAY
Tower of London

3 – 5 April 2020
CONSTRUCTION HISTORY SOCIETY CONFERENCE
Queens' College, Cambridge
See page 27

4 April 2020
51ST SOUTH WALES AND WEST OF ENGLAND IA CONFERENCE
Elim conference Centre, West Malvern
See page 24

24 – 26 April 2020
AIA WELSH SLATE WEEKEND
National Slate Museum Llanberis
See page 27

25 April 2020
CUMBRIA INDUSTRIAL HISTORY SOCIETY
Spring Conference
Penrith
See page 26

2May 2020
EMIAC 98 PEAK DISTRICT MINES HISTORICAL SOCIETY
18th and 19th Century Mining
See page 27

2 May 2020
SERIAC2020
South East regional conference
Goldsmiths College New Cross London
See page 26

15 – 17 May 2020
INTERNATIONAL EARLY ENGINES CONFERENCE
Black Country Living Museum
See page 24

28-31 May 2020
SOCIETY FOR INDUSTRIAL ARCHEOLOGY'S
49th Annual Conference
Lehigh Valley, Pennsylvania
See page 13

6 June 2020
EERIAC
East of England Industrial Archaeology Conference
The Cambridge Museum of Technology
See page 27

20 – 27 August 2020
AIA ANNUAL CONFERENCE, LIVERPOOL
Booking papers with this edition

10-13 June 2021
7TH INTERNATIONAL EARLY RAILWAYS CONFERENCE
National Waterfront Museum, Swansea
See page 25

30 August to 4 September 2021
TICCIH CONGRESS XV111
Montreal, Canada
See page 25

2021 AIA CONFERENCE – DUBLIN

Carrara Marble Quarries

Carrara marble has been quarried since the time of Ancient Rome and has been used for classical statues such as Michelangelo's David and for numerous buildings around the world including Marble Arch.

By the end of the nineteenth century, Carrara had become a cradle of anarchism in Italy, in particular among the quarry workers. According to a *New York Times* article of 1894, workers in the marble quarries were among the most neglected labourers in Italy. Many of them were ex-convicts or fugitives from justice. The work at the quarries was so tough and arduous that almost any aspirant worker with sufficient muscle and endurance was employed, regardless of their background.

The quarry workers and stone carvers had radical beliefs that set them apart from others. Anarchism and general radicalism became part of the heritage of the stone carvers. Many violent revolutionists who had been expelled from Belgium and Switzerland went to Carrara in 1885 and founded the first anarchist group in Italy.

The Apuan Alps above Carrara show evidence of at least 650 quarry sites, with about half of them currently abandoned or worked out. The Carrara quarries have produced more marble than any other place on earth. The prize yield from Carrara quarries through millennia has been Statuario, a pure white marble. However, by the end of the twentieth century, the known deposits of Statuario near Carrara were exhausted.

Working the quarries has been dangerous and continues so. In September 1911, a collapsing cliff face at the Bettogli Quarry crushed 10 workers who were on lunch break under a precipice. A 2014 video made at a Carrara quarry shows workers with missing fingers and workers performing hazardous, painfully noisy work who are not wearing protective gear of any kind.

In August 2013, CPC Marble and Granite Ltd, a company owned by the bin Laden family paid €45m for 7.5% of the concessions of Carrara. Today some five million tons of marble are quarried each year but of this, only 1.2 million is in the form of blocks worth up to 3000 euros per ton while the remainder is ground into powder which sells for ten times as much and is used as high quality calcium carbonate in everything from toothpaste to paint and paper.

There is now little incentive to carve out statuary blocks and the intensive quarrying is destabilising the mountains and marble waste is affecting the waterways. Efforts to amend the laws permitting this have so far proved ineffective

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

Editor: Chris Barney

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

Final copy dates are as follows:

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

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