

INDUSTRIAL ARCHAEOLOGY NEWS

194
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THE BULLETIN OF THE ASSOCIATION FOR INDUSTRIAL ARCHAEOLOGY

FREE TO MEMBERS OF AIA



Montgarrie Mill • John Pilling 2 • Greenwich • 2002 Restoration Grants
Richard Hartree • Brenda and Angus Buchanan



INDUSTRIAL ARCHAEOLOGY NEWS 194 Autumn 2020

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COVER PICTURE

A picture to lift the spirit at this difficult time. This crane is on display at Constitution Dock, Hobart, Tasmania. Made by Jessop & Appleby Bros of Leicester in 1900 it was installed in Hobart the same year. It could lift 25 tons and had a radius of 30ft. Originally it ran on a short railway 216 feet in length but as can be seen this is now a static feature. Photograph Peter Hall November 2019. Further information can be found on the Internet.

Impact of Covid-19 on the sector

The past four months since our last Council meeting have been dominated by the Covid-19 health crisis. The wider Industrial Heritage and Industrial Archaeology sector has been severely hit. All the 600+ industrial sites preserved as heritage attractions in England have been closed, most full-time staff working at these sites have been furloughed, all local meetings and events of the 100 plus industrial heritage and industrial archaeology societies and groups in England cancelled, and universities are closed. The New Lanark World Heritage Society has announced 50 redundancies. Elsewhere, professional archaeology fieldwork as part of the developer-funded world was reduced, although key construction projects in need of archaeological work, such as HS2, continued with archaeological input.

These are worrying times and the financial viability of many heritage attractions and archaeology units, large and small, is in danger of being undermined. As the Association for Independent Museums has highlighted, the local voluntary sector, and in particular industrial heritage and industrial archaeology groups, societies and smaller industrial museums who rely on membership and visitor income, are likely to be under pressure as a result of a loss of income and members. Some grants are available from a number of bodies to support the sector, including The Arts Council, the National Lottery Heritage Fund and Historic England. The Government's business loan support scheme has been accessed by some professional archaeology units and museums, whilst a variety of organisations are providing help, support and advice.

European Industrial Heritage sites have been just as badly hit. Site closures and layoffs have been reported through the E-FAITH network, TICCIH and ERIH networks. Italian and Spanish

sites have been particularly badly hit. In England, the Industrial Heritage Support Project has been acting as an information hub since the Covid-19 crisis began continuing to build upon nearly a decade of support for the sector (see elsewhere in the Council Agenda).

February and early March also saw extreme weather conditions in Britain. Two rainstorms, Ciara and Dennis, led to more than three times the monthly amount of rain falling across Britain during this period. The gales blew the sails off Burgh le March Mill in Lincolnshire. Daniels Watermill in Shropshire and Heron Watermill in Cumbria were both flooded when their rivers overflowed. The most high-profile casualty was Ironbridge where two museum sites suffered extensive flooding.

It is, though, not all doom and gloom, and there have been some positives. Regional groups such as the Cumbrian Industrial Heritage Society (<https://www.cumbria-industries.org.uk/cumbria-industrial-history-society/>) have responded to the pandemic by increasing their online presence through expanding their website pages. Educational charities such as the Workers' Educational Association though only functioning online, have distance learning courses including heritage topics due to be available later in the spring. Transport heritage societies were quick to launch campaigns to raise funds – railway trusts such as the Severn Valley Railway launched online funding appeals within a few days of the lockdown beginning. Early June has seen a change in tone with many industrial heritage sites now preparing to re-open in a limited way later in the summer. Ironbridge for instance is looking at re-opening three sites whilst meeting the Government's social distancing requirements.

Mike Nevell Chairman

As reported to Council – 20 June

New Editor

At the March Council meeting I confirmed that I would be resigning from the editorship of the IA News after edition 195, winter 2020, for which the copy date is the end of September. I am very pleased to report that Dr Patricia Bracegirdle has offered to take up the post from then and this was accepted by Council at the June meeting. I will, of course, do all I can to ensure a smooth transfer.

Patricia will be known to those who attended the 2019 and 2018 Conferences. She is extremely well qualified with a vast practical and field experience in IA, including photography, research and teaching. She has published books on the Darbys of Coalbrookdale and on Thomas Telford.

Chris Barney

Another first for the AIA – Young Members Board

The Association is pioneering a new concept unique amongst industrial heritage organizations

In June this year Council set up a new Young Members Board for people in mid-career and younger to further our mission of 'Giving our Past a Future'.

The Board will be an autonomous sub-group of Association Members with the freedom and budget to organize their own activities and events, subject to approval of the Main Council.

The Young Members Board will comprise up to fifteen people who elect their own officers, have their own section on the AIA website and are encouraged to recruit additional young members. They will be able to 'shadow' members of Council, and provide up to three non-voting co-optees at Council meetings.

The Board will be accountable to the Main Council and overseen by three of its representatives called the Triumvirate, currently Dr. Tegwen Roberts, Maryann Soper and Geoff Wallis. Please contact Secretary David de Haan if you would like a copy of the Board's Terms of Reference.

Why are young members joining the Board? Because it is a great opportunity to raise one's profile in IA by networking and building new contacts, widening the cv, and develop personal skills and knowledge. For some there will be the excitement and challenge of taking on real responsibility, pioneering action, and achieving a sense of satisfaction through service in their chosen field.

Young Members will have an opportunity to influence the direction of IA and for advancement in the Association, perhaps to the Main Council. The Board will provide social interaction with others of like mind, and recognition within IA. As a further incentive, if one were needed, free membership for one year is on offer for newcomers.

How will the YMB benefit the Association? For many years visionaries within the field of IA have been asking, 'How can we encourage younger people into our field?' This is part of the answer.

The new Board will invigorate the AIA's membership and leadership, generating new vision and energy. It will bring in new expertise and skills, empower enthusiasts, provide ambassadors for IA, and develop a younger constituency by attracting additional members. Leaders of the YMB should also provide succession to older members on the Main Council, inspire confidence for the future, and thereby promote sustainability for the Association.

How can you help?

By the time you read this the inaugural meeting of the Young Members Board will have taken place, membership and initial plans being made ready for approval at the October meeting of the AIA main Council.

Take-up has been good, but there are a few places left on the Board, so please approach anyone who would actively participate in driving the Board forward and ask them to contact Geoff Wallis on jandgwallis@gmail.com.

Geoff Wallis, AIA Council.

Award for Ironbridge restoration

Congratulations are due to the Ironbridge as a recipient of one of eight 2020 awards given by Europa Nostra in the Conservation category. The citation follows:

Though well cared for since its completion in 1779, the Iron Bridge, the first in the world to be constructed of iron and a symbol of the Industrial Revolution, has faced many challenges. Stresses in the ironwork dating from the original construction, compounded by ground movement in the Ironbridge Gorge and a 19th-century earthquake led English Heritage to undertake necessary interventions to preserve its original fabric to the greatest extent possible, returning the structure to its former glory and strength for the enjoyment of future generations.

Many partners and stakeholders were involved, including Historic England, The Ironbridge Gorge Museums Trust, Telford and Wrekin Council (the local authority), The Ironbridge Gorge World Heritage Site Steering Group, The Environment Agency and Severn Gorge Countryside Trust, as well as the local expert and former director of The Ironbridge Trust, David de Haan. As a charity, English Heritage funded the project largely from its own resources, with a sizeable amount of the funding also coming from donors, including the Hermann Reemtsma Foundation from Germany.

The bridge was in full use for over 150 years by ever-increasing traffic, before being designated a Scheduled Monument and closed to

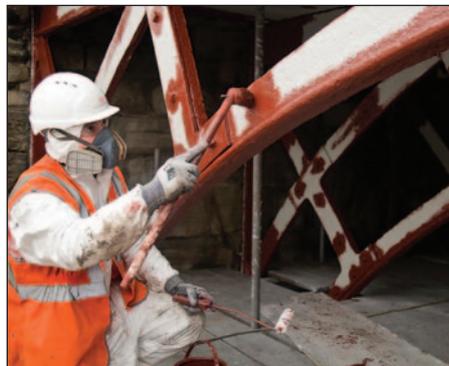


photo Historic England

vehicles in 1934. The great significance of the Bridge was further recognised in 1986 when the bridge and other sites in the area of the Ironbridge Gorge were designated a UNESCO World Heritage Site.

The conservation programme addressed all elements of the bridge: the iron radials and braces holding the bridge together, the deck plates and wedges, the main iron arch, and the stone abutments on either side of the Severn were all examined and deemed to be in need of repair. The cast iron pieces were identified as requiring careful cleaning and conservation and to either be re-installed or replaced where necessary. The cast iron elements were repaired, the masonry conserved, the deck resurfaced, and

the entire structure cleaned and repainted in its original red-brown colour.

In addition, the profile of the Bridge and its significance has been amplified, which has resulted in the involvement of more people in its care, ensuring its legacy both now and in the future. A public access walkway was installed alongside the bridge, offering thousands of visitors a chance to see the conservation work in action.

The Jury remarked that, "this iconic heritage, cared for throughout its lifetime, is a part of a larger whole, relating to the beginning of the Industrial Revolution and the surrounding industrial landscape. Its conservation approach is based on full respect of the original technology and was made possible through international collaboration and funding. It is a very good example of conservation in action, providing access to visitors and locals during the work".

See page 18 for more information on Europa Nostra awards

John Stengelhofen

Just before going to press *IA News* learnt that John had died on 12 July after a severe fall.

Montgarrie Mill, Alford

I first wrote about Montgarrie Mill ten years ago, in the late lamented magazine, Leopard, when the oatmeal mill was a thriving business near the Aberdeenshire town of Alford. The recent fire at the mill prompted me to recall my connection with it and reflect on its uniqueness.

Mark Chalmers

Each month, my grandfather drove the few miles up Donside from the village of Kemnay to buy a bag of oatmeal. He had a flame red Austin 1300 which made the journey so many times that the car knew its own way to Montgarrie. Once the car was parked beside the mill lade, he passed into the mill's dark interior where every surface was covered in a fine white stoor of oat flour.

After a brief transaction, a large bag of the Oatmeal of Alford was hefted into the car's boot, to provide the raw material for breakfast. The scene at home was familiar throughout Scotland: the hottering pot, a wooden spurtle, and a steaming bowl of porridge were essential to a generation of Scots for whom processed 'Porage Oats' are anathema.

Although water has provided the power to mill everything from gunpowder to slate, meal mills are a characteristically Scots building type which extends back in an unbroken line for over 800 years. Montgarrie truly was the last survivor of a working meal mill.

Many mills were set up by monasteries and local lairds, then run on their behalf by artisan millers. In fact, the base course of the current mill at Montgarrie is part of a previous mill that dates back to Jacobite times, although legend has it that there's been a mill on the Esset Burn since the Bishop of Aberdeen built one in 1317. All of the parish of Tullynessle was owned by the bishopry at that time, and from its roots in the Middle Ages, the land which the current mill sits on was feued in November 1878 to James Wilson by the Reverend Leith.



Montgarrie Mill from the south-west

Building work began in 1882, organised by The Aberdeen and Alford Milling Company, who ran Montgarrie for several years until it was bought by Mr Purdie, who went into business with the miller, Mr Wilson. That partnership was shortlived, though, as Wilson decided to emigrate to Australia ... accompanied by Purdie's wife, and all his savings! In the aftermath, the mill was taken over by Angus MacDonald, whose family owned and worked it for over a century.

The need for a new mill may well have been the result of a previous disastrous fire: oatmeal is combustible, and the finest powdery meal can explode with a mere spark, or even friction against a surface. Prior to 2020, the kiln side of the current mill had burned down twice – most recently in 1955, after which the roofs and floors were rebuilt and the grain storage buildings were reconstructed in metal.

Maltings and brewhouses face similar risks, but mills face an additional hazard, because they're subject to the twin perils of fire and water. The Esset occasionally overflows its banks in winter, inundating the small flood plain around the mill. However, in normal conditions some of its water is diverted along a lade, and that's where the miller's tale begins.

The mill lade was rebuilt in reinforced concrete during the 1950s, when the mill was reconstructed, yet looks quite in keeping with the granite rubble walls behind it. Halfway along the lade, a sluice control or 'spillwater' allows the miller to divert the water back into the burn, or towards the mighty wheel.

Montgarrie's wheel is one of the most impressive in the country: it's an overshot bucket wheel which measures 24 feet in diameter and is four feet broad. It has ten spokes, weighs 21 tons, and was made in 1886 by James Abernethy's foundry in Aberdeen. Mill wheel-makers use larch for the buckets, taking advantage of that timber's natural disinfectant properties which make it rot-proof; but everything else consists of cast iron.

Once it is set going, the wheel revolves at six revolutions per minute. It drives through a 15 foot diameter toothed sprocket on the water wheel axle, which meshes with a gearbox and chain drive. The drivetrain is clogged to engage in turn with the five pairs of millstones, through slotted pinions or so-called stone nuts. After use, the water flows along a tailrace into an underground culvert 250 yards long, then debouches into the River Don.

Several generations of the MacDonald family worked the Montgarrie Mill, from their purchase in 1894 to financial straits in 1998, after which John and Carol Medlock took over. When I visited ten years ago, the mill employed two millers, Gwen Williamson and Richie Duncan, and latterly John Sangster has carried on the tradition of milling meal on Donside. Montgarrie is the last commercial meal



The drying kiln floor

mill operated in the traditional way; the process has remained constant for over a century.

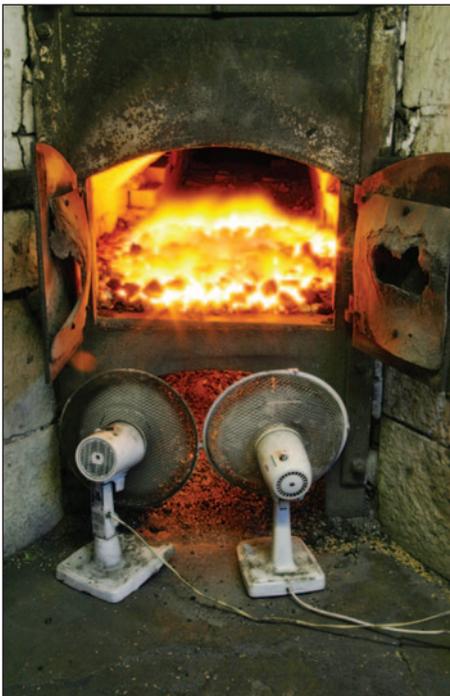
The mill did a brisk trade in the early decades of the 20th century, but its heyday arrived during World War II, when 25 people worked at Montgarrie – including a night shift! The mill made 1000 tons of oatmeal per year (compared to around 200 tons today), and large quantities of oatmeal were shipped out to provide servicemen with their morning porridge – but the mill also produced seed oats and bruised oats.

Today, individual farms buy their own oil-fuelled grain driers (some of them made by my extended family, at Edwards Engineering in Perth), but Montgarrie's 'flat' kiln once acted as a communal grain drier for the local farmers, as well as drying the oats which it milled.

Things became tougher after the war, as cereal processing was industrialised by firms like Rank and McDougall. Meal mills were an endangered species by 1970, when the Scottish Industrial Survey decided to find and record the survivors. There were only a handful of traditional mills still working at that time – among which were Tarland in the Deeside area of Aberdeenshire, Barry in Angus, plus Prettsmill, Folkerton and Craighead all of which are in Lanarkshire.

A watermill at Tarves in the Buchan area of Aberdeenshire had fallen by the wayside just before the survey began, and since then Folkerton has stopped work and been preserved as a wedding venue. Happily, Barry Mill, near Carnoustie was saved by the National Trust for Scotland whereas Craighead, near Lesmahagow, has since fallen into ruin.

When they were working, the mills often had a haze of dust in the air, like fog on a spider's web; yet when I visited I discovered that Montgarrie was immaculate, despite working five days a week. Predictably, winter is the busiest time at the mill, because porridge is in demand.



The drying kiln's furnace



The three millstones

Montgarrie produces 30 tons of meal each month we get cold weather, but far less in summer. Yet there is always work to do: the mill machinery has over 3000 grease nipples to attend to, a laborious process of filling up little tubs with grease then adjusting screws to deliver it to the bearings.

Just as Montgarrie's machinery hasn't changed since the 1880s, the milling process has remained the same. Fresh oats are raked over the floor of the kiln, using a long-handled wooden 'sheeler', and perforated cast iron plates allow heat from the furnace below to rise up and dry them. The furnace is stone-built, with a vaulted brick lining and iron hearth doors: a couple of electric fans provide the extra draught which once came from a set of bellows.

A revolving ridge ventilator on top of the kiln assists the drying process and gives the mill its distinctive silhouette. The oats dry in the kiln over the course of four hours, during which their moisture level drops to 4%. Afterwards, once they have cooled down, the oats are screened – then milling can begin.

The sluice gates are opened, the gearbox engaged, and the shelling stones begin turning. Oats are fed in from a hopper: one stone opens the longer grains, and another opens the shorter husks. They are ground into four cuts: fine, medium, rough and pinhead (which is a kernel cut in half). In the past, Montgarrie concentrated on the Matra variety of oats for its light shell and substantial kernel, now the mill uses several varieties known generically as 'milling oats', and the main distinction is between organic and conventionally-grown crops.

Millstones are traditionally made from French burr (freshwater quartz from La Ferté-sous-Jouarre in the Île-de-France), an expensive stone which has to be specially imported. Latterly, millers have dressed the worn faces of their stones with emery; but the unique pattern of furrows on the face of the stone, arranged in a series of 'harps' remains the same. Today, Montgarrie's stones are refaced by the miller himself, using a mixture of emery,

rock salt and Portland cement.

After shelling, the dried oats pass through riddles, and are then lifted up to the head of the mill, transferred into a grain hopper from which they're fed into a first pair of stones, known as the groating stones, where the husks are removed from the kernels. The oats fall by gravity from the millstones into a winnowing machine where the chaff is separated; then the cleaned groats are returned to the loft by an elevator – a series of metal buckets attached to an endless belt – and



Riddle

down into another hopper.

This time, the part-milled oats are fed into a set of finishing stones, after which the ground meal falls into a sieving machine, then the meal finally reaches the ground floor where it's sorted and bagged. Some grades of oatmeal may pass



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through the stones for a third time, for extra refining. The whole process of drying, cooling, screening and milling takes around 20 days.

And the end product? Now packaged in polythene sacks rather than hessian bags, it is known as the 'Oatmeal of Alford' rather than Montgarrie Oatmeal because Alford was the closest railway station. From Alford, the oatmeal travelled down the Great North of Scotland Railway's Alford Valley branch out into the wider world: today it is stocked by dozens of outlets in the North East of Scotland, rather fewer once you reach the central belt, but almost none south of the border. There is even a small export trade, thanks to expatriate Scots who hang on to tradition.

There are many mill legends at Montgarrie, and some possibly have more than a grain of truth to them... One tale has it that the mill boy was paid a week's wages to crawl along the tailrace culvert's 250 metres, cleaning it out as he went. Having squeezed along damp mill culverts myself, wearing waders and crouching all the way, this

cannot have been an enjoyable task. Other urban myths tell of spawning salmon which leapt up the wheel and into the mill lade; and of a woman who travelled in the other direction – she went over the top of wheel, but survived to tell the tale.

The most nostalgic story relates to the ice skate left behind by an emigrating miller – more than likely the infamous Mr Wilson! He was skating on a nearby pond the day before he was due to leave, but when he packed his bags and took the train to Aberdeen, he left one skate behind. When I visited in 2010, it still hung from its strap beside the kiln, like a talisman.

Sadly, the skate didn't continue to bring luck to Montgarrie. A fire devastated the mill at the start of April 2020, and while the granite walls, mill wheel and lade survive, the roof collapsed and the interior of the mill has been gutted. More than 40 firefighters attended the fire on April 1st, and while the aftermath looks grim, it is hoped that the mill can be rebuilt and restored.



The grain storage bay

All photos copyright Mark Chalmers

Early Engine Databases

Almost simultaneously comes news of two databases of steam engines which have recently been made available online:

Around the year 2000 two men with a wealth of knowledge brought together data on all non-rotative pumping engines working on the Cornish cycle that were ever made, with data on all the sites where they worked, the engineers involved and the foundries where they were made.

Ken Brown in the UK and Jan Verbruggen in the Netherlands together created a database which covered 1,656 Engines, 102 Engineers, 58 Foundries, 2,308 Sites and 1,821 cross-reference records linking the Engines to the Sites where they worked and covering a period from about 1780 to 1926.

Sadly Ken and Jan are no longer with us but Jan's son was eager to preserve the database and to make the data available to researchers today. The present AIA Webmaster was happy to take on the challenge of transferring the data from the outdated system on which it was designed into a modern database system and to create a web user interface which provides facilities to search and display the data in lists and on maps.

Access to the database is provided through the AIA website.

The second database concentrates on early engines starting with a Savery engine in Staffordshire in 1706 and running via Newcomen and Watt engines up to 1803. The very comprehensive list of engines was compiled over a long period by John Kanefsky at Exeter University.

Search — coalpitheath.org.uk/engines/

This second database is hosted on the Knowledge Hub of the Cultural Heritage Institute (CHI). The purpose of the Knowledge Hub is for data such as this to be accessible through a single point of entry to as wide a circulation as possible. The intention is to make raw data available for people both to add to and enhance as well as to use in their own research. It is also intended to provide a home for so called "grey literature", i.e. documents and reports that have been produced but not previously published.

It is not only industrial heritage that the Hub is hoping to cover as the intention is for it to grow to include other aspects of cultural heritage with sections covering transport, agriculture and land use, entertainment and sport, food and drink, to name but a few aspects of the tangible and intangible ways man has interacted with his surroundings. Enquiries about the Cultural Heritage Knowledge Exchange Hub should be addressed to David Hardwick:

David.Hardwick@RAU.ac.uk

For details of the CHI and the courses currently on offer search:

Rau.ac.uk/cultural-heritage-institute

An Early Coalbrookdale Cast Iron Pot

This small Coalbrookdale three-legged cast iron bellied pot was found many years ago and has been in deep storage awaiting repair and cleaning. Inspired by the recent talks given by Richard Williams to the Newcomen Society, the pot has been unearthed and examined properly for the first time.

Peter Crew, Penrhyndeudraeth, Gwynedd
Richard Williams, Knowle, West Midlands

The talks by Richard Williams gave the historical, technical and metallurgical background to Abraham Darby's breakthrough in the development of casting bellied pots, his 1707 patent for the process and its importance in establishing the first dedicated large-scale iron foundry in Britain, other than those making cannon. This was an important turning point in the Industrial Revolution.

The pot rim diameter is 20cm (8") and its overall height is 15cm (6"), with the parting lines characteristic of casting in a cold green-sand five part mould. The main interest is in the unusual 'trade mark', which is rather worn but clearly reads C – B – D A L E and 1 G A L L in two lines within joining frames. Both the E and the right-hand side of the upper frame are rather faint, which suggests that the pattern was not fully impressed, or perhaps that the E was not present, as on the other known examples.

The full capacity is 3.97 litres, so the pot is clearly a nominal wine gallon of 3.785 litres (Imperial gallons of 4.546 litres were introduced in 1824, but from the 1875 Coalbrookdale catalogue it seems that wine measures may have been used there for some time after 1824). The ears are round in section and taper from 10mm to 5mm. Their distinctive shape is rather different to those on earlier pots, which have ears made from two straight components. The feet are 4cm (1½") long, D-shaped in section and taper from 15mm to 5mm. In the centre of the base is a slightly raised rough area of about 15mm diameter from the sprue. The pot is 4mm thick at the rim, but most of the body is only 3mm thick, increasing to 4.5mm around the sprue. The weight of the pot is about 2.5kg (5½lbs).

The pot originally was rather rusty and broken into two pieces but after cleaning and sampling, for metallographic examination by Brian Gilmour, it has been repaired.

Preliminary research has been carried out and such marks rarely seem to have been recorded on Coalbrookdale pots. We have found two other pots with the same style of mark, an identical 1 GALL example in a North American collection and a 3 GALL example in the Ironbridge Gorge Museum. Amongst the other pots in this museum is one with DALE C° in a rectangular frame, on a large 8 gallon pot, and one with COALBROOKDALE on a larger whaling pot, both probably of 19th century date. The former was used by John Challen for his 2010 BBC Shropshire programme titled *The Cooking Pot which*



Oblique view of the pot and a close-up view of the mark. The vertical parting line is centre right and runs to the bottom rib which is the horizontal parting line. Note the eccentric spacing between the second and third ribs, which is exactly the same as on the North American example and which was clearly made from the same mould. The first rib, on the flare of the neck is only just visible. The thin line on the very right hand side is the repaired break and the location of one of the three removed samples can just be seen. These samples have been examined by Brian Gilmour and all are a mottled cast iron, with frequent graphite flakes and some graphite rosettes. Ideally a grey cast iron would have been preferable and the shrinkage of the mottled iron would have introduced internal stresses, which may have resulted in the eventual breaking of the pot.

changed the World and for a subsequent exhibition at the Ironbridge Gorge Museum.

Other marks on furniture items, fire surrounds etc. seem to be more frequent, including COALBROOKDALE, DALE C° and C.B.DALE C°, the latter usually with the triangular Design Registration mark (dating from 1842 to 1884).

It has been suggested by David de Haan that the earlier marks CBD or C.B.DALE were used before the company was restructured in 1794 and that the full COALBROOKDALE mark date from the mid-nineteenth century onwards. This indicates that this pot was probably made sometime between the 1750s and 1794.

What we are trying to do is to establish a typology of these pots and eventually a chronology, though this will be difficult as few pots are closely dateable. If any AIA members have a similar bellied pot, or any information about other pots, named or not and, either in museums or private collections, we should be most grateful for details.

Further information and updates of the project can be sent to anyone who is particularly interested.

crew.peter.susan@gmail.com
williams.hollies@btinternet.com

**VISIT THE AIA
WEBSITE**
www.industrial-archaeology.org

Stay in a crane?



Fancy a different place for the weekend? Copenhagen makes it easy. Now, after original establishments like Otilia, in a former factory in Calsberg or flirty suites like Vipp, which stands on a water tower, comes The Krane, which turns a harbour crane into the most unusual – but no less chic – accommodation. The engine room of a 1944 coal crane installed in the port of Nordhavn, north of the Danish capital, is already the most exclusive suite in the city, rising 15 metres above the ground.

A warm welcome to our new members

Nic Broomhead, Brampton, Cumbria
Keith Croucher, Kenilworth
Diana Huston, Carnworth, South Lanarkshire
Mark Pacey, Ashby de la Zouch
Steve Roman, Manchester
Maryann Soper, Lower Ashton, Devon
Chris Burson, Warminster
Brian Schmult, Princeton, New Jersey, USA

200th Anniversary story of Lancashire Loom and Machine Makers, John Pilling & Sons, established in 1819 – part 2

Establishing Primet Machine Shops and Foundry at Colne for the manufacture of tens of thousands of cast iron Victorian and Edwardian Lancashire looms.

Anthony Pilling

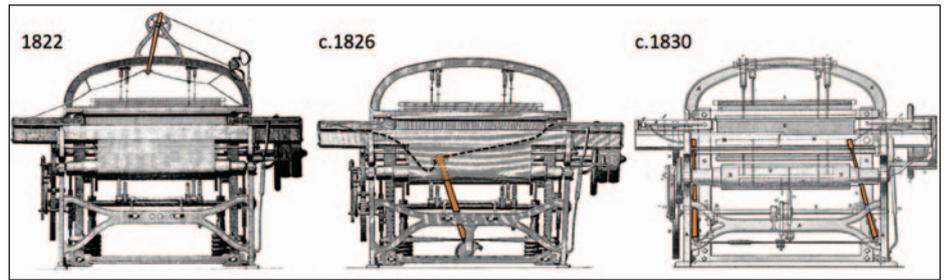
By the mid 1840s John Pilling (born 1805), eldest son of the founder of John Pilling and Sons, loom makers at Lanehouse Mechanics Shop in Trawden, realised he could not economically produce heavy cast iron power looms in quantity without being much closer to the Leeds and Liverpool Canal or the route of the proposed Midland and East Lancashire Railways with their proposed junction station at Colne.

The Cast Iron Power Loom

Early timber framed power looms with the 1813 positive crank beat up invented by Horrocks of Stockport had been reimagined by Richard Roberts, the famous Manchester machine tool and textile machine maker. He had created a compact cast iron design which he patented in 1822 and developed a series of engineered looms with improved picking stick motions to drive the flying shuttles. By 1830 these were commercially effective machines, faster and more robust than the first generation power looms they were replacing. It was clear to John Pilling that this was the way forward.

Roberts' looms still lacked the refinements needed to enable one skilled weaver to run more than 2 looms reliably without faults that could damage the warp or let the machine continue after the shuttle weft had either broken or run out. Fortunately others in the East Lancashire weaving districts perfected improved shuttle picking systems (William Dickinson devised the 1828 Lancashire over pick), shuttle and warp protecting loose reed motion (Hornby and Kenworthy 1834), the weft fork to detect weft failure (Bullough and Kenworthy, 1841) and loom brakes (John Sellers, 1845). With these improvements a skilled weaver could run 4 or more power looms, depending on the complexity of the weave and this massive increase in productivity finally ended commercial handloom weaving in East Lancashire by about 1850.

While Roberts' key patent would run out by 1842, to compete, John Pilling would need a new, larger works. This would need good heavy transport access to bring materials and iron castings made from his own patterns from Clitheroe and Keighley to Colne and then safely deliver the finished looms. Land for expansion was essential as well as a good water supply for steam power. By 1845 John Pilling (b.1805) had a house in Colne at Primet Bridge to establish local contacts, and his youngest son, Henry, was born there in 1849. He negotiated for a site on Greenfield Road, the link to the Leeds and Liverpool canal wharf. The new site was next to the main turnpike road bridge over the river that



On the left, the 1822 Roberts centre over-pick loom; in the middle, the stronger mid 1820s centre under-pick and to the right, the quicker 1830 side under-pick with close coupled picking sticks at each side.

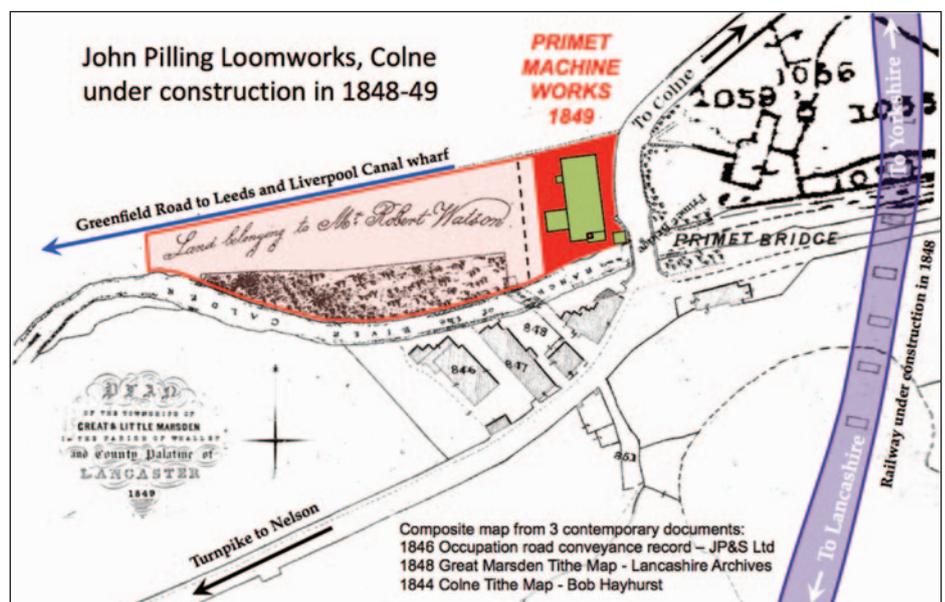
allowed the extraction of boiler water to power a single cylinder beam engine, possibly operating at about 30psi. Also it was immediately below the planned railway station. Colne Midland Railway goods yard opened in October 1848 for the eastbound Yorkshire trade, and in Feb 1849 was joined by the East Lancashire Railway. This gave full access to Manchester and Lancashire's weaving districts. ELR coal staithes were located opposite the new machine shops now nearing completion, with a level turnpike to the new ELR goods yard at Nelson for the Lancashire trade, and to Liverpool docks for export. The Great & Little Marsden Tithe map shows the machine shops were being constructed in 1848 and by the end of 1849, operations had been moved from Trawden to Colne and the new 2 bay, 3 storey textile Machine Shops and smithy yard were in production.

Colne Primet Bridge Textile Machine Shops

The Dec 1851 Waste Book ledger and census of the same date show that John Pilling employed 20 men and 7 apprentices at his Primet Machine Works. As well as new looms they worked on steam engines, produced hundreds of spinning machine spindles, coilers, loom parts and change wheels for numerous mills producing cloth on the

old Pilling power looms from the previous era in East Lancashire. So that all new production could be of up to date robust cast iron design, large quantities of iron were cast by Robert Clarke in Clitheroe and Robinson & Robinson at Keighley and delivered by rail to Colne for machining and fitting. The earliest works ledgers show Pilling power looms and parts were being supplied to almost all the local pioneer worsted and cotton spinners and cloth manufacturers as well as to firms in Yorkshire. In 1851 there were more than 44 mainly local mill customers purchasing the firm's new iron looms for worsted, linen, silk and cotton fabrics. The top dozen cotton mill clients were Robert Tunstill – Brierfield Mills; Christopher Grimshaw – Higherford Mill; Nicholas England – Spring Gardens Mill Colne; Robert Shaw & John Phillips – Greenfield Mill Colne; Henry Hartley and Edmonson Varley of Trawden; Masons – Primet Mill Colne, Henry Berry – Victoria Mill Barrowford; Richard Sagar – Carry Bridge Mill Colne; Hezekiah Mitchell and Masons – Primet Bridge Mill Colne; Benjamin Smith – Walverden Mill Marsden (Nelson). Important delaine (worsted) manufacturers included: Ecroyds – Lomeshaye Mill, Nelson; J&J Craven – Dalton Mills, Keighley and Wand & Co – Britannia Mills, Bradford.

Of these, Higherford Mill, an early surviving example, had been throstle spinning by water



wheel since 1824. From 1832, with the installation of a beam engine and 74 timber framed wiper looms (recorded in the 1836 Parliamentary power loom returns), it was powered jointly by steam and water to spin and weave cotton from loose fibre into woven fabric. Demand grew and in 1851 mill owner, Christopher Grimshaw paid £197 for 40 new cast iron John Pilling looms. He had built his first North-light weaving shed to receive all 113 looms with space for 100 more. The cotton boom had begun.

The improved Lancashire Loom

William Dickinson's 1828 invention of the Blackburn cone over-pick mechanism to drive the shuttles with increased power became a Lancashire standard for a hundred and fifty years because it enabled looms to run faster without cloth faults, which all makers could adopt with no royalties after 1848. This made the introduction of loom brakes operated by James Bullough and William Kenworthy's 1842 improved side weft



The side weft fork feels the weft thread every other pick with the shuttle in its box and the reed advancing in the sley for beat-up. When the thread is present the fork tilts and its catch clears an oscillating weft hammer, but when the thread is missing the fork passes through its grate, its catch engages the hammer which instantly puts the brake on and power off.

fork and James Bullough's loose reed warp protection motion all the more important.

A 'loose' reed is pivoted at the top and clamped at the bottom by a lightly sprung bar to hold the reed while it guides the shuttle in flight. When the reed is within half an inch of beat-up the clamp bar locks the reed to beat the weft onto the cloth. However, if the shuttle is trapped in the shed, instead of it smashing hundreds of warp ends, it simply pushes the lightly held reed back which tilts a lever to knock power off without damage to warp, shuttle or reed.

John Pilling's patent of 1860 was for further improvements to loom brakes.

Colne Primet Foundry

The cartage accounts show John Pilling and Sons were making at least 250 new looms per year by 1856/7. To meet increasing demand for his power looms John Pilling needed to expand and cast metal on site. The erection of the 'old foundry' is recorded in another surviving ledger showing payment for foundations, masonry and massive roof truss timber from 1856 and the 1857 commencement of increased coke deliveries to fuel the cupola (the air blast iron melting furnace) upon its completion.



Tapping iron from the 6 tons per hour large Cupola into the geared pouring ladle. This ladle was transported by an overhead railway hoist to the prepared sand moulds and used directly to pour large castings, or fill four wheeled bogie ladles or top up hand ladles.

A procession of men would each have their ladles filled in a well rehearsed silent ballet sequence in the radiant heat and smoke from the oil bound sand. Each man would be totally focused on this dangerous task. Interesting to note that for a foundry, very few burn injuries appeared in the accident book.

The first item cast in the foundry was a fly press bearing the name J. PILLING COLNE. This is still in use after 163 years, bolted to a stone block into which a chute has been carved to eject hot metal. In the days before high-speed steel drills and milling cutters it was used in the Blacksmiths' Shop to punch holes and slots in red hot iron and steel rather than blunt tools on cold hard metal.

From 1857, the machine works was renamed 'Primet Foundry'.

Business had grown to such an extent that John Pilling was, with other entrepreneurs, proposing and becoming a director of new mills, starting at Hollin Hall Mill, Trawden with John Wilkinson in 1855. All new mills needed new looms, cast iron north-light weaving shed gutter beams, columns, structural ridge T bars, tie bars, bearing hangers, bearings, wall boxes, bosses, mill gears and shafting – all of which he could supply!

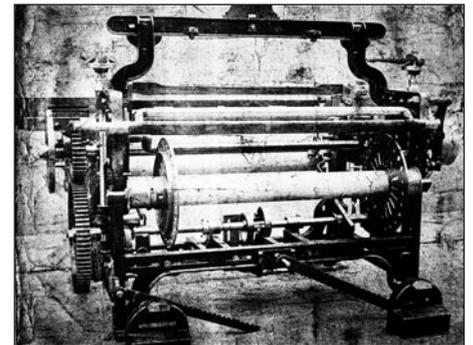
New designs

In the 1850s most of the looms being made at Primet Foundry were single shuttle machines to weave plain, twill or sateen cloths on looms that could treadle 2 to 10 heald shafts driven by shedding cams on the low shaft. The under-twill design can receive 2 to 8 treadles under the loom balanced by different arrangements of rollers above the warp to give a positive shed. Alternatively, outside-twill looms have their cams at the side of the loom and could drive 2 to 12 cross rods on the top rail to lift the heald shafts, with negative return springs below the warp. This was popular in the worsted trade as these looms are easier to adjust, but the return springs consume more power – and coal!

With effective power loom designs established, textile inventors then focused on efficiency refinements and devices to produce complex weaves – as intricate as those that could be produced on handlooms. By the 1840s Devoge & Co in Manchester were making Jacquard machines suitable for power loom applications where punched cards are used to programme each warp thread for every pick.

Multiple shuttle weaving for coloured checks, tartans and other mixed weft designs that were common in Colne was not possible until the invention of the 6 shuttle circular box loom by Luke Smith in 1843 which revolved much like the cylinder of a Colt revolver pistol to fire different shuttles. The 4 shuttle drop box invented by Kay in about 1760 and used in local handlooms was not adapted for the power loom until 1845 when Diggle of Bury devised a motion controlled by shaped chain links. S & J Eccles improved upon this in 1853, with a drop box system controlled by punched metal cards.

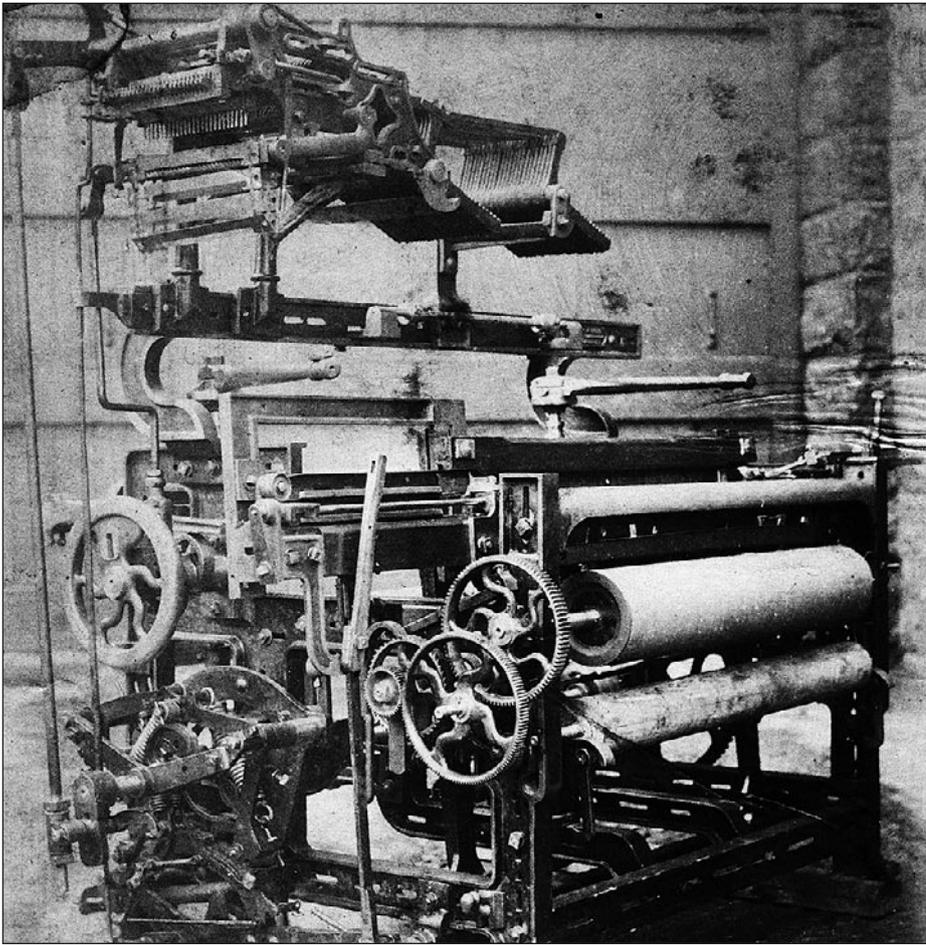
Common handloom dobbies or 'witch engines' for lifting heald shafts were not reconfigured for the power loom until the vertical hook Blackburn dobbie of 1858. This was



A very early battered works photo of the first type of plain single shuttle over-pick fast reed Lancashire Loom made at Colne. The weft fork hammer rod and heavy fast reed bang up brake are on the right to protect against serious cloth faults and an oscillating backrest to weave stripes. It has a flaw common to all early looms including Roberts. Power is delivered from the fast and loose pulley and brake on the right of the picture through the crankshaft to drive the large gears and low shaft picking cams on the left to keep the oily gears away from the brake wheel. Unfortunately this winds up the vulnerable crankshaft by putting severe shuttle-picking torque shocks, shedding cam loads and crank beat up stresses through both cranks – 9 shocks every second at 180 ppm (picks per minute) which will prematurely fatigue the crankshaft. By the 1870s this was eliminated from new production looms by putting the brake next to the fast and loose pulleys with an oil gap to the gears.

controlled by wooden pegs inserted into a chain of perforated battens – called lags – one pegged lag per pick. Hattersley, Hill, Smith and Walker developed a horizontal hook dobbie in 1867 culminating in the important Keighley double shed dobbie in 1876 which was made in various widths, the most common being for 12, 16, 20 or 24 shafts. As well as lifting the heald shafts to vary the warp shed for complex repeats, dobbie pegs could also programme the shuttles in an Eccles dropbox and control other motions as may be required for leno, towel loop pile, warp tension changes, fringing or cramming motions etc.

After the cotton famine during the 1861 to 1865 American Civil War, the industry recovered, and the rate of mill building took off again in the 1870s. The third John Pilling (b.1833) and his brother Henry doubled their casting capacity and built the 'new' loom end foundry with a second cupola in a fireproof charging place, enlarged the smithy and installed more powerful machine tools. To drive these and a second blast fan they



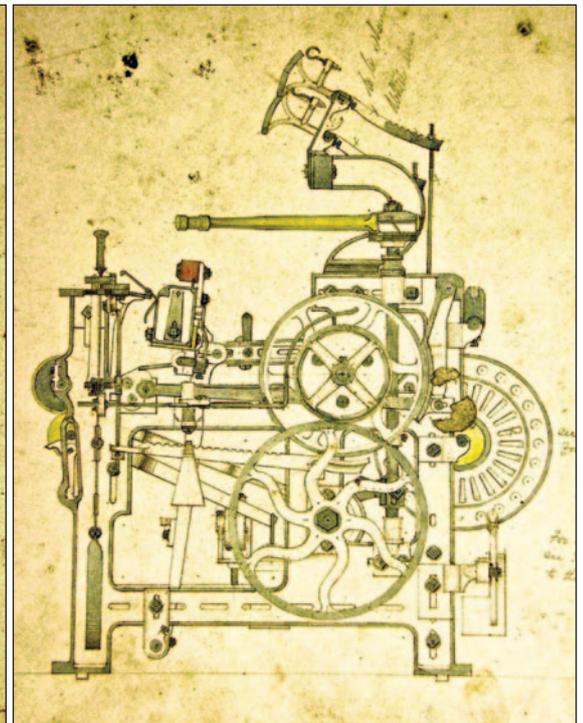
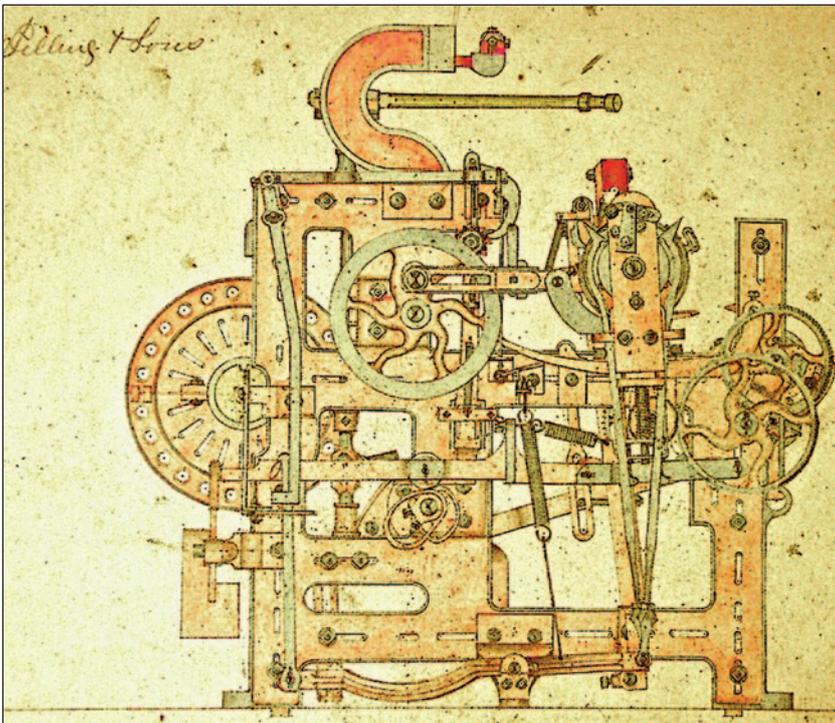
Works photograph from the 1870s of an early 4x1 over-pick Lancashire dobby loom (4x1 means four shuttle drop boxes one side and a single box on the other). It has the efficient William Dickinson cone over-pick motion, with conical rollers to reduce wear as they follow the sharp picking cams to whip the shuttle picking sticks over the sley. It has a heavy balance wheel to sustain power to the dobby and experimental dobby controlled box motion. An oscillating backrest cam is visible, this alters warp tension at the moment of beat-up so that the weaver may select weft or warp faced stripes or equalise tension for tartans.

built a new boiler house for a pair of small higher-pressure boilers possibly rated at 60psi with a taller chimney. They uprated their existing beam engine by adding a second, high-pressure cylinder to compound it and produce the extra power required.

John Pilling then created a new range of standardized loom designs that incorporated up to date proven inventions now out of patent, modified with their expert practical knowledge to make strong, reliable machines that would build the firm's reputation and could take future adaptation. He signed off a set of design drawings for these to go into production in 1879. These formed a sound basis for extensive development of an ever expanding range of models in all reed widths from 24in to 126½in to enable new cloth designs to be produced in cotton, silk, linen or worsted, heavy, medium or lightweight, fast or loose reed, for decades to come.

Shedding and extra loom motions could be controlled by any make of Jacquard or dobby for complex patterns. Over-pick and under-pick looms were made with pick and pick options, and a range of drop box motions from 2x1 up to 6x6 boxes for multiple shuttles for different colours or types of yarn. Alternatively, for heavy reliable production weaving, plain cams with roller tops or under-twill multiple cam motions beneath the loom with spring tops or compensating roller tops could be fitted. For coloured twills (tartans and tweeds) side twill cams with crossrod shedding were usually supplied, many with 6x1 six shuttle circular (revolver) boxes. These had working lives in excess of 100 years.

The new looms sold by the thousand to the home market and abroad. In 1880, responding to demand, the riverside building was raised to 3



Two of the new standard robust loom designs of 1879. On the left is the basis for thousands of 6 shuttle loose reed, revolver, circular box looms including crossrod twill check / tartan looms. On the right is the outside treading crossrod fast reed loom design with oscillating backrest and a second 'bang-up' brake for 3 shaft twill jeans. Shown fitted with 2 shafts for plain weaving, these were also available for complex twills with crossrods for as many as 12 shafts. These designs were also the basis for the fully automatic shuttle changing looms of 1901 and even the advanced continuous weft projectile loom of 1950!

storeys, considerably increasing the first floor assembly and second floor joinery shop capacity.

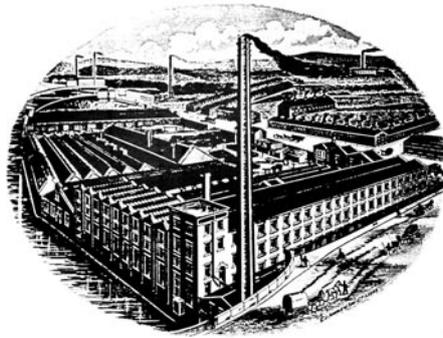
By 1894 John Pilling (b.1833) was seriously ill. He asked his son John Anthony Pilling (b.1865) to leave his position at Howard and Bullough's Globe textile machine works in Accrington, to become the fourth head of the firm. He immediately made the business a limited company shortly before his father passed away in November 1894, and took the business forward with brothers Frank James Pilling (b.1873) and Sydney Preston Pilling (b.1876).

They reviewed the loom designs, made detailed technical improvements and produced an illustrated catalogue. They introduced a trademark feature of very exaggerated 'S' spokes for the wheels under greatest shock loading, especially the wheel on the top shaft that takes the shock of powerful fast-reed loom brakes 'banging off' and also the bottom shaft 'big gear' that receives two severe shocks per revolution every time it picks the shuttle. The 'S' spoke introduces flexibility into the cast iron wheels during use, as well as reducing the stresses induced within the metal after casting due to differential cooling when the liquid iron solidifies in the foundry sand.

With demand for their looms continuing to grow the foundry and machine shops were both enlarged by another 50% in 1895 and the original cupola replaced by a larger furnace capable of melting up to 6 tons of iron per hour, in the charging place next to the 1870s cupola. A large timber seasoning and preparation shed was built on the yard to the west of the foundry – well away from cupola sparks. Power was further upgraded with the installation of a more powerful Lancashire boiler with greater thermal and steam capacity, capable of working at 90psi pressure from Yates and Thom with a fourth storey roof tank added to service it. Quite possibly Pillings had calculated the beam engine's high pressure cylinder could work at this higher pressure, or else they cast and fitted a new cylinder to deliver the extra power required.

Automatic Looms from 1901

At the turn of the 19th century, research focused on achieving fully automatic weaving. With shuttle weaving this means having a mechanism that ejects the spent weft shuttle or its pirn and loads a filled one without the intervention of the



A vision of Primet Foundry from the front cover of the 1894 catalogue.

The 3 storey 2 bay range at the front is the original 1848-49 machine shop construction. Machine tools occupied the ground floor, loom fitting and assembly the first and joinery the top floor. The arch headed beam engine room window can be seen behind the tall chimney and boiler-house that made the small 1849 chimney redundant, with water tank for the new Lancashire boiler over the fourth floor tower room. The 3 storey river side range had fettling and grinding at lower ground level, fitting and painting (olive green or black) at first floor with dobbie and sley shop and timber fittings store on the top floor. Behind is the smithy then the old 1857 foundry with massive single span roof and beyond that the new foundries as proposed but actually the far cupola was installed next to the near one. The long timber store is at the far end of the site while the site for the 76 loom weaving shed is still coke, limestone and iron storage.

weaver. James Northrop (from Keighley) working with Draper in the United States had patented their pirn-changing loom in Great Britain in November 1894 and during 1902 the first batch had been imported. They commissioned Henry Livesey in Blackburn to manufacture under the name 'The British Northrop Loom Co Ltd' (NBL) – which meant the Northrop design principle could not be used by their competition until after 1914.

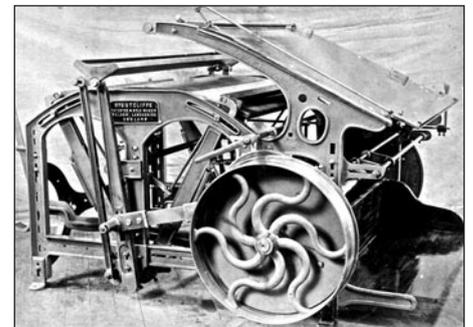
To get round this, from 1901 John Pilling & Sons Ltd made Automatic Shuttle Changing Looms to Bernard Crossley's patent and from 1903 to James Cowburn's patents. These looms have a vertical magazine of shuttles loaded with weft, a feeler device checks the shuttle in use every other pick. As soon as the weft is about to run out, the feeler sets the change mechanism at the other side of the loom which diverts the empty shuttle into a bin and transfers a full shuttle into the return box without the loom having to pause. While running slightly slower than a non-automatic loom, continuous weaving saved considerable time, also each weaver could

operate twice as many looms. However, labour was cheap, profits were high, so relatively few shuttle-changing automatics were sold.

Work continued on a pirn changing design until the outbreak of the First World War but none proved as effective as the Northrop principle, which was the solution most loom makers adopted as soon as Northrop's patents expired, at which time NBL was well established and had cornered that market.

Weaving R&D on site

In 1904 a 200hp Robinson of Openshaw tandem compound engine and generator were installed to drive the works lineshafts and provide electricity. The extra power was needed for additional machine tools, lighting and the development of electric looms, but mainly to operate group motor drives for a new 76 loom showroom and R&D weaving shed. This was built to demonstrate automatic and electric looms and for their fitting and assembly.

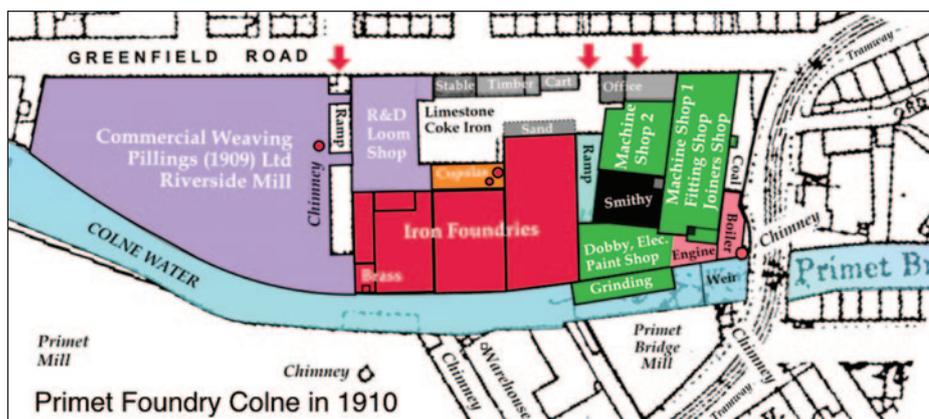


William Sutcliffe patent Plaiting Machine c.1901, made by John Pilling and Sons at Primet Foundry, Colne

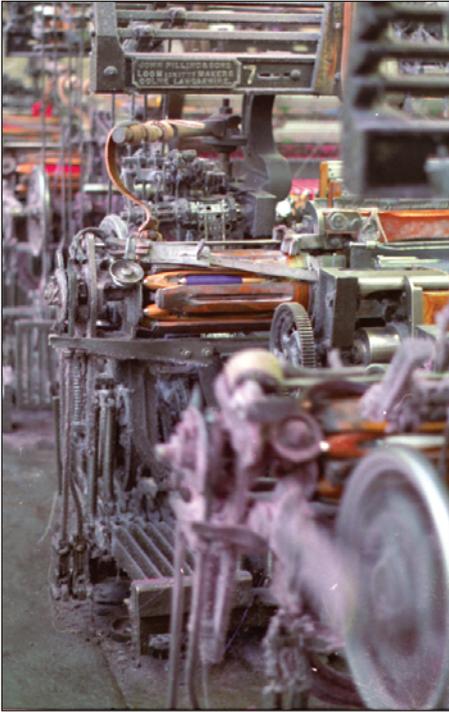
By 1906 Riverside Mill had been built on the plot west of the foundry for 574 looms and was connected to the showroom shed by a bridge over the ramp. It was leased to not only produce cotton cloth commercially, but also to provide weavers to trial new developments as well as expert product feedback and ideas. In 1909 JPS Ltd took back responsibility and established a separate weaving company, Pilling's Ltd, to focus solely on running Riverside Mill. A vertical twin-cylinder gas engine first powered it, but this proved to be unsatisfactory and was replaced in 1918 by a second hand steam engine.

Other Products

After winning a medal for looms exhibited at the 1906 Milan International Exhibition, John Pilling and Sons Ltd took out their 1908 patent for a new design of dobbie. During this decade the firm also developed and manufactured other weaving related products. John Anthony Pilling had retained rights for a weft pirn and warp bobbin-rewinding machine for yarn preparation he had designed at Howard and Bullough's, so this was now produced at Primet Foundry together with warp dressing, ball warping, and Scotch beaming machines. From the turn of the century John Pilling and Sons Ltd manufactured William Sutcliffe patent Plaiting Machines, used in mill warehouses for quality inspection, measuring and



Imperial and metric



John Pilling circular (revolver) box loose reed crossrod looms made in 1912 for £12-9s-6d each, still weaving twill tartans, dress fabrics ginghams, scarves, dusters and check shirtings at North Valley Shed, Colne in 1996 less than quarter of a mile from where they were made.

folding of the finished cloth for delivery to the mill's customers. William Sutcliffe paid to have his own nameplates fitted, which said they were made in Nelson by himself as sole maker – but the works photographs testify otherwise!

War Clouds

By the outbreak of the Great War, mills were still being built. The company had grown to employ more than 300 people who were making over 3000 new looms per year plus thousands of spare parts, mill construction ironwork as well as numerous preparatory and cloth inspection machines. The firm had made its reputation and achieved its peak output.

Acknowledgements: Lancashire Mills Study steering group discussions with Ian Miller and the assistance of Ian Gibson have been much appreciated.

All illustrations are from the author's collection.

Part 3 will start with WW1, Wembley Exhibition, research, development and takeovers to survive the interwar depression, WW2 munitions, parts and parachutes, the export drive, more R&D and reorganisation in a brave new world.

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WEBSITE**

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In the mid-60s when I first took a site job on a road scheme in Birmingham, measurements were in feet and inches with fractions of an inch. The exception was levels which were in feet and decimals so it became second nature to think of, say, 6 feet 10 inches to be 6.83 feet and vice versa. Crazy!

By the time I left, metres and decimals were appearing on drawings but nobody thought that way. One of our foremen proudly showed me a new tape measure with both systems – he would manage, he hoped.

Thirty years later when I was making furniture, customers thought in feet and inches and suppliers thought metric. Buying English hardwoods such as oak and ash – the system was bilingual. Generally, I bought whole logs which had been sawn and air dried for a year or more. The exchanges at the saw mill are worth recording.

Perhaps I would realise that I was running low on two inch oak. At the sawmill I would speak to a salesman – 'How much do you want?' – 'about 30 cube', I might answer – meaning thirty cubic feet.' 'How long?' – 'Seven to eight feet'.

We would set off into the long lines of some thousands of neatly sawn and stacked logs, four or five high, end on to the roadways. His experienced eye would pick out a log, 'That should be about right', I would do my best to see if it had any obvious flaws. Not easy to see with the log ten or twelve feet up although nobody worried if I climbed up on the other logs to have a better look.

The salesman would send for a crane and a gang who would lift down the log and we would go through it plank by plank. Each plank or board had two numbers chalked on it – the first was the log number eg B3925 – the same on each board. The second was the area in square metres eg 1.34. If we had picked a good log, I would be accepting all the boards and he would be noting the areas down on his pad. Perhaps after ten boards I would ask 'How are we doing?' Without hesitation he might say – 'that's about fifteen'. In his head he had converted the total area in square metres, multiplied by a thickness in millimeters, into cubic feet.

These numbers had been marked on the boards when the log had been sawn some two years before. After the giant bandsaw had sliced the board off the log it slid along rollers to a gang of three men. Two lifted it off while the third measured the width of good material, excluding the sapwood and bark. Strictly he should check the width in three places, near the ends and in the middle, but for most logs, just the middle was good enough. Without apparently thinking he multiplied the width by the length which he had measured on the first plank. He chalked the area on the board but, if there was a major flaw, he marked it on the board and chalked two numbers – one with the whole area, crossed out, the other with the amended area. He only had a few

seconds to do this before the next board had been sawn and was ready to be measured and stacked. In that short time the other two men had placed a series of 'stickers', thin strips of softwood, across the plank at foot intervals, being very careful to ensure they were exactly above the stickers separating the planks below. These gave space for air to circulate and allow the wood to dry evenly. If the stickers were carelessly placed the boards could distort and the log would be worthless. For a nominal two inch or 50mm board the sawyer had actually moved the log 58mm sideways between cuts to allow for shrinkage (see below) and to allow for the 4mm saw kerf.



Timber stacked ready for use

Back in the office the list of areas would be handed through the little window and I would get the bill to pay. This would show the volume converted into cubic metres and the price, not the £22 per cube, I had been quoted but £787.37 per m³.

For unsawn logs, the system used went back to 1736 when Hoppus measure was introduced. This was the length of the log multiplied by its 'quarter girth' – the circumference of the log divided by four. This was supposed to allow for the inevitable waste. The price would be less than half that of sawn and air-dried material but the buyer took the all risks.

Note — All wood shrinks as it seasons (dries) – fresh sawn oak may include as much as 75% moisture. Sawn, stacked and under cover two inch boards will be down to about 15% after a couple of years. Little shrinkage takes place until the moisture is down to 30% but after that the timber shrinks both tangentially and radially but not longitudinally and 50% more tangentially than radially, which is the reason a board will warp. Warping can be minimized by careful stacking – the great weight of the logs in the stack helps. In order to make the wood suitable for domestic furniture the moisture must be reduced to about 10-11% and this can be achieved either by keeping the boards in a dry space for a few months or by actively drying it in a kiln or dehumidifier. The slower the better and so the former is preferable.

Chris Barney

Inspiring Creativity in the Heritage and Creative Industries

The Heritage Alliance has published a report on the extent of original creativity within the heritage world. As it records in the forward — we live in a creative country which embraces and celebrates many cultures; what we leave behind will become the heritage of future generations. Part of the purpose of this paper is to help reunite heritage with culture (in its widest sense) and with creativity. Another is to celebrate the many and various ways that our member organisations are contributing to the vibrant, successful and very much not old creative industries. The economic value of our creative industries is undisputed; what is perhaps less recognised is their relationship with places associated with the idea of heritage.

To find the whole report search — Heritage Alliance Inspiring Creativity

Among numerous and hugely varied case studies there are several with industrial backgrounds including :

The Cornwall and West Devon Mining Landscape has recently celebrated its ten-year anniversary as a World Heritage Site designated by UNESCO for its 'Outstanding Universal Value' to humankind. The celebrations led to a popular performative heritage event in 2016: the Man Engine. This twelve metre tall mechanical puppet (replicating parts of the mining process) made a pilgrimage across the landscape, visiting former mining sites, towns and villages as an act of community remembrance, spatial identity and celebration. Arts Council England/National Lottery funding helped the project design and construct the mechanical wander and provided

an educational programme. Funding also facilitated community programmes where people were actively involved in the production. This created a gateway for expression of community voices and experiences.

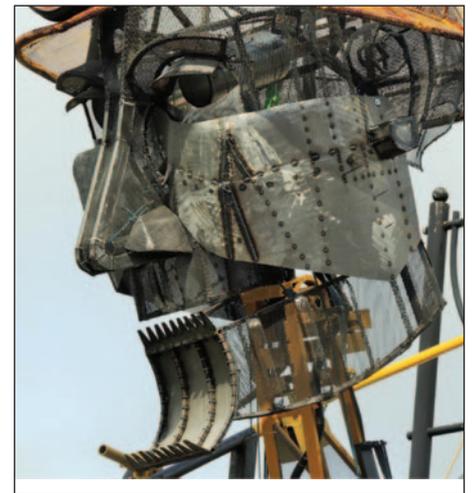
Cornwall's tradition of taking theatre out to the towns and villages laid the foundations for this spectacular heritage space – the Man Engine. From the medieval theatre, to the contemporary Fooks Theatre, this intangible living heritage of performative acts, music and dance is the inheritance and the bedrock for Cornwall's creative industries.

Cromford Mills – The home of Sir Richard Arkwright's first mill complex, birthplace of the modern factory system and a UNESCO World Heritage Site.

Cromford Mills wanted to create a participatory, original, locally focused memorial to mark the WW1 centenary. They engaged Hecate Arts Ltd as local specialists with a reputation for creating innovative community engagement work.

A Creative Residency was established for the summer of 2018 with the aim to develop a participatory community event focusing on local connections at Cromford Mills. Workshops were run both at the site and in the community to culminate in an event to be held on the weekend of the 11 November at Cromford Mills

The project was based on key elements of the site history and stories of how Cromford families were affected by the war; The Poppy Path referred to the pathway between the Mill and the Church



Man Engine

photo Evie Pearce

built by Sir Richard Arkwright. Fabric and pigment were chosen as the principal materials for the workshops to reflect aspects of the heritage of the mill.

Over the summer 150 mixed media fabric panels were created at free workshops on site and at community events in the village. A wide range of visitors and local people of all ages attended the workshops and were encouraged to explore the site and local area inspired by the information available.

For the commemoration event the public were invited to follow the performance along The Poppy Path which was lined with banners made from the Poppy Panels, from the Mill to the Church.

The Ambulance for Monuments



One of the winners in the 2020 Europa Nostra Awards (see page xx) was this remarkable initiative in Romania

The Ambulance for Monuments project was launched in 2016 to rescue hundreds of heritage-listed buildings in Romania through a large network of active heritage organisations. These emergency interventions are carried out by experts, students and trained craftsmen on a voluntary basis with the support of local communities and authorities. At the heart of the project in each region is an intervention kit and a lorry equipped with tools, construction equipment and materials.

Most of the project's activities are related to the replacement of damaged roofs, securing walls from collapse, implementing proper water drainage and stabilising wall paintings. Since 2016, many interventions on local, national and World Heritage sites – such as churches, mills, manor houses, train stations and ruins of historic fortifications – have been carried out.

An important element of the project is its focus on local decision-making and ownership of the heritage. Ambulance for Monuments operates as an umbrella initiative, with each organisation working as a franchise and therefore maintaining the independence of each organisation to make decisions. Communities work together with the volunteers, hosting them in their homes and providing meals.

A close cooperation between private and public bodies has been created where local and regional authorities cover most of the costs for materials while private companies and donors fund additional materials, equipment and tools. Hundreds of mayors, priests, local councillors and other representatives of local communities have joined forces with the volunteers to curb the destruction of their own heritage. This has raised

local communities' awareness of the importance and value of cultural identity and encouraged a sense of stewardship.

The initiative also trains young experts and craftspeople at a local level, ensuring the sustainable and future maintenance of the buildings, addressing a problem that is present not just in Romania but in many other countries throughout Europe.

The Jury said, "The Ambulance for Monuments project acts with great sensitivity to emergency interventions and the maintenance and the restoration of heritage buildings. The initiative is active in many regions throughout Romania and especially focuses on neglected rural areas which are facing population decline. It trains volunteers to work in the field of restoration under the guidance of conservation experts, which is a good way of reviving forgotten techniques and skills. Also notable is the successful cooperation between organisations, authorities and other stakeholders at local, regional and national levels. This strong initiative could be adapted to a number of countries in Europe."

Greenwich is not just a Palace and a Museum

Greenwich Industrial History Society may not be the oldest but it can lay claim to be one of the most active and certainly has an extraordinarily varied and valuable territory to cover. Any suggestion that 'not much is going' on in Greenwich is quite untrue. Down here we are, as ever, run off our feet – although it's mostly about retrieving what we can as sites continue to be ravaged by developers. Where do we start? There is so much.

Mary Mills

We set up the Greenwich Industrial History Society in 1998. Initially it was all about the Royal Arsenal, thanks to our first Chair, the late Jack Vaughan. The vastness of the Royal Arsenal would beat most people and wasn't helped by its previous military owners who disposed of anything interesting before anyone was allowed on site. Professional archaeologists did what they could and there was amazing support from the English Heritage officer – the late Paul Calvocoressi, who many in the AIA will remember – and a large body of reports resulted. Jack, who didn't really care who he upset, and was prepared to fight for every inch has been succeeded by a younger generation still trying to record and preserve. The size and complexity of the Royal Arsenal means that despite the flashy flats built over the past 20 years and a whole new town built over the past 50 – there are still many untouched acres.

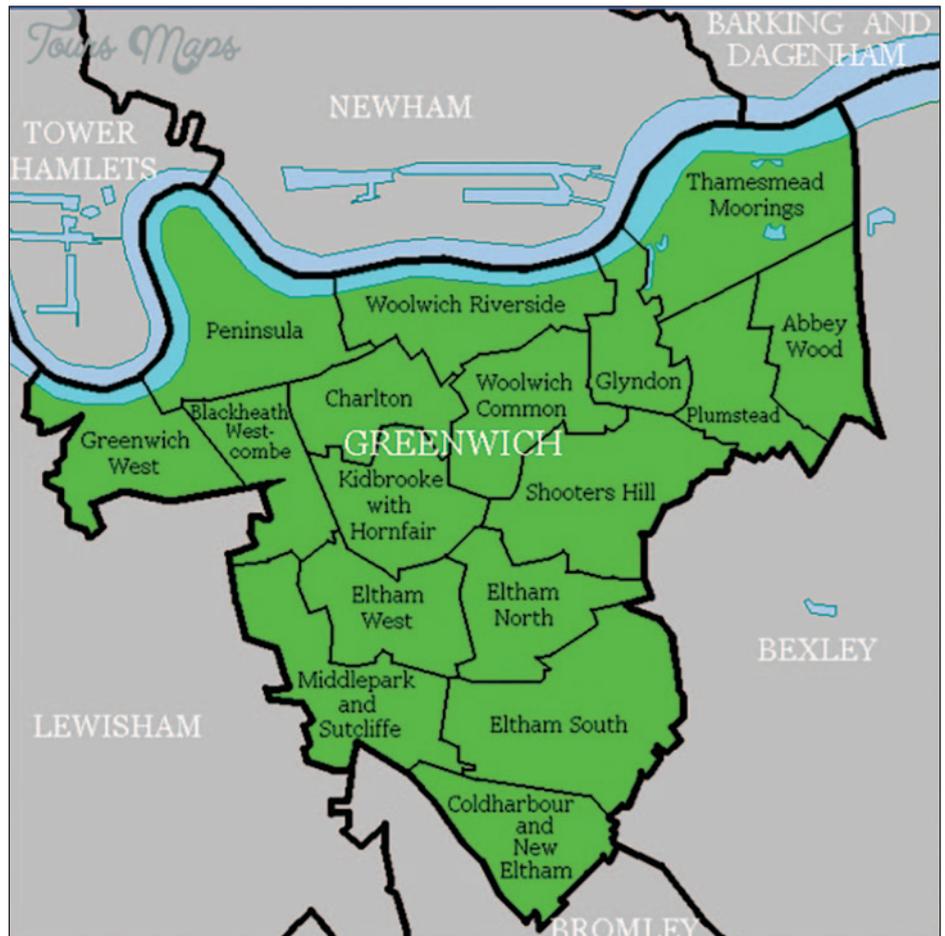
Greenwich Industrial History Society kept on trying to report on what was going on, doing what we could. I am now the only surviving member of our original committee – Jack Vaughan, Barbara Ludlow, Sue Bullivant, Hugh Lyon, and Steve Daly – all gone. A few years ago



From left to right standing: Barbara Ludlow (late) local history librarian and author; Peter Kent, local graphic artist; Howard Chard (late), researcher and photographer; Juliet Cairns, local researcher; Jack Vaughan (late) Arsenal and Woolwich researcher and writer. Our first Chair. Me in front

we set up a discussion group/committee. This was to provide a forum for people who were involved in local planning battles or were doing research on industrial sites.

So – for a quick look round the Borough. Most industry was along the riverside while the southern town of Eltham was mostly suburban – apart from a Royal Palace, a large scientific



Modern boundary of Greenwich Borough

instrument factory, railways, two farms, and much else – including many of those little works which proliferate in London – around the back of houses, in a shed, making something ever so clever and very specialist.

The Royal Arsenal dominated the riverside at the east end of the Borough and beyond, but to the south of it lies Plumstead. The Matchless works was gone before we got going, although many devotees of big bikes make the pilgrimage. Currently there is concern about the early refuse destructor/generating station – until recently used as offices by Crossrail. There are also – as throughout the Borough – many sites for what was the ubiquitous Royal Arsenal Co-operative Society, including a large factory complex on the riverside. The first ever recorded co-op was in Plumstead, a corn mill from the 1750s. An active community group is trying to save remaining Woolwich industrial sites – wharves, the market, and much in the back streets. Plus the offices of the earliest Labour Party. In the 1960s activists did what they could to preserve something from the Woolwich Royal Dockyard and in the 1970s volunteer archaeologists uncovered an early stoneware 'Woolwich kiln' and much more.

In Woolwich we have, of course, a new ferry – and also one of the three London County Council free cross river tunnels. The two foot tunnels – Greenwich and Woolwich – have a Friends group –

but the poor old Blackwall has never been befriended. Revolutionary in design and construction techniques, it has existed for over 120 years carrying traffic volumes which would have been beyond unthinkable when it was built.

On the riverside in Charlton are the remaining buildings of Siemens huge electrical engineering and telecommunications complex. A developer has now taken over, bent on change. A group of historians and archaeologists are hoping to work with them. Beyond the Thames Barrier are more developers awaiting planning consent. There are many sites here still 'undeveloped' – rope works, the biggest glass works in Europe, two private railways, ship breakers and much else. A very recent planning inspectorate decision



Fractionating tower made at G.A. Harvey and destined for the BP Chemical Plant at Baglin Bay for the production of propylene



Woolwich born, and Greenwich resident, Lt. Col George Landmann, the Royal Engineer who built the London & Greenwich Railway – the first suburban railway in the world, and the first railway in London to use powered locomotives

will mean a re-evaluation of these sites. Stone's Foundry may still be in production – it is where Stone Manganese Marine made propellers for the likes of the Queen Mary were made. South of the main road was a chain of chalk and gravel extraction pits one of which has been made a site of 'Geodiversity importance'. There are also the remains of the Johnson and Phillips electrical engineering works awaiting a developer for a huge and largely hidden site.

I have written a good deal about the Greenwich Peninsula and there were many, many big industries here – the largest gas works in Europe, a smallish power station, Bessemer's steel works, several chemical works, stone works,

cement works, lino, glucose, soap and others. Like the rest of the riverside the foreshore was interspersed with wharves, boat and barge builders. When I talk about ship building in Greenwich, I ask audiences, "when do you think the last vessel of any size was built on the Peninsula?" They say "1900? or maybe 1920?" Wrong – a large pleasure craft now working from Reading was built on Point Wharf in 1990. I really think that if the developers went away the boat builders would be back before you could blink. Anyway, there is a large boat repair facility on the Peninsula at Bay Wharf where Cutty Sark's two sister ships were built. We mustn't miss out all the work Enderby Group have done at Enderby's Wharf – where gunpowder testing was replaced by rope, whalers and Antarctic exploration, to be replaced by the Atlantic cable and a revolution in the technology of communication. The Alcatel factory on this historic site is still at work.

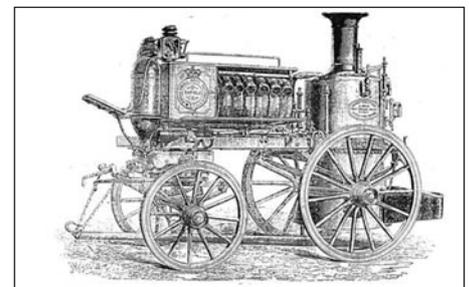
On the western edge of the Peninsula an early medieval tide mill was discovered ten years ago. As we go towards Greenwich proper on the riverside there was the site of Crowley's seventeenth century warehouses – where recently archaeologists have found evidence of iron working. We pass Greenwich power station – is it the oldest power station in Europe? It is still at work in roughly the same ownership. And so on to 'Royal Greenwich'. I would argue that the palace was itself an industry – starting with the Royal Armoury and its mill on the border with Lewisham. The professional archaeologists are busy on the foreshore uncovering Tudor jetties and the like.

Before the Cutty Sark was brought in – this area was a maze of boat repairers, barge builders and disreputable pubs with some quirky stuff – like the Noakesoscope. The biggest industry here was fishing, which moved to Grimsby in the late nineteenth century. And so – along the river, past new flats on the sites of boatyards, an interesting steam ferry site, a gasworks and much else until we get to the Creek.

Deptford Creek has a group of local residents

who are trying to get a footpath on its banks opened up and signage installed about the industries which were there. The Greenwich part of the Creek goes all the way up to the waterworks and the Kent Well – supplying water to Greenwich since the seventeenth century. On the way there is the lifting bridge on the Greenwich Rail – the first suburban railway in the world, built on a viaduct said to be to the biggest brick structure anywhere. The Aston Webb Mumford's Mill is now flats but locals were unable to save anything from Merryweather's fire engine and pump factory – or anything else – and there was so much there.

Over on the Deptford side of the Creek mouth there is no mention of General Steam Navigation, an amazing and innovative company whose depot dominated the area. Scandalously there is also no mention of Ferranti's Deptford power station – the first 'proper' power station in the world. A local group here still campaign to learn more and save what they can. Nearing the border with Lewisham there are more flats on the sites of important eighteenth and nineteenth century



One of the designs from the Merryweather catalogue

shipyards – including the two earliest sites of the East India Company. Finally at the border is what was Penn's boiler shop – Penn's were the internationally leading marine steam engine manufacturers in the nineteenth century with their main works on Blackheath Hill. Their main rivals were Humphreys, Tennant and Dykes a few yards down from Penn's riverside boiler shop. Thanks to residents, Chris and Willi, we now know that the famous boiler shop was actually built for a never finished riverside extension to the Greenwich Railway.

The wall of Deptford Royal Dockyard stretches along the boundary with Lewisham. At the river end of the wall is the Upper Watergate – watermen's stairs – and a new battle is looming on the preservation of these ancient plying places, drawdocks and foreshore access.

This has just been a quick tour round the Royal Borough of Greenwich. I've tried to cover some of the larger sites, all those that have had their supporters and the planning battles. There have been many many others. In the 24 years of Greenwich Industrial History Society we have listened and helped where we could. We have tried to report on them and worked with the volunteers who monitor planning applications of behalf of community groups. Most battles, to be honest, were lost – but there is a consciousness now of our past and that it wasn't all just about Royalty, Nelson and clocks.



View looking north over Charlton with the north bank of the Thames, then in Essex, in the background. Late 1930s with plenty of smoking chimneys, a world of work. In the foreground is a Siemens building with others stretching beyond it to the Thames. The works closed in 1968, but much of the large block survives and is now occupied by artists and small businesses. The older factory area is now being refurbished as part of a redevelopment area

AIA 2020 Restoration Grants

In these strange times it is pleasant to report that the AIA Restoration Grants scheme has proceeded in an almost normal fashion. With a closing date for applications of 31 March the pandemic considerations will have affected the number and confidence of the grant applications but there was still a rich enough crop to award grants without reservation. This year was the first to have two categories of grants each with a proportion of the available funds. These funds are, of course, a direct product of the generosity of two anonymous donors and this year, with Gift Aid, amounted to almost £150,000.

The present Coronavirus circumstances would seem to have affected the number of applications received: only 20 as against the usual 30 and, of course, introduced uncertainty as to the role of volunteers in the projects (and indeed sometimes the survival of the parent body). This is reflected in a suggestion that in two instances a small grant might be made to help soothe these problems. The Council considered the Restoration Grant Panel recommendations and approved the following awards:

The Small Grants

Bath Quarry Crane

This project is to restore and install an historic Stothert and Pitt quarry crane on to the site in the centre of Bath where it was originally manufactured. Stothert and Pitt were 'crane makers to the world', and there are preserved S&P cranes in many places around the world, as far away as New Zealand. There is one saved (steam) crane in Bath which has been installed on the site it was built. It dates from 1904 and is in the middle of a new housing development. The quarry crane was built c.1864 and is the oldest known one of its type surviving intact. Its condition is very poor. The crane is currently being restored by a group of volunteer experts, led by a former S&P crane service engineer. Bath and North East Somerset Council, the owner and developer of the Newark Works, has expressed a willingness for the crane to be installed on the site for free public display. This will be truly authentic interpretation.

Saul Junction Swing Bridge, Canal & River Trust

Saul Junction in Gloucestershire is where the Gloucester & Sharpness Canal meets the Stroudwater Canal and was traditionally a great meeting place for ships and crew, boats and boaters from around the world. The swing bridge is particularly important to local walkers and to the boating community on the Stroudwater Arm. It is adjacent to the active boatyard which forms a significant feature of the area and which is part of the living boating heritage of the area – operating as RW Davis Ship & Boat Builders. When opened the bridge enables access from the Boatyard across the Stroudwater to the far side, including Junction Bridge House, Junction Bridge and from there alongside the Gloucester &

Sharpness Canal to the Visitor Centre, café and the extensive canal towpath.

Steam Tug *Kerne* was launched at Montrose Scotland in 1912 and is classified by National Historic Ships U.K. as a National Historic Fleet vessel of pre-eminent national or regional importance, (equivalent to a grade 1 listed



building). Originally named *H.M. Tug Terrier* she is the last operational ex Royal Navy ship with her original machinery to have served in WW1 and she is the last steamship to have worked at Chatham Historic Dockyard. In 1948 she was renamed *Kerne* and was the last steamship to work commercially on the River Mersey.

Kerne is a valuable and well loved piece of Merseyside's, and the U.K's national maritime history. She provides a focus for regular volunteer working parties twice a week, where young people learn rare heritage restoration skills and older, often socially isolated people, are provided with constructive conservation work and a caring group of friends and fellow volunteers.

Kerne, which weighs 165 tonnes, will be drawn out of the water at a patent slipway and the grant is towards vital below the waterline hull restoration and conservation costs. It will restore the tug to full operational and exhibition condition for many years to come.

The Major Grants

National Coal Mining Museum for England Bucket Excavator



This Grant is for the restoration of a tracked bucket excavator, also known as a face shovel. It was made by Thomas Smith & Sons (Rodley) Ltd, Leeds and it forms part of the British Coal Collection held by the Museum, acquired in the 1990s, following the closure and liquidation of the Chatterley Whitfield Mining Museum.

The bucket excavator was a piece of equipment used in opencast mining and this is the only significant object in our collection which

was used for that. Opencast mining is often overlooked in favour of deep-coal mining. However, opencast mining represents the only existing commercial coal mining still operating in the UK, and as such is an area of coal mining of current relevance to our museum. Through such pieces of mining heritage, we can examine the methods and stories of the whole coal mining industry, not just deep mining.

This excavator is a rare object as cable operated machines, while popular when it was built in the 1930s, were overtaken by hydraulic systems. This machine is one of very few examples still in existence.

Llanelli & Mynydd Mawr Railway Company, saddle tank steam locomotive No. 1498 *Desmond*



Built by the Avonside Locomotive Company in Bristol in 1906. *Desmond* is a standard gauge 0-4-0 Saddle Tank steam locomotive and was bought to serve the Lysaght's Orb Steelworks in Newport in 1906. Named after a Lysaght family member, it was in use at the steelworks until 1973, when it was handed over to the National Museums and Galleries of Wales. After leaving Newport, the locomotive was sent to the 2ft gauge Teifi Valley Railway, where it was a static exhibit. The locomotive is the only one of its kind remaining in the United Kingdom and the grant from the AIA will cover the completion of outstanding restoration work and re-commissioning of the locomotive. *Desmond* will then be moved to and used at our site at Cynheidre.

Robey Trust Steamroller – *Stumbles*

The Robey tandem steamroller, no.42693, affectionately known as *Stumbles* after 'Stumbles the steamroller' from a 1956 book, *Tootles the Taxi and other Rhymes*, written by Joyce Clegg and illustrated by John Kenny, was built in 1925 by Robey & Co Ltd in Lincoln, as a tarmacadam patch roller. Purchased new by Devon County Council and assigned to their Road Division the same year, the engine stayed with DCC until 1963 when it was retired to the local Tavistock Meadows playground. The roller was subsequently donated by Tavistock Town Council to the newly formed Robey Trust charity on the proviso the engine would be fully restored and stay in Tavistock as part of its history.

Robey tandem rollers are unusual because of their chain drive and pistol 'stayless' boiler configuration. In the UK there are 8 Robey tandem rollers comprising two tri-tandems, three 5-ton tandems and three 'standard' 6-ton Robey tandem rollers, of which No. 42520 (Bressingham Museum) and No. 48835 (privately owned) are both in need of restoration and on static display, making *Stumbles* the key representative of the 6-ton variants. *Stumbles* has consistently operated over the last 26 years serving a plethora of community activities annually in and around Tavistock to strengthen the charity's aims and objectives.

Old Buckenham Windmill, Norfolk Windmills Trust



The grade 2* listed Old Buckenham Windmill is a large red brick five storey tower mill built in 1818. It is possibly the largest diameter tower mill still surviving and with very little batter its curb is the largest in the country. It has a Norfolk boat shaped cap and would have had four double shuttered patent sails and one of the unique features of the mill is that it is winded by a combination of a spur pinion and worm drive. The mill was built to house five sets of stones, one set for grist and four for flour milling and the stones are underdriven by a 13ft. great spur wheel.

Following a long series of vicissitudes since the mill ceased working in 1926, the mill was given by its owners to Norfolk County Council in 1995 and the Norfolk Windmill Trust carried out a programme of restoration with a new cap and sails, reusing as much as possible of the old timber and metalwork. The mill has needed constant repairs over the subsequent years and now the tower's brickwork needs urgent attention hence the application for an AIA Restoration Grant.

Oldknow Limekilns, Marple,

Samuel Oldknow founded his first lime-burning business at Marple in the early 1790s, and the kilns became operational by August 1796 when the Upper Peak Forest Canal and the Peak Forest Tramway opened for trade. The track of the tramway is still identifiable. It provided a link to the lower canal whilst the sixteen locks in the Marple flight were being constructed. There are five remaining kilns in the battery, which is of brick and locally sourced dressed stone

construction. The battery was designed to resemble a Gothic building, so, it is said, that it did not detract from the view from Oldknow's residence. They are a scheduled Ancient Monument but are currently on the Historic England 'At Risk' register.

The kilns are unique in that they are the only battery which originally included living accommodation within the structure of the kilns. They are also special in that the transportation links through the Peak Forest Canal and Tramway and the main buildings associated with the operation of the kilns are still standing. These are the stables and two loading sheds, and although they have been converted to residences, their original functions are clearly identifiable. In addition, the tramways linking the kilns to the loading sheds, identified in a recent archaeological investigation, are preserved under the surface of the site.

The Friends of Oldknow Limekilns have been awarded an AIA grant to undertake essential repairs to allow further survey and assessment of the monument.

The GWR 1897 Pattern Store, Swindon Railway Works



At the heart of the original giant railway works, the dilapidated Pattern Store is a much-loved Grade II listed building. Built in 1897 as a fire-proof depository for patterns during the long period that Swindon was a world-leading workshop for railway engineering. It continued to be used for this until the works closed although it was also the location for a canteen for WW1 troops on their way to the front. After the works closed in 1986 almost all the huge workshops to the west of Rodbourne Lane were demolished but the Pattern Store was listed and survived; the lower floors at one time being converted into a bar and restaurant.

Recognising its heritage, and strategic location in the centre of Swindon, the Diocese of Bristol bought the building as the hub for a pioneering Resourcing Church to serve the town. Three floors will be used for community work and flexible space for services and activities. The top floor will be converted into office space. The AIA grant will be used to complete the renovation of the north elevation and the roof with its historic watertank.

As mentioned above, the AIA Council also made two small awards to projects that were mainly outside the Restoration Grant criteria but desperately need some assistance in these difficult times. A small sum to complete the protection of the restored Monarch brickmaking machine at Bursledon Brickworks and a similar small sum for the painting of 1967 Victoria Line Underground carriages at Walthamstow Pumphouse Museum.

Keith Falconer

AIA Restoration Grant Co-ordinator

Peter Neaverson Award for Outstanding Scholarship

The 2020 Peter Neaverson Award for Outstanding Scholarship in Industrial Archaeology has been awarded to Wayne Cockcroft and Paul Stammer for their edited book *Legacies of the First World War: Building for Total War 1914-18*, which is published by Historic England. The judges considered this subject to be hugely important, not just because of the historical and societal significance of WWI, but because the appreciation of its physical remains has, until now, been largely focussed on the battlefields of France and Belgium. This book shows how the landscape of England (along with much else) changed radically in the few years during and immediately preceding this conflict. The breadth of the subject matter covered is vast, which means that descriptions of individual sites is necessarily brief, but part of the value of this book is in putting the individual site types in context, explaining their unique terminology and historical background, and opening up many new avenues of research.

The number and quality of illustrations, as well as the overall design of the book, are of the same exceptional standard which has contributed to Historic England winning this award on so many occasions in the past, and which will be much missed in future, now that their in-house publication operation has ceased. A full review of this book will appear in *Industrial Archaeology Review* later this year.

As previously reported in *IAN*, Liverpool University Press has taken on the role of distributing Historic England's wonderful back catalogue of publications. They are very generously offering a 40% discount on this book to AIA members, reducing the price from £50 to £30 (plus p&p). To take advantage of this offer, visit the LUP web site search – Liverpool University Press and enter the discount code – LEGACIES40.

Any member of AIA or its Affiliated Societies is encouraged to make nominations for this award and any work which has been published in English in the previous two years is eligible. Further details can be found on the AIA web site.

Ian West

Locked Down But Not Locked Out: Responding to Covid-19

One of the great strengths of the industrial heritage movement has been the role played by local industrial archaeology and industrial history societies. Amongst these societies, there is great variety in the nature of the contribution each makes to the cause, whether through meetings, fieldwork and visits, publications (including online), the maintenance and presentation of industrial heritage sites, or simply providing a much-valued opportunity to share mutual interests. Each of these activities usually relies on the dedicated work of enthusiasts (often small in number), and each society's income is largely derived from membership and meeting fees, publications revenue, and visitor charges.

Martin Green, Peter Riley and Victor Lobb
Warwickshire Industrial Archaeology Society

The oft-quoted challenge of an ageing membership with no obvious candidates emerging to take on the responsibilities of running the society has prompted a lot of debate, and let us hope that the recent AIA initiative to overcome this via 'The Young Members' Board' produces the desired response.

To have the onset of the Covid-19 virus on top of these long-term trends has done little to lift the spirits, but all societies have given thought to an appropriate and achievable response, providing some light in the (apparently) unremitting gloom.

Warwickshire Industrial Archaeology Society is perhaps not particularly well known amongst fellow industrial archaeology/history societies, but we are a thriving society, with meeting attendances averaging 60-70 people. These meetings are our strength, providing expert lecturers, together with the (important) social contact amongst kindred spirits, and the history of the society is very much defined in terms of the range of topics covered since we were formed in 1989.

So the lockdown came as a real shock, presenting a distinctly unwelcome challenge to the key element of our work. We have a (mainly) elderly membership, several of whom fall into the 'vulnerable group' category, so we had to cancel meetings for the foreseeable future. The probability that, if not the restrictions, then the medical advice will discourage attendance at meetings for some months, spurred us on to consider other ways of both maintaining the engagement and enthusiasm of our members, and managing the Society's affairs. It was notable that attendance at our regular monthly evening meeting in March, shortly before the 'lockdown', was around a third less than we would have expected, and we have not held any 'physical' gatherings since. Indeed, the regular venue for our meetings may not be available for some time, and may be subject to a level of 'social distancing' which would be very different from our usual environment.

Fortunately, the society is also blessed with a committee that remains positive, with a few possessing unquenchable optimism! How could we respond? Were there even any unforeseen benefits that might emerge from this unprecedented experience?

It was soon apparent that the best way to keep in touch was by email and through the society website, which already had a good following. Initially all members with email were sent updates about what the society was doing. Then the website was updated with new pages, the first providing a series of films, mostly with an IA theme. Members were invited to contribute their own offerings and a short film about a 1937 visit by a family from the USA to relatives in Warwickshire received over 350 viewings in the first 2 weeks. This page proved extremely popular. Secondly a page called 'Virtual WIAS' was created to supply information on any subject members cared to contribute. These have been many and various and generated much discussion, some quite lengthy, on a wide variety of subjects, ranging from clutch manufacture in the automotive industry, through brickmaking at Napton, to pie-making in Warwick!

The contributions were mostly received by email and vetted/edited where necessary before being added to the web page. As a result, many new pages have been created on the society website which at the height of lockdown was receiving over 800 visits per week. Much of this material was not in the nature of ground-breaking research, but rather a means of creating links and offering ideas that might be followed up by visitors to the website.

The committee were also conscious that a small proportion of the membership did not have access to email. To remain as inclusive as possible, some of the contributions and photos have been incorporated in an expanded version of the quarterly society newsletter, which could then be mailed to these members.

Several of our Committee members had experience of using Zoom and recommended that we should experiment. As a 'trial run' we used this system to hold our regular, quarterly committee meeting, and this was of sufficient success to encourage us to form a project team of four members to develop our skills to a level at which we could confidently invite both 'internal' and 'external' speakers to address our monthly meetings on-line from the start of our next 'season' in September. In particular, the project team has rehearsed the presentation of PowerPoint slides, and the complementary roles that should be played by the meeting organiser (described as the 'host'), the meeting chairman, and the presenter.

During this process we have used the basic, free version of Zoom, but, as this is limited to 40 minutes, we have now taken out a 'Standard Pro Annual' subscription, for which there may be 'special offer' prices from time to time. We are happy to share our experience of using this system with other societies.

So thoughts turn to what might lie ahead. The likely continuation of the presence of the virus, even if less virulent than previously, throws doubt on the willingness of members to physically gather for a monthly meeting. Will the Zoom lecture soon become the 'new norm'?

What is the likely impact on membership – and income – in the longer term? How does one decide the annual membership rates for a series of Zoom meetings?

The one thing that the crisis has created is time – time to sort out all those bits of research that lie in box files up in the attic; time to finally scan (some of) those 35mm slides; time to relate work experiences to a wider audience. This has meant that more individuals have felt willing to contribute material – and to comment on pieces that have been posted by others. Long may this continue.

Will our recreational habits change significantly? Could there be a greater focus on the local community, with growth in interest in local history – including industrial history – perhaps encouraged by walks and associated leaflets?

Perhaps most significantly of all, the lockdown has encouraged us to think about ways in which the industrial heritage of our area might be brought to a wider audience. This has been a challenging but could ultimately be a very rewarding experience.

Europa Nostra awards

The European Commission and Europa Nostra announced the 2020 winners of the European Heritage Awards / Europa Nostra Awards. Europe's top honour in the heritage field goes to 21 exemplary achievements from 15 European countries.

The Award winners were selected by independent juries composed of heritage experts from across Europe, upon thorough evaluation of candidatures submitted by organisations and individuals from 30 European countries.

There is just one industrial heritage project among the winners – the Ironbridge Restoration – for the text of the citation – see page xx. To see more about the individual projects and to vote for the 'Public Choice' – search 'Europa Nostra Awards'.

For the 2021 awards you can nominate, by 7 September 2020, an endangered heritage gem with the support of an organisation in your country that is already a member of Europa Nostra or directly by joining our pan-European network as a member or associate organisation or as a new individual member.

Richard Hartree 1931–2020



IA News 193 noted that Richard Hartree died in March after a long illness. After publication, *IA News* received this obituary from his daughter Alexandra Black. It refers to his considerable interest in Industrial Archaeology and particularly to his book *John Penn and Sons of Greenwich* (2011) among many other facets of his long life.

The obituary covers much, not related directly to *IA*, but the full text is included here as it will be of interest to all those who knew him through his regular attendance at *AIA* conferences and on Heritage of Industry *AIA* spring tours but who had no idea of the whole story of his fascinating life.

Richard was Treasurer of the *AIA* from January 2002 until 2006 and continued as a member of the Council until 2009. He was a member of the Warwickshire *IA* Society, serving as Treasurer for several years and a regular attendee at monthly meetings until he moved to Cheltenham.

All who met him through the *AIA* or *WIAS* would attest to his good nature and excellent company.

Richard Hartree, 1931–2020

Richard Hartree had an international career in the metals industry, working for Alcan, which translated into a long interest in the history of engineering, including as a member of the Association for Industrial Archaeology and a member of its Council. Late in life – and originally for family reasons – this resulted in his thorough study of *John Penn and Sons of Greenwich* (2011), the great 19th-century marine engineers for whom his great-great grandfather, William Hartree, first worked and then became a partner in the firm after marrying John Penn senior's

daughter, Charlotte. Despite contact with other Penn descendants, the research was a considerable achievement given that no Penn business papers survive. The outcome – a handsome paperback with over 900 illustrations – was a well-referenced model of self-publication, as the only way he could produce it. He deservedly recouped the costs, mainly from sales at or through the many talks on the subject that he later gave, and it is likely to remain a standard and increasingly collectable work.

Hartree was born on 13 February 1931 in Didsbury, Manchester, younger son of Professor Douglas Hartree FRS (1897–1958) and his wife Elaine (née Charlton). She came from Keswick and family holidays there gave Richard a lifelong love of the Lake District. His father – a distinguished mathematician latterly involved in the early development of computers – held the Beyer Chair of Applied Mathematics at Manchester University from 1929 and from 1946 to his death was Plummer Professor of Mathematical Physics at Cambridge. On evacuation in 1940 to Canada, which began a long relationship with that country, Richard and other children became guests of staff at Toronto University, until his return in a vast convoy three years later.

In 1944 he went to Bedales School where he enjoyed drama and began lasting proficiency as a French-horn player. Leaving as head boy, he went on to Christ's College, Cambridge, where his father was by then a Fellow, to read Natural Sciences with physics and geology as main subjects. At university he continued to play the horn and met John Gilham, a fellow science student and lifelong friend (including later in the *AIA*) with whom he made a motorbike sidecar trip to Europe in 1952. It was through John's brother – a Royal Academy of Music student who brought a string quartet up to Cambridge – that Richard met its viola player, Ann Eddy.

In 1954, attracted by the possibility of returning to Canada, Hartree joined Northern Aluminium (part of Alcan) as a metallurgist and management trainee. On the strength of that he and Ann married on 1 September 1956, and their elder daughter Rachel was born at Newport in 1958. The following year saw a move to Banbury where a son (Justin) was born in 1960 and the family accompanied Hartree when he was sent to the International Business School in Geneva in 1961–62. A second daughter (Alexandra) followed after return in 1965 and the family again went abroad when he was posted to Montreal in 1968–72, returning when he became Alcan's Banbury works manager.

From 1959 the Hartrees had a cottage at Cropredy near Banbury and made early friends there. They included the politician Richard Crossman and his wife Anne and the painter Terry Frost and his family. Both Hartree and Ann became players in the Banbury Symphony Orchestra and Warwickshire Symphony Orchestra and, after return from Canada, moved to a larger historic Elizabethan house at Hornton in 1973. In 1974, Ann Hartree set up the Prescote Gallery and with her drive and inspiration, the Gallery became

a flagship enterprise (until 1994) in the developing field of British crafts, including glass, ceramics, fabrics, silver, bookbinding, toymaking and furniture. Owing to its launch, however, and with children at school, Richard's next postings abroad were on his own, the first back to Montreal in 1979. He and Ann separated in 1980 on his subsequent move to be Area Technical Officer for Alcan Allatina in Rio de Janeiro, where his role was to ensure that the South American company interests were making the best use of technology.

After Richard met a new partner, Maria Clara Costa Dias de Figureido, in Rio in 1983, the Hartrees divorced in 1985 and Richard remarried (thereby acquiring a stepdaughter, Sofia). He and Clara then moved to Vancouver when he became Alcan's Vice-President Technology for the Pacific Region. This involved further travel, including to China where, in 1989, Alcan was finalising agreement to open a sheet-rolling plant on the coast at Bohai. In Beijing that June, Hartree walked through the democracy demonstrations in Tiananmen Square and recalled a large number of troops looking 'sheepish' when faced by chants of 'the People's Army against the People'. The next morning tanks rolled in, the Alcan project was cancelled and he took early retirement when the Pacific office closed later in the year.

In 1992 his second marriage also came to an amicable end and he returned to England, settled at Sibford Ferris near Banbury, re-established contact with his children and enjoyed the company of eight grandchildren as they appeared. He rejoined the Banbury orchestra, became a business counsellor in a local support office and also made a number of treks to the Himalayas, with further visits to Kathmandu as treasurer of a small charity working there. Golfing trips took him to France and family ones back to Canada to see Clara, Sofia and the latter's son. He also joined the *AIA*, relishing its excursions in company with John Gilham. Apart from his later Penn researches, he helped Fischer Charlotte Froese with her scientific biography of his father (2003) and in 2012, was at the opening of the Hartree Centre named after him at Daresbury, Cheshire, with his brother and sister.

In 2014, when early signs of dementia appeared, Richard moved to a flat closer to family in Cheltenham where he continued to enjoy walks, concerts and family visits until an incapacitating stroke in June 2019 necessitated sheltered care. He died peacefully there on 16 March 2020, aged 89.

Richard Hartree was intelligent, musical, practically able, kind and very good company. He and Ann were both talented individualists who, despite their divorce, rebuilt an affectionate late-life friendship, aided by mutual devotion to and from their family. All recall him as an ever-encouraging father and grandfather.

Pieter van der Merwe, MBE DL

AIA Council 20 June, 2020

This meeting was held via Zoom and was considered a success, so more Council meetings may be held by this method. Many of the matters discussed are described in detail elsewhere in this edition of the *IA News*, others are summarized below.

Covid-19 and the Heritage Sector: see page 2

Treasurer's Report: John Jones was able to give some positive news. The Association has incurred no unrecoverable expenses for the Liverpool conference, and we were able to reimburse all conference fees promptly as soon as the cancellation of the conference was confirmed.

Two financial reports were approved: the Annual Report & Accounts for submission to the Charities Commission and Companies House, and the Restoration Grant Account. The latter showed a balance of £148,604 available for commitment.

Restoration Grants 2020: see page 16 Seven major grants totalling £122,825, and three smaller grants totalling £18,245 were approved.

Secretary's reports: It was agreed to postpone the 2020 AGM scheduled for August until 11 October. It will be a 'virtual' AGM with voting on resolutions done entirely by post or email. Bruce Hedge will retire at the AGM and Ian Miller has completed his second term. Three co-opted members have agreed to stand for election: Chris Barney, Robert Carr and Tony Crosby. It remains Council's intention to fill two further vacancies with younger members. It was also agreed to co-opt our out-going Chairman, Mike Nevell, as well as Tegwen Roberts and Maryann Soper.

Young Members Board: Terms of reference were approved and Tegwen Roberts, Maryann Soper and Geoff Wallis were appointed to oversee development and operation of the Board. The revised prospectus can be seen on the web site.

Conference reports: This year's conference has been postponed until 19 – 26 August 2021 at Liverpool Hope University. As a consequence, the Dublin conference will be pushed back a year to 11 – 19 August 2022. However, a new Merseyside gazetteer will be sent to members this summer.

Communications Report: Ian West reported that the circulation for the quarterly e-News continues to grow, with increasing evidence that it is being shared within local societies. It now has a circulation of almost 700.

Planning Casework Report: see page 22

IA Review: Ian Miller reported that the autumn edition is on track for publication towards the end of 2020 and is set to include a raft of international articles. The volume of submissions from abroad reflects the growing international

readership of *IA Review*, nearly 3,000 institutions world-wide now having access, and article downloads in 2019 were from 90 countries. Included in the autumn edition will be one from China on alum mining and refining sites, two articles on rail transport (one relating to Russia, the other on Transylvanian railways), and one from Tasmania combining documentary and archaeological evidence to understand the timber-cutting process using convict labour. And finally, an interesting account of the K8 telephone kiosk.

IA News: see page 1

Chris Barney had announced some time ago that he wished to stand down as editor after ten years. AIA Council is pleased to announce that Dr Patricia Bracegirdle will be taking up the post after edition 195 (Winter 2020 distributed in November).

Website Report: Over the last quarter the visits to the site were down overall by about 16%, most of the decline being in March. There is a steady increase in subscriptions to the AIA mailing list; at the date of this report there was a total of 624 subscribers, 348 of whom are members, the others being outsiders.

Industrial Heritage Support Officer's report: The Covid-19 pandemic brought a halt to all meetings from 23 March. Assuming restrictions permit, it is planned to host two Industrial Heritage Network (IHN) meetings a month from September to November 2020, and two meetings a month in early 2021. The last on-site meeting was held on 7 March at the Marple Limekilns, with all interested organisations attending. Meanwhile, advice has been given via all other means possible to various bodies from Cornwall to the North West. The IHSO continues to regularly update the IHN website contents and encourages Network members to send news stories for posting on the website.

It is proposed to extend the IHSO project for up to three years from April 2021, subject to further funding from Historic England. Council agreed at this meeting to support the IHSO post for the financial year 2021-22 to the extent of £2,500, assuming the project goes ahead.

Angus Buchanan: Council were sad to hear that both Angus and his wife Brenda died earlier this year. It is our intention to hold an event to mark their contribution to industrial archaeology. Angus was the first Honorary President of the Association and author of *Industrial Archaeology in Britain*, a seminal work on the subject.

Bruce Hedge

Correction

Nick Thomas-Symonds MP (Chair APPG) was appointed Shadow Home Secretary Not Shadow Chancellor by Sir Keir Starmer in April 2020 p18 *IA News 193*

AIA Research Grants

This is the second year of operation for the AIA Research Grants scheme and for 2020 there were two applications. Both of these have been approved.

Crosscanonby by Andrew Fielding

Re-appraisal of the salt making site at Crosscanonby, Allonby Bay (NY067 401) in the light of new features recently uncovered by coastal erosion (13 March, 2020). The newly exposed pipe has a 4 inch internal diameter within a 10 inch outer diameter trunk. The salt works was constructed prior to 1634. A lease of 1649 for Francis Barwise describes "two salt pans, water sumps, swath and all singular other the appurtenances thereunto belonging and appertaining". The new features challenge the interpretation presented to Allerdale Council and the Solway Coast AONB by the Ironbridge Institute (Research Paper No.97, 1995). A timber structure described as the base of a sea-water storage tank can now be interpreted as a sump to carry sea water under the sand. More than 150 meters of sand dune may have been lost since the salt works was constructed.

This project seeks to reassess the site and update all existing web descriptions based on outdated information and to revise the scheduled monument description with a view to extending the scheduled area. It is proposed to make 3D models of the site to test the salt-making activities at the site and the effects of coastal erosion.

Marple Lime Kilns Test Pitting by Norman Redhead

Marple Lime Kilns is a Scheduled Monument (SM 1001955) built by Samuel Oldknow, industrialist and landowner in 3 phases from 1797-1802. The site is on Strines Road, Marple, Greater Manchester (SJ 9629 8842). The size of the kiln bank, the number of kiln pots, the level architectural embellishment, internal accommodation, and the various elements of the transport system makes the Marple lime works unique. Previous investigations have focused on the front face of the kiln and the land in front of it, but the remains of the top bank are poorly understood – the extent, depth, character, and condition of the below-ground archaeology has not yet been defined. This evaluation work is vital to allow proper definition of the Scheduled Monument's extent and to inform future conservation management.

The research investigation will involve excavation of several one metre square test pits and evaluation trenches to determine the extent of survival and character of buried remains relating to the lime kiln pots, canal arms and associated features. An archaeologist from Salford Archaeology will work with experienced volunteer archaeologists and inexperienced volunteers from the Friends of Marple Lime Kilns.

Angus and Brenda Buchanan – cherished pioneers of Industrial Archaeology

It was with great sadness that the AIA Council recently learnt of the deaths of two of the seminal figures in industrial archaeology. Brenda passed away on 14 April and Angus on June. For many of us Angus's Book *Industrial Archaeology in Britain*, published by Penguin Books as a Pelican Original in paperback in 1972, summed up the development of the subject into a national movement. The Buchanan's involvement in the subject locally, nationally and internationally, of course, went back many years earlier.

They met in their native Sheffield when they were sixth form students, married in 1955 and Angus, who had completed his PhD in trade union history at Cambridge, took up the post of Adult Education Officer with the Royal Foundation of St Katherine in Stepney in 1956. It was then that Angus first became involved in the Workers Educational Association (WEA) which was to be a significant feature of their next decade.

In 1960 Angus and Brenda left Stepney for Angus to take up the post of Assistant Lecturer in Social & Economic History at the Bristol College of Science & Technology which was being recognised as a CAT – a College of Advanced Technology. At the Bristol Folk House Angus resumed his WEA work and it was at that group that their association with Neil Cossons, the new Curator of Technology at Bristol Museum began and together, with like minded members of the group, they formed the Bristol Industrial Archaeology Society. Angus and Brenda also pursued their social work interests through The New Bristol Group set up by Tony Benn.

Brenda wrote an informative and evocative account of the early days of BIAS in her contribution to the 50th anniversary issue of *BIAS Journal* that was published in 2017. These were heady days when there was much to be discovered and enjoyed on site visits by our founding members – or 'Founding Families' – as Brenda reminded us in her article, as many children were also present. Brenda always found time to support Angus during his years as the first BIAS President and to encourage and support members in their research.

In 1966 the Bristol CAT became the University of Bath and the history of engineering element moved to Claverton Down where Angus with his 'research assistant' George Watkins (of steam engine fame) had a room in the Library. Angus then ran a series of Bath Conferences on Industrial Archaeology which soon had an international following and he and Brenda were to forge friendships around the world. He was very involved with the CBA Research Committee on Industrial Archaeology in the 1960s and when he created a Centre for the Study of the History of Technology to attract post-graduate work on the



Angus and Brenda on the occasion of their Diamond Wedding 10 August 2015

subject, the National Record of Industrial Monuments was established there in 1965, based on the CBA Survey record cards. In 1971 the Centre, with this resource, was to host the newly created post of CBA Survey Officer for Industrial Monuments.

It was also in 1971 that Angus was involved in the first British Industrial Archaeology Conference which was held in Bradford and in a second such conference held in Strathclyde. This led, in 1973, to the formation of the Association for Industrial Archaeology at a third conference held on the Isle of Man. Angus was to succeed Tom Rolt as President of the AIA the following year upon the death of Tom, our first President. Angus was also involved in the early years of the formation of the international organisation that is now TICCIH (The International Committee for the Conservation of the Industrial Heritage). In 1973 he attended the First International Congress of the Conservation of Industrial Monuments, which was organised by Neil Cossons, and attended by some of the key international delegates that had come to the Bath conferences years earlier. On the third such conference, in Sweden in 1978, the word 'heritage' was substituted for 'monuments' and TICCIH was born.

When in 2001 the AIA Council decided to have a Chairman instead of President, Angus was appointed the Association's first Honorary President a post he held for some 9 years. Angus was also very much involved for many years with the National Trust's Industrial Archaeology Panel and made many assessment visits to historic industrial places in which the National Trust were interested.

Meanwhile, Brenda's research into Turnpike Trusts and their capital formation had led to her PhD in 1992. This was followed by a detailed study of the shareholders behind the construction of the Avon Navigation before she turned her attention to the manufacture of gunpowder and its ramifications. This work, originally locally focussed, was to become, via the International Committee for the History of Technology (ICOHTEC), the subject for which she became internationally known. It was Brenda's interest in gunpowder that led Neil Cossons, the then Director of the Science Museum in London, to propose her as a trustee of the Waltham Abbey gunpowder mills project in which she became very active, especially in ensuring that proper conservation standards were maintained.

In later years both Angus and Brenda focussed more on their ICOHTEC involvement, as Angus had been a founder member in 1968 and then later President of the organisation, but their personal interest and in particular in the activities of their AIA friends never waned. This is not intended to be a formal obituary but rather a personal celebration of the quiet impact and unobtrusive inspiration that the Angus and Brenda team – and it was always an equal team – made on the subject of industrial archaeology and indeed on our industrial heritage.

Keith Falconer

Planning Casework and Lockdown

Since I last wrote a piece for *IA News* there has been one event which has dominated all our lives – Covid-19. However, planning applications in respect of industrial buildings continue to be made although there do appear to be fewer of them. In the last six months the AIA has commented upon just seven cases. One was in respect of the Dorchester Brewery, two were in respect of textile mills, Marshalls Mill, Leeds and Dean Clough, Halifax, but the other three were in respect of sites in Bristol.

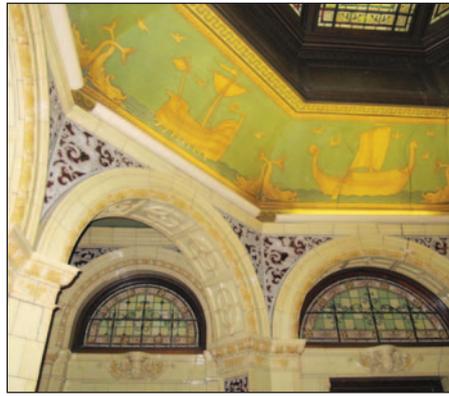
These three sites are, Land on North Side of Belgrave Hill, Land and Buildings on the south side of Silverthorne Lane, and, (Soapworks) Former Gardiner Haskins, Straight Street.

The first is in respect of a small site and is a residential development. The most recent application in respect of the Belgrave Hill site is the third one, the others being in 2018 and 2019. This application is for the construction of a single residence of three bedrooms against what was the quarry face in Belgrave Hill. The external design was largely the same as in the previous applications. The quarry was operational during the eighteenth and early nineteenth centuries, and the stone was used for construction during the Bristol's period of rapid expansion. Therefore this surviving face is all that remains of the quarrying heritage of Clifton. The Archaeological Watching Brief Report showed that originally there were three dwellings between the surviving quarry face and the roadway. Full details of them are given in the report. The surviving face now creates a dramatic visible change in level between Upper Belgrave Road to the north and Belgrave Hill. Not only would the development compromise the visual impact of this face, but there is also the problem of ensuring continued stability of the site and its surroundings. Therefore the best option is for the face to remain visible and provide evidence of the industrial past of the area and how its people lived. On 16 June 2020, the application was refused.

The second application is for the redevelopment of a large area on the south side of Silverthorne Lane, and so bounded on its southern side by the Feeder Canal running between the river Avon and the Floating Harbour, a rather mixed area from a business point of view and one with few listed buildings within its



The Gardiner Haskins building



St Vincent Works Office entrance lobby

boundary, although there are buildings which become curtilage listed and others of interest. Besides these demolitions or now partial demolitions, the proposed developments would have an impact on the setting of the grade II* listed St Vincent Works Offices. This is something which has to be considered even when the listed building itself is not part of the application. Also, in this case there are unlisted buildings in the site which may be of interest and have merit. The 25 Inch Ordnance Survey map Sheet LXXVI.1 Gloucestershire (Bristol) surveyed 1881-2 shows a variety of industries: soap works, iron works (St Vincent), a malthouse, rolling works and timber yards. Although it is the exterior of the St Vincent Works which would be affected by this application, the interior of the building's entrance is a superb example of Douulton tile work.

The third application is also for the redevelopment of a large area of Bristol, to the north east of the Floating Harbour and so just the other side of the railway from the Silverthorne Lane redevelopment. The site includes the listed soapworks building – Gardiner Haskins, which is to be converted, but with the demolition of the other parts of the former soapworks. Like the redevelopment on the south side of Silverthorne Lane, this is an area where there is a need for regeneration by the reuse of industrial buildings. Although the application proposes the retention and conversion of the Gardiner Haskins Building, the remainder of the soapworks buildings are to be demolished with the exception of the facades of two of the buildings on Straight Street which would be retained. As a result of the demolitions the integrity of the soapworks buildings and how they developed will be compromised. As the whole site is important from an industrial archaeology point of view, the Association recommended that efforts should be made to reuse as opposed to demolish the buildings, in particular those on Straight Street which have merit. The Association was also concerned that as in the Silverthorne Lane redevelopment some of the proposals would result in the new buildings becoming the dominant ones, particularly with regard to their height. It is essential that the Gardiner Haskins building should remain the dominant one. There is a very good historic photograph of the building in *The Batsford Guide to the Industrial Archaeology of Central Southern England* by S. A. and R. A Buchanan.

It is worth noting that both the St Vincent Works Offices and the Gardiner Haskins Building are visible from the train as it approaches Bristol Temple Meads Station from northern destinations. Therefore any development around them needs to take account of their impact with regard to the industrial history and growth of Bristol.

*Amber Patrick
Planning Casework Officer*

Fray Bentos

This letter was received by the AIA in June – if any member would like to be involved please contact me.

“Dear Sir: In a recent meeting with the Uruguayan Minister of Education and Culture, the Minister mentioned UNESCO's Fray Bentos World Heritage Site, which is a well-preserved example of the 'Second Industrial Revolution', specifically a pioneer in the conveyor belt production of processed meat. The original company, Frigorifico Anglo del Uruguay, had British connections and the UK was the main destiny of its corned beef exports. In the UK the Fray Bentos brand was acquired in 2011 by Baxters of Fochabers”.

The Minister expressed a keen interest in promoting research into the old factory site and wondered whether any UK organisation would be interested in a project. I promised to follow up on this. Would your organisation have an interest in such a project, and if not, could you suggest any other organisation which might be interested? I am sure the UK Embassy in Montevideo would also be willing to help: the Ambassador was present in the meeting with the Minister.

*Mark Gregson
Country Director, British Council, Uruguay*

Back in 2012, just prior to my retirement from English Heritage, I was invited by the British Embassy in Uruguay to visit Fray Bentos to advise on the preparation of the Nomination Document for World Heritage Status that was being prepared for the vast meat processing factory and associated settlement. I duly visited Fray Bentos, spent a very enjoyable and informative week there and provided a report which strongly supported the initiative which was led by the Uruguayan TICCIH representative. The British Embassy in Montevideo was very generous in arranging and supporting my visit. At that time there was a very fine company archive housed in the factory which showed that the workforce came from all over the world – at least 35 countries were represented. It would be a rich research resource.

I was very gratified when a couple of years later the town and Anglo Factory were indeed Incribed as a World Heritage Site.

I would certainly encourage (and support) anyone who was interested.

Keith Falconer

AIA Publications Awards 2020

The AIA makes annual awards to encourage high standards in the publication of research and recording in industrial archaeology. Previously, there have been two categories of awards, one for commercial publications and one for those from voluntary societies. These distinctions have become increasingly difficult to operate, and Council decided that in future up to three awards could be made each year, as follows:

- Local voluntary societies, defined as those essentially run by volunteers and concerned with a particular location or type of site, are encouraged to submit entries. Publications submitted may be newsletters, journals or occasional publications.
- National organisations are also encouraged to submit entries. These may include publications by statutory bodies such as Historic England or Historic Environment Scotland, or national voluntary groups such as the Victorian Society or the Railway and Canal Historical Society. Commercial publishers are also eligible to submit entries.
- Entries should have been published within the last two years but the judges reserve the right to consider publications outside this time window in exceptional circumstances, such as publications from overseas.

The unfortunate postponement of the conference this year does not mean that the AIA is not making these awards and recognising that good research is still being undertaken! Two awards have been made:

Martin Green and Michael Jeffs, *The Ironmen of Leamington: Iron-founders and allied traders in Royal Leamington Spa 1800-1900*, Leamington History Group and Warwickshire Industrial Archaeological Society, published by Shay Books, 2019, £18.

Many people will be surprised as I was to discover that the spa town of Leamington (where I was at school!) contained such a large number of makers of various types of ironwork, especially the closed kitchen stoves which revolutionised cooking practices in the middle of the 19th century. Those manufactured by Flavel's were shown in the Great Exhibition of 1851 and achieved great popularity in both rich and poor households. The book is the result of much hard work by local society members and is superbly illustrated throughout, with both drawings from catalogues and also surviving examples of both buildings and products.

David Dungworth, *Glassworking in England from the 14th to the 20th century*, Historic England, 2019, £70.

David Dungworth is an archaeological scientist with over 25 years' experience of

studying early metal and glass industries. Previously working for Historic England, he became Head of Archaeological Conservation and Technology and was partly responsible for two of the important downloadable research guidelines, *Science for Historic Industries* and *Archaeological Evidence for Glassworking: Guidelines for Recovering, Analysing and Interpreting Evidence*. This book provides a carefully balanced combination of documentary, chemical and archaeological evidence but also deals with the important historical changes in the industry such as the expertise supplied by immigrant French workers in the late 16th century and the changing methods of manufacture of window glass into the 20th century. The book was one of the last to be published by Historic England, who ended their Specialist Publications section in 2019 but their publications, including this one, have been taken over by Liverpool University Press, and one hopes that the excellent standard set by Historic England will be maintained.

Normally, these awards are announced at the Annual Conference and the winners asked to do a short presentation on their work, always a popular part of the conference on Saturday afternoon. This cannot happen this year, but we do hope that both winners might say something about their publications at the 2021 conference at Hope University in Liverpool in August 2021.

Please continue to nominate publications on industrial archaeology using the form on the AIA website,

Marilyn Palmer
Convenor for the AIA Publications Awards

LETTERS

Chesterfield's Crane

In *IA News 193*, a letter from John Outram described his finding in Bruges of a mediaeval builder's treadmill crane.



Chesterfield Parish Church (yes, the one with the crooked spire) installed one over 600 years ago, and it continued to be used in succeeding centuries. In 1947, it was carefully removed piece-by-piece from the church and reconstructed within the then new Chesterfield Museum in 1994. Timbers still have the mediaeval carpenters'

marks and some parts have been tree-ring dated to between 1360-1400. It can be easily inspected in its current setting and is one of the highlights for visiting school parties.

The wheel would have been used to assist the many times the spire's lead roofing has been renewed, and particularly to replace timbers within the spire.

The attached photograph of the wheel is by courtesy of Chesterfield Museum,

Cliff Lea
NE Derbyshire Industrial Archaeology Society

A Country Pottery still working.

Just outside Ripon, North Yorkshire a range of low red brick buildings are home to Littlethorpe Pottery, which is still working hard producing agricultural and country wares. I first visited in 1977 and it had hardly changed on more recent



visits. It was established in 1831 and the Curtis family started work there in 1912. Roly Curtis, the current potter, started in 1975. He digs the clay out the back of the pottery buildings and hauls it into the pottery on a cable hauled railway. He throws the range of pots himself and they are fired in a kiln on the premises. Here in London my rhubarb is grown using Yorkshire forcing pots made there.

The pottery has recently grown a website with some early footage of the Curtis family at work.

David Perrett

Wetherigg Pottery

Further to the article in *IA News 193*, it has just been announced that the developer is now prepared to sell the historic part of the site i.e. the kiln steam engine etc. for £250 000. There is local interest in trying to raise the money and start some form of pottery business on the site.

However, there will be problems of parking because the large car park is not included.

Also Warwick Bridge corn mill (I did a piece for a few newsletters back) has started commercially grinding flour.

Graham Brooks

Lea Bridge Waterworks

There is currently a campaign in the Lower Lea Valley – supported by The Campaign to Protect Rural England – to prevent encroachment on Metropolitan Open Land – which is equivalent to the Green Belt beyond Greater London.

The East London Waterworks Company was established in 1807 and in the early 19th century took their water from the River Lea at Old Ford, where they had works. In 1829, to obtain cleaner water, the intake was moved upriver to Lea Bridge. Over the years facilities at Lea Bridge were enlarged and the waterworks here were



The Coppermill Tower

photo R Carr

greatly expanded from the 1850s. Great engine houses with tall chimneys were built along the Lea Bridge Road. The architecturally impressive examples had been demolished by 1980 but you can get some idea of how two of them looked at the Coppermill. Listed grade II, this is further up the Lea Valley about a mile to the northwest in Coppermill Lane at TQ 350 882. In 1852A an aqueduct was built to connect the Coppermill to the Lea Bridge Waterworks. In 1864 a tower with an open arcade to the upper storey was added to the Coppermill to house a Cornish Bull engine. This tower replicates the architectural style of the now demolished Victoria and Prince & Princess Engine Houses at Lea Bridge [1].

The Waterworks estate at Lea Bridge, situated to the south of the Lea Bridge Road, now straddles the Lea Valley from the River Lea Navigation eastwards to the railway line which runs from Stratford to Tottenham Hale. The eastern and western parts, the former Essex filter beds and the Middlesex filter beds, are now nature reserves and considerably overgrown. Since their formation no significant redevelopment has taken place at these nature reserves and things still appear to be as they were. Currently this Yard is owned by the Education and Skills Funding Agency (ESFA) who intended to build two free school academies here. In the 1970s the whole Waterworks site was designated as Metropolitan Open Land.

Blocks of flats have recently been built to the east and west of the waterworks, some of them



Essex Filter Beds

photo R Carr

massive; local concern is that building may now take place on the yard. A petition has been organised in favour of converting this yard, on the site of filter beds, for 'wild swimming'.

The London branch of the CPRE is involved because this is more than just a local issue. A London-wide principle is at stake: we have something of a test case here; building on Metropolitan Open Land is equivalent to building on the Green Belt beyond Greater London.

Sydney Powerhouse Museum protests lead to U-turn

Every AIA member who has ever been to Sydney will have visited the Powerhouse museum and seen the magnificent 1785 Boulton and Watt engine – one of the very few sun and planet B and W engines left in the world and it is magnificently displayed.

However, news came from Australia that it was to be dismantled and put in to store along with all the other splendid historic exhibits to be seen in this fine museum. The building, the excellent 1988 adaptation of the Ultimo Tramway Power House, designed for the Australian Bicentenary would have been demolished and replaced with further commercial development. A new museum was to be built further up the Parramatta River.

This caused a storm of protest of which a sample is this article by Elizabeth Farrelly writing in *The Sydney Morning Herald* (20 June) –

"It's called a 'move', this project to reinstate the Powerhouse on the flood-prone south bank of the Parramatta River. But that's not really accurate. The only thing that will relocate intact is the name. Everything else – building, site and priceless collection – will be broken up, separated, decontextualised, diminished, disrespected and mothballed.

"Part of the collection will go to Parramatta, but since every space in the new building is designed to double as an event space, the chance for any permanent display is slim. Meanwhile, the Ultimo site, excepting space for a small fashion museum, will be sold. The Powerhouse itself will be a thing of the past. A memory."

Just two weeks later an abrupt U-turn was announced. A further article in the *Sydney Morning Herald* by Alexandra Smith (4 July) ran –

Some engine houses still survive towards the west end of the waterworks site including the Musgrave Engine and Boiler House, 1922-4. There is a fine house, 1890-2 by G.E. Dolman listed locally, for the Chief Engineer of the East London Waterworks Company, William Booth Bryan (1848-1914), and also an attractive octagonal turbine house or Sluice House of 1885. It is also locally listed.

An English Heritage website deals with Lea Bridge Waterworks. Unfortunately, their criterion for listing seems to be the architectural quality of the buildings, with little consideration for anything else.

In October 2018 a burst 36 inch water main caused serious flooding in the Lea Bridge Road area. The water level was particularly high in Waterworks Lane and the underground car park at Paradise Dock was completely flooded.

Docwra, who carried out repair work, were allowed to use the former filter bed site to the west of the Essex filter beds to store materials, and park vehicles. Over time this seems to have become semi-permanent.

Robert Carr

"The Powerhouse Museum in Ultimo has been thrown an extraordinary 11th-hour lifeline and will not close but instead operate across two sites, including one in western Sydney.

"Five years after the move was first announced by her predecessor, Gladys Berejiklian's government will abandon plans to sell the Ultimo property and will now use the Parramatta site as a second Powerhouse location. Pressure on the government to rethink its controversial decision to close the inner-city site has been increasing in recent weeks as it emerged the Ultimo collection could be dispersed across the state.

"The new Powerhouse had been scheduled to open in late 2024 on the banks of the Parramatta River while the Ultimo site closed its heritage halls to general public entry on July 1. The government had planned to sell the site at Ultimo for as much as \$195 million, with the proceeds to go to the cost of building the new museum at Parramatta.

"As the looming closure approached, it emerged museum management was proposing to lend steam trains, vintage race cars, planes and trams to regional museums when Ultimo closed.

"The government's \$1.17 billion plan which included demolition of two heritage buildings for the Parramatta museum also hit a setback, with unions threatening to block work that damages the buildings. The Parramatta environment impact statement supported the demolition of the 19th-century Italianate villa Willow Grove, formerly a maternity hospital, and a row of terraces known as St George's Terrace. But the building and construction union, CFMEU NSW, said green bans meant no work could be done to destroy the sites."

Robert Milligan

The statue of Robert Milligan, which until the evening of 9 June this year stood outside the Museum of London Docklands in the West India Docks, has been removed for safe keeping by the land owner, the Canal and River Trust, following Black Lives Matter protests. Milligan (1746-1809) was a prominent West India merchant, an owner of plantations in Jamaica and an anti-abolitionist. He led the group of businessmen who promoted and built the immense and innovatory West India Docks, to eradicate the losses due to theft and delay at London's traditional riverside wharves. He served as Deputy Chairman and then Chairman of the West India Dock Company, constituted in 1799. Following his death in May 1809, the directors of the company commissioned the statue, which was first erected in 1813. Modelled in bronze by the notable sculptor Sir Richard Westmacott RA, the statue is slightly more than life-size, in civilian dress, and it stood upon a stepped granite plinth bearing two bronze plaques – one a representation of Britannia receiving the Fruits of Commerce.



The statue has had several homes over the years. It was first located on the North Quay of the West India Docks, in the middle of the roadway opposite the portico of the Dock Offices (now the 'Ledger Building'), where it created a traffic bottleneck. In 1875 it was re-erected complete with its plinth on top of the central pier of the entrance gateway, at the end of West India Dock Road, but that was demolished as a traffic obstruction in 1943. The statue was then put into store until its re-erection circa 1970, minus its plinth, next to the former main entrance to the London Docks at East Smithfield. The Port of London Authority had moved its head office there from its grand HQ building on Trinity Square. The

PLA moved again in the mid 1980s and the statue went back into store. Edward Sargent, who was the first conservation officer of the London Docklands Development Corporation, rediscovered the plinth in undergrowth near the site of the WID's Limehouse entrance basin (together with the dock's foundation stone of 1800 that had been put there after the blitz). All were re-housed in the Museum of London's docklands store and proto-display in W Warehouse at the Royal Victoria Dock.

In 1997-1998 the London Docklands Development Corporation reinstated the Milligan Statue and plinth close to their original site outside the Ledger Building, as part of a project to enhance the West India Docks Conservation Area. The bronze plaques had long disappeared and needed to be recreated from engravings and photographs. Within a couple of years it was moved a few yards eastwards to a site safer from traffic damage, in front of the entrance to the future Museum in Docklands. The museum opened in the spring of 2003 in the refurbished, Grade-I-listed No.1 Warehouse, and it is now known as the Museum of London Docklands.

In 2007, the museum opened its permanent exhibition London, Sugar, Slavery, which was Heritage Lottery funded to celebrate the bicentenary of Britain's abolition of the slave trade in 1807. Although Milligan was a slave owner, and the West Indian sugar trade was reliant on slave labour, the purpose of the LDDC's reinstatement of the statue was to enhance and contextualise the contemporary heritage buildings and in no way to celebrate slavery. But, supposing that shades of public opinion may now imperil this work of art in its customary outdoor location, a natural home would seem to be inside the museum, which is one of several museums in England addressing the history of the transatlantic slave trade, but the only one relating that to the Thames. Low headroom and floor loadings and perhaps inverted deference may preclude displaying it on its plinth, while interpretative materials may distract from aesthetic appreciation, but (if room can be found) that will be better than consignment to a museum store.

It remains to be seen which other memorials, street names and references to London's connections with the slave trade will now be deemed politically unacceptable, but the Milligan statue will retain a primary significance among them. English Heritage has already announced it will review all 950 of London's blue plaques for potential links to the slave trade.

The historical information on the statue has been compiled from discussions with Edward Sargent and with Chris Ellmers, who was the project leader of the Museum of London's Museum in Docklands project and the museum's first Director.

Robert Mason and Malcolm Tucker,

Grant for railway

Leek could soon be welcoming the railway back into the town after Churnet Valley Railway was awarded a grant of more than £1.4 million.

The European Agriculture Fund for Rural Development has awarded £1,427,906.83 for the Heritage Railway Infrastructure project to reconnect Leek to the rail network, a plan that has been evolving for many years.

The Churnet Valley Railway runs steam and historic diesel trains between Leekbrook Junction and Froghall. It is a remnant of the North Staffordshire Railway, built through the valley in the 1840s. Currently, it has stations at Cheddleton, Consall and Froghall. It also connects with and sometimes runs on the Cauldon Lowe Branch, up the 1-in-45 incline to Ipstones.

The funding will cover 80 per cent of the cost of construction of just under one mile of line and the associated infrastructure from the present railhead to a new station off Barnfields Road, protecting the underground utilities and providing a new footpath alongside the railway track.

Robert Carr

Dunston Staiths



During the night of 15/16 May an extremely serious blaze hit the historic Tyne timber structure. The police are treating it as arson.

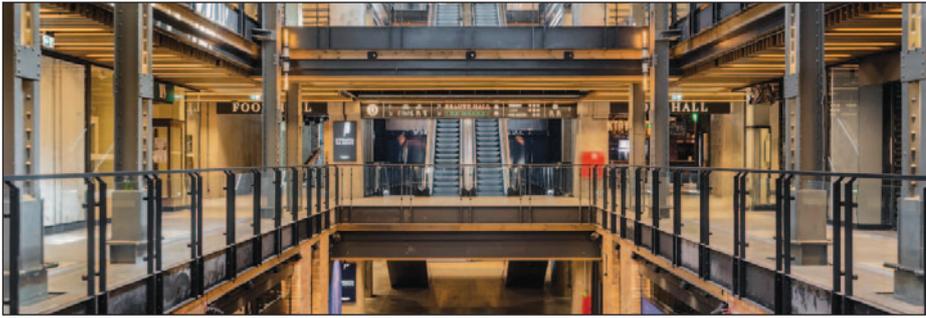
Dunston Staiths is thought to be Europe's largest timber structure. The grade II-listed monument opened in 1893, so that Durham coal could be dropped into boats on the River Tyne below. In the 1920s, 140,000 tons of coal per week were loaded from the staiths, and they continued to be used until the 1970s.

The staiths was restored as part of the Gateshead Garden Festival in 1990. Now owned by the Tyne and Wear Building Preservation Trust it had been restored at a cost of £800,000 between 2014 and 2015. Since then it has been used as a visitor attraction, holding public events such as markets.

Although the full extent of the damage is not yet known, fortunately the main structure is still standing, however, the whole top deck has been destroyed, meaning the walkway has been lost until the trust can raise funds to restore it. The damage has been estimated at around £300,000.

Fund raising started immediately and more than £5,000 was raised overnight.

News from EFAITH



Shopping centre in the Elektrownia Powiśle

Europe Day 2020

On 9 May 2020, on the occasion of Europe Day which this year marks the 70th anniversary of the Schuman Declaration and the launch of the process of European integration, members of the European Heritage Alliance launched the Europe Day Manifesto 'Cultural Heritage: a powerful catalyst for the future of Europe'.

The Europe Day Manifesto aims to convey a strong message of solidarity, hope and unity to Europe's leaders and citizens at a time when Europe and the entire planet are struggling to overcome an unprecedented crisis caused by the COVID-19 virus. Through this Manifesto, representatives of major European and international heritage networks which form part of the European Heritage Alliance express the readiness of the wider heritage world to contribute to Europe's immediate social and economic recovery.

Industriana

Thanks to support from the European Commission, within the framework of the COSME program (project 'Genius Loci') EFAITH was able to design a unique label for industrial sites and buildings. This contains a QR code, which passers-



by can read with their smartphone to request five pages of information, pictures and videos about the site. Each of these pages can be created in all European languages, although English is the basis of the system.

The network is now already present in 12 European countries. Why not join with your site or museum.

Warsaw Power Station

Designed by William H. Lindley (a British civil engineer responsible for, among others, Warsaw's waterworks), this huge power station in Warsaw opened in 1904 and operated until 2002.

Situated in a once shabby blue-collar district, the area has recently acquired a completely new image. The start of the renaissance was the unveiling of the Copernicus Science Centre. It is now the most attractive area of Warsaw.

The old power station, Elektrownia Powiśle, has been redeveloped into office spaces, loft-style apartments, public space and a retail area. Over 5,000 original elements have been preserved, among these a 1955 power unit that once controlled the Palace of Culture's electricity. The site opened on 20 May, during the COVID-19 period and immediately received a lot of public attention.

Year of Railways

2021 will be the European Year of Railways... ..but railway heritage is under threat in all countries.

The European Commission has proposed declaring 2021 the **European Year of Railways** because it is a number of important anniversaries for rail: the 20th anniversary of the EU's first railway package, the 175th anniversary of the very first rail link between two EU capitals (Paris-Brussels), as well as 40 years of TGV and 30 years of ICE.

The main objective of the European Commission is to contribute to the achievement of the objectives of the European Green Deal in the field of transport. A series of events, campaigns and initiatives will promote rail as a sustainable, innovative and safe mode of transport in 2021. They will highlight the benefits of rail for the population, the economy and the climate, as well as the remaining challenges to create a true European railway area without borders.

It is therefore not a campaign focusing on the history and heritage of the railways.

But railways and tramways, both their buildings and infrastructure and rolling stock, are an important industrial heritage. That is why EFAITH, together with our members, partners and

contacts, wants to make clear the impact of railways on the social, economic and political fabric and events in Europe from the 1840s onwards. And in what way their heritage still has an impact on and can contribute to the identity of regions and municipalities today.

In preparation for the European Year of Railways 2021, EFAITH, the European Federation of Industrial and Technical Heritage Associations, **has launched a campaign to draw attention to the endangered railway heritage.** This campaign is also supported by Fedecrail, the European Federation of Tourist Railways.

The aim is to provide an overview of the endangered railway heritage in the member states of the Council of Europe. This overview, together with existing problems, will then be presented to the European institutions and national and regional authorities at a workshop in 2021.

Over the next few months and next year, we would like to call on associations and citizens to work together to conserve and enhance this heritage. To engage, to support each other, across borders.

After an initial call, fourteen days ago, EFAITH was inundated with reports of endangered railway heritage. To date, 35 alarm calls from 14 countries have already reached us, and this seems to be just the tip of the iceberg.

Old railway lines are decommissioned. Stations, signal boxes and workshops are decaying into ruins or being demolished – while they could easily be redeveloped as a form of sustainability. Written-down rolling stock is stored in poor conditions or ends up in railway cemeteries. Disused iron railway bridges rust or are demolished and sold for scrap value. Old railway lines can be transformed into Greenways, quiet and ecologically sound cycle paths and footpaths... Tourist railways, often run by volunteers, are threatened by the loss of income due to COVID-19, while they are a tourist attraction in rural areas.

If you have any questions, please contact the general secretariat of EFAITH, European Federation of Industrial and Technical Heritage Associations.

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Congratulations MIHS

The Merseyside Industrial Heritage Society Newsletter has reached edition 400 – well done.

It is sad that the AIA Conference, which they have spent so much time and energy in organizing has had to be postponed. We might then have been able to express our congratulations in person, but we look forward to being with them in 2021.

Ferryhill turntable restoration report

The Ferryhill steam locomotive turntable, in Aberdeen is a 'grade A listed structure' and almost certainly the last of its type in the UK. It was built for the Caledonian Railway in 1905 by Ransomes and Rapier of Ipswich. It is 70ft diameter and capable of turning the largest steam locomotives including Tornado and the new P2. Its restoration has permitted steam locomotive hauled trains to use Aberdeen as a destination, which previously was not economical. The turntable is owned by Network Rail but the Ferryhill Railway Heritage Trust has a 25 year lease on the turntable site commencing in May 2015.

It was removed from site on 8 September 2016 and repaired at eBlast and RIM Fabrication in Kintore. After the initial inspection it was found that major parts of the structure had been subject to irreversible corrosion damage and about one third of each end had to be replaced.

The AIA grant of £20,000 was used to replace the cross-timbers which support the railway tracks on the turntable the longitudinal timbers on top of the steel work. It also funded the replacement of safety handrails to provide a safe walking route for the engine crew to pass along the turntable from the loco cab to the turntable operating position, provide a safe route round the



Tornado on the turntable

circumference of the turntable to give a non-slip surface when the turntable is being pushed round manually and provide a public information panel. The Trust gratefully acknowledges the AIA Grant which together with the grants from the Railway Heritage Trust and Historic Environment Scotland enabled the work to be completed to a high standard.

The turntable is now used by charter railway operators to enable Aberdeen to be a steam locomotive hauled train destination. There is no facility to turn a locomotive within 100 miles, so use of the turntable generates an income to ensure its continued maintenance. Furthermore,

the Ferryhill Railway Heritage Centre, including the turntable, is opened to the public as a museum and historical restoration visitor attraction.

During 2019, the first operating season, the inaugural 'Aberdonian' was run on five occasions, departing Edinburgh Waverley at 09:30 for Aberdeen and returning at 20:30.

In addition on 1 May, the A4 Pacific locomotive *Union of South Africa* hauled a charter train as part of The Great Britain XII tour operated by the Railway Touring Company and no.9 was again turned as on 5 May, SRPS ran a charter train from Linlithgow.

On each occasion the Ferryhill Depot was open to the public and large crowds of spectators came to see the turntable back in use.

The project has been recipient of four awards: a Rail Partnership award, a National Railway Heritage Award, a Heritage Railway Association Awards (Runners up) and a Aberdeen Civic Society Award.

The Trust would like to thank all those volunteers involved in the project and McIntosh Heavy Logistics who provided the haulage of the turntable between Kintore and Ferryhill.

Branch Railway to Boston Dock

The small Port of Boston in Lincolnshire can accommodate ships of up to 390 feet in length. There is a single dock, served by an interesting railway branch on which there is still goods traffic, consisting of steel products, aggregate and spoil. To reach the dock the line crosses the River Witham by a swing bridge which is left parallel to the river when there are no trains expected.

There are two level crossings, the one which crosses the London Road at TF 326 430 still has traditional wooden gates and closeby is a splendid listed control cabin dating from 1884. The interior contains a 12-lever Saxby and Farmer signal frame. Moreover there is a Great Northern Railway somersault signal outside. Apart from preserved lines, this is perhaps the sole remaining example of a somersault signal still in use in Britain? There is a regular service of five trains a week running to and from the Victoria Group West Midlands Rail Terminal as well as other traffic.

Somersault signals were introduced by the Great Northern Railway (1848 – 1923) following a disastrous accident at Abbots Ripton, four miles north of Huntingdon, in 1876. At that time lower quadrant semaphore signals which worked in a slot in a wooden signal post were in use. Signals of this kind can or could still be seen at some preserved railway sites but they are rare.

During a January blizzard, wind-blown snow packed the slot of a signal post and froze solid so that the signal remained in the all clear, position

and could not be moved. A southbound express, the Flying Scotsman, was about to run into a coal train but when the signal was changed to danger the frozen signal arm remained stuck. The Scotsman passed the signal at full speed. There was a dreadful accident with considerable loss of life as shortly after the Scotsman struck the coal train, a northbound express train to Leeds ploughed into the wreckage.

The Great Northern Railway (GNR) replaced the old-style signals on their lines by new 'somersault signals' in which the pivot of the signal was at the end of a horizontal iron bracket, well away from the signal post. When set in the all clear position these signals look remarkably different from conventional ones, even comical, and were a distinctive feature of GNR lines. Even in the late 1950s there were extensive stretches of railway in the East Midlands and Lincolnshire characterised by somersault signals.

In a sense the somersault signals acted as kind of unspoken advertisement for the Great Northern – 'travel by our safer railway, we have signals that cannot be snowed up'. It might be mentioned that the deputy chairman and another director of the GNR were on the Flying Scotsman which was involved in the catastrophe. Some other railways made use of somersault signals and there may still be a few examples in use in Ireland. A good account of the Abbots Ripton disaster can be found in the book *Red for Danger* by LTC Rolt.



Robert Carr Somersault signals

Coronavirus, Dr James Goodfellow and the Oldfield Pottery

We have heard much news over the last few months about the coronavirus Covid-19 – and equally much disinformation and fake news. In the early days when the new illness surfaced, there were just as many references to quack remedies.

This brings to mind that interesting remedy of Dr James Goodfellow of the Oldfield Pottery in Chesterfield.

The Chesterfield Museum web site tells us that Dr Goodfellow had been appointed as Works Manager of the Oldfield Pottery in the early 1900s and he became Medical Officer for Walton and Brampton. He later carried out much research work into goitre, a disorder of the thyroid gland. Known locally as 'Derbyshire neck', it was prevalent in the area because of a deficiency of iodine in the soil at a time when most food was produced locally. This led to local chemists selling iodised salt to add iodine to the diet.

The element iodine is a very dark purple coloured crystalline solid which gives off fascinating violet coloured vapours at normal room temperatures. Dr Goodfellow was convinced of the possible benefits of iodine as an aerial disinfectant to combat infections such as influenza. Through his connections with the Oldfield Pottery in Brampton, he was able to launch the Xodo locket in 1932 into which had been placed crystals of iodine.

The locket was glazed, but through perforations it allowing a small dose of the violet iodine vapour to be released slowly through porous openings. For a few years in the 1930s these, along with mushroom-shaped iodine



'The Concentrated Essence of Sea Breezes'

diffusers, enjoyed popularity. The lockets were designed to be worn under the clothes, and were also hung in public buildings such as banks and cinemas, on buses and even from trees.

Perhaps what's less known about Dr Goodfellow are his other research projects and his contributions to the British Medical Journal. He would certainly have been deeply concerned about miners' lung disease. When there had been an article about silicosis in the BMJ in December 1936, Goodfellow followed up with a letter about the possible benefits of inhalation of iodine – the active component of his curative lockets. At the



WC cistern pull: The element iodine is a blue-black toxic solid which is a noted skin and respiratory irritant. It is however also well known as an emitter of violet-purple vapour, a property used widely by early quacks who promised a variety of curative qualities.

time researchers into silicosis thought that breathing stone dust damaged the bronchi by abrasion during inhalation, allowing sites for secondary microbial infection and pneumonia. Goodfellow postulated that the action of iodine could at least reduce this further infection and he wrote at least one letter to the BMJ on the subject.

He was prolific in his research, described his early experiments with iodine to overcome sterility of heifers at a local milk farm of the Clay Cross Company. He claimed that they were totally cured by his stoneware containers of iodine. He moved on to carry out similar experiments to cure horses, and he showed quite decisively the curative qualities on a flock of infected hens in 'my experimental poultry pens'. He was clearly deeply involved with practical tests on animals, and was moving on to carry out trials to attempt a cure for tuberculosis in calves

It was in his communication published in the British Medical Journal of 6 February 1937 that he made the link to silicosis, writing,

"If that (damage to bronchi caused by abrasion on inhaling stone dust) is correct, it is my view that if we could prevent the silica wound from becoming infected life would at least be prolonged. Hence my suggestion that breathing iodine vapour in an attenuated form should be tried.

"If these and other experiments come up to expectations it is obvious that ... in an Iodized atmosphere we have a new weapon with which to fight germ invasion. It was the success that has already been attained by the use of this method that led me to suggest that it might be tried in silicosis."

I have so far found no reference to the results of any tests carried out to assess whether Iodine did have any benefits for silicosis or 'miners' lung', but I do wonder ... if Dr Goodfellow were alive today might he have suggested that iodine lockets could be used for controlling coronavirus?

Cliff Lea

Originally published in Nedias Newsletter No 78 May 2020

Stortford Lime Works – Part 2

In *IA News 192* I described the re-discovered structures on the site of the Stortford Lime Works, Bishop's Stortford, and concluded with the words, "meanwhile, research continues!" This further research included an oral history interview with a former director and owner of the site, John Curtis. This provided much valuable history and a record of the process at the works and corrected some interpretations in the earlier article. This article provides the history and process record and corrects previous mistakes.



Kiln draw holes

History

There had been a small chalk pit on this site for some years, from which local farmers would gather chalk for their own use, prior to it becoming the Stortford Lime Works. In the early 1940s Eddie Green, who owned lime works in Dunstable and St Albans, bought the land on which this chalk pit lay with a view to opening another lime works. He approached Reg Curtis, landlord of the former Red, White & Blue public house who also ran a timber business, for assistance. At the time the Government was providing grants to stimulate the national agricultural sector during the war years. Reg Curtis built the lime works for Eddie Green; it opened in 1942/3 and Reg then worked on the site, his wife working in the office. They eventually became directors of the works and Reg's son John went to work there in 1948.

John Curtis eventually became a director of the firm along with his mother and wife, and latterly his son and daughter. Lime production ceased in the 1970s and the site was then used for gravel extraction and waste tipping. John ceased operations and sold up in 1990. After that the site had several owners before being sold to the present owners for use as an Animal Rescue Centre.

The Stortford Lime Works also owned a chalk pit and kiln at Little Hadham which continued after the 1970s to provide open cast, screened chalk for agricultural use.

Process

There were three draw kilns each with a draw hole. Between each kiln was a vessel with its own draw hole which were used for drying chalk as an

Moseley Road Baths

additive for cattle feed, hence the five draw holes in total still to be seen. There are three arched, but bricked-up 'openings', to the left of the five draw holes, i.e. beyond the buttress wall which was added at a later date. These are not further draw holes, as first thought, but had no obvious purpose.

Chalk and coke, from the gas works in Bishop's Stortford, was loaded in alternate layers. The kilns had a capacity of 30 tons and were fired continuously. The lime was drawn out of the kilns in barrows pushed into the draw holes. It was then tipped into a pan mill located between the kilns and the storage building in an area covered over to protect the lime from rain. Two vertical edge grinding rollers crushed the lime which then dropped into a pit. A belt with scoops transferred the crushed lime from the pit up through the hopper housing on to the roof of the storage building and into another hopper from where it was bagged. Initially the bags were of strong paper each for 1cwt of lime but later plastic bags were used. The lime was stored in this building awaiting collection. The opening which is now filled with a large window was originally a door



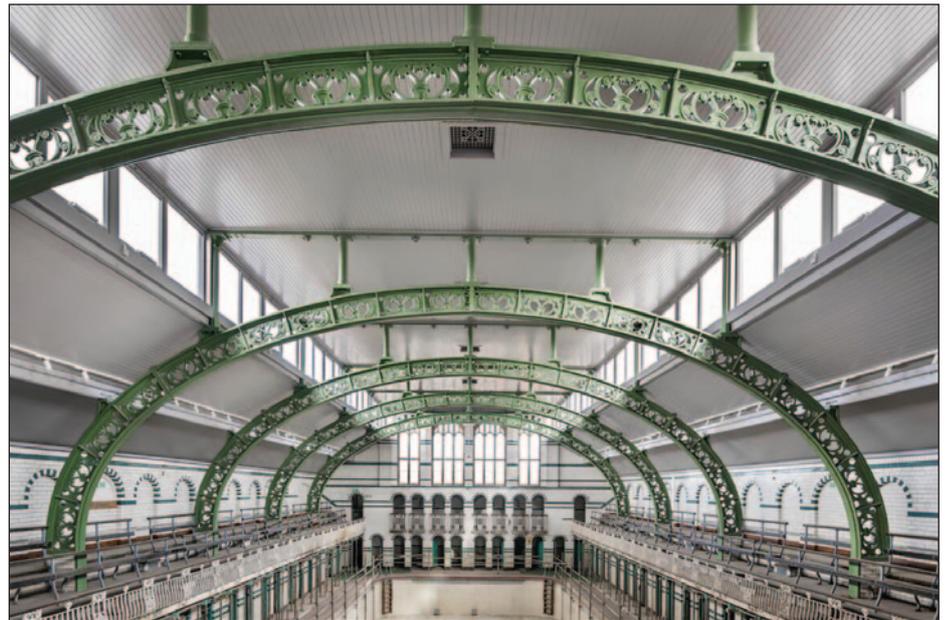
Loading holes on kiln tops

for the loading bay; lorries could back up to the loading bay, planks put across the gap and bags of lime barrowed onto the lorry. The chalk was being calcined into quicklime for agricultural and building uses; the works are in an agricultural area, but also close to the town of Bishop's Stortford and various villages. Customers for the lime included the Benskins' maltings where it was used to white-wash the walls.

In the early days when the chalk face was close to the kilns there was a tramway incline to the left of the storage building. Wagons of chalk were rope hauled up the incline, by a petrol engine, to the kiln tops where there was a turntable for turning the wagons so they could be rolled along to the kiln loading holes for tipping the chalk into the kilns. Also on the site was a building to the left of the kilns, with parts of the walls surviving, which was built with crushing machinery on the roof for crushing un-burnt chalk, but this was never used. There was an earth toilet near the entrance to the site on the bend of the road, and along from that, diesel and petrol tanks.

Tony Crosby

With thanks to John Curtis for his valuable historical information.



The first class gala pool restored

A great wave of constructing public baths took place throughout Britain in the second half of the nineteenth century – a time when only few houses had a water supply. The passage in 1846 of an Act to encourage the Establishment of Public Baths and Wash-houses was an important legislative move to improve public health in the country, and led to the construction of more than 600 public baths between the 1880s and 1914. Birmingham's Moseley Road Baths opened in 1907 and have served the surrounding community for more than a century. For a small sum, it was possible to enjoy a weekly bath in privacy—so long as one kept to a 30-minute limit. The original entrances to the baths reflect the class and gender divisions of the time: Men's First Class, Men's Second Class, and Women's Baths. In addition to private baths—which are no longer in use—the complex contained two swimming pools. The first class gala pool, with filigree cast iron arches spanning a space surrounded by spectator galleries on three sides, has been closed since 2003 for safety. A smaller, second class pool remains popular with swimmers of all ages. Like the historic signs, the interiors of the building transport one to a different era: walls of glazed bricks in ivory, turquoise, green, and cream colours, terrazzo floors, leaded windows with panels of tinted glass, and wood joinery and fittings. In addition to these historic interiors, the baths preserve rare, century-old fixtures, for example, steam-heated drying racks.

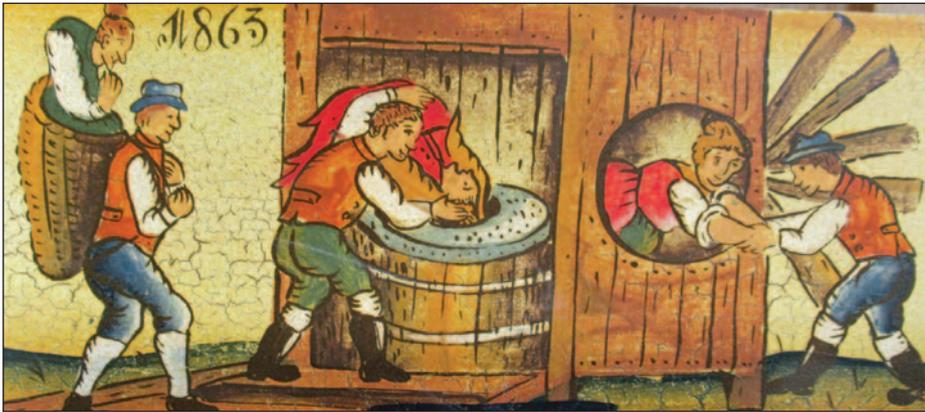
This Edwardian time capsule was included on the 2016 World Monuments Watch to call attention to Birmingham City Council's plans to close the baths in 2017, owing to cutbacks in government spending. Local advocates, led by the Friends of Moseley Road Baths, have mobilized since 2006 to keep the baths open and make the case for their social, historical, and architectural

significance. A Watch Day in October 2016 attracted over 300 visitors of all ages who enjoyed a day filled with activities hosted by the Friends of Moseley Road, celebrating 109 years of Moseley Road Baths. Activities included stalls from local history and community groups, tours of the building taking visitors to parts of the building not normally open to the public, a poster competition and Edwardian games for children, musical performances, and an exhibition water polo match. Support from American Express and WMF will help with advocacy to ensure that the complex remains open for future generations to enjoy.

On 27 June, 2017, the cabinet of Birmingham City Council agreed to keep Moseley Road Baths open for swimming until March 2018, providing an extra nine months for supporters to come up with a plan to rescue the threatened facility. In March 2018, an agreement was reached on a plan of action to keep the historic baths open and thriving. A charitable group formed by local interests will now operate the complex. In addition, over £1 million raised from a coalition of funders, including World Monument Fund, will be channelled into emergency repairs.

The baths are the oldest of only three bathing complexes in Britain listed in the Grade II* category by Historic England that are still in operation. While the number of swimmers has declined from a time when demand for public baths was highest, these improvements have created the opportunity to provide more healthy living services in unused spaces in the building. Retrofitting the building with energy-efficient heating and power systems is a bigger challenge.

In January 2020, roof repairs were completed at the baths, marking the first time in seventeen years that scaffolding had not surrounded the structure. Work on the façade was planned to begin in March 2020.



A Rejuvenating Mill seems to be a common non-politically correct illustration on the Continent (*IA News 193* p24). In Slovenia people decorate their beehives with pictures on wooden panels. Here is a picture of one I brought there 7 years ago. It is dated 1863.

David Perrett

Heritage of Industry

I have taken the decision to postpone all the 2020 tours to 2021 (although the New Zealand tour is still an unknown) on the assumption that the sites and modes of transport will be operating again by then and our customers will have regained confidence in the idea of group travel.

The new dates are:

- 10th – 16th May 2021 AIA Spring Tour to Poland
- 10th – 13th June 2021 Industrial Explorer – Bradford
- 28th June – 2nd July 2021 Country House Technology – East Anglia
- 2nd – 5th September 2021 City Safari – Hamburg
- 20th – 24th September 2021 Country House Technology – Bucks, Oxon & Surrey
- tbc pre-pre-Conference tour New Zealand

All those who previously booked tours this year and all those who registered interest will be kept on the lists and informed when further arrangements have been made – but don't hold your breath, this will not happen until later this year.

Visit the website for more information <https://www.heritageofindustry.co.uk/UpcomingTours.html>

Bill Barksfield
Managing Director

Engineers Australia

As part of their centenary celebrations, they have published two books that celebrate the contribution of engineering to Australia.

Wonders never cease: 100 Australian engineering achievements

100 significant Australian engineering achievements, from the Stump Jump Plough, to the Sydney Harbour Bridge, to the Snowy Mountains Scheme. A\$ 59.95

Anything is possible: 100 Australian engineering leaders.

100 engineers who typify the impact and influence of their vocation. Behind every engineering achievement first lay a vision, to improve the society in which we live. Many of those ideas were created by engineers; almost without exception, they were planned and executed by one. A\$ 44.95

National Value of UNESCO to the UK

Today, the UK National Commission for UNESCO has published new research which shows that UNESCO projects can help build a greener, more equal and more peaceful world, while also creating financial value. It has said:

'UNESCO projects in the UK generate an estimated £151 million of financial benefit to local communities each year and help bring them together to protect and conserve some of the most important places across the country.'

More information and consolidated data on the Culture Sector and the Covid-19 Crisis, can be found on the UNESCO website.

Gasholder obsession

The editor cannot remember how he came by the following but, in view of the recent articles about gasholders could not resist publishing it. This does not mean that the *IA News* encourages this kind of behaviour.

From anon:

Later that week I got to thinking about Gasholders and how many were left in London.

This is where it began, Google became my friend, Old reports on *28 Days Later* were read and my interest grew. Thanks to @Gabe @keitei and @GAJ, I soon had a comprehensive list.

It appeared that 82 gas holders had survived inside the M25...

That was it, I was on a mission I had to visit and climb all 82.

As I climbed down from one I realised I could just hop over the fence into the Tesco loading bay. But on climbing down from the palisade I became aware of someone behind me clapping
Shit!

Now I was a little concerned that this could either be the local drunk footie 'hooligan' or maybe the cops. Either way was going to be a pain in the arse. What I wasn't prepared for were the two old dears out the back of Tesco's on their fag break lol.

"You did a good job of that" one of them said

Assuming they meant climbing the gas holder I replied "Thanks, I've climbed a few" and started to walk away.

"Fences?" came the reply.

Then I realised they hadn't seen me up the holder. I walked towards them and explained that I had just been "up there" and I showed them a few of the growing gallery of gas holders on my phone.

"You must me mad", they said.

"Yes, I guess I am", I replied as I walked away chuckling ...

Dead dogs in the canal.

Borough Surveyor's report to Neath Sanitary Authority, 5 June 1878 – "During the past month I received several complaints of the effluvia proceeding from Dogs which have been drowned in the Canal. I gave instructions to the Borough Workmen to remove and bury the same which they did to the number of 27."

Borough Surveyor's report to Neath Sanitary Authority, 9 June 1879 – "I have caused the remains of 36 dead dogs to be taken out of the portion of the Neath and Tennant Canals within the Borough and buried, as requested at your last meeting."

(*West Glamorgan Archive Service B/N 22*).

The occasional dead dog was one of the hazards of living in Birmingham's Gas Street Basin in the late 60s but there were compensating advantages. – Ed

Local Society and other periodicals received

Abstracts will appear in *Industrial Archaeology Review*.

Greater London Industrial Archaeology Society Newsletter, 307, April 2020

Hampshire Industrial Archaeology Society Journal, 28, 2020

Historic Gas Times, 103, June 2020

Northamptonshire Industrial Archaeology Group Newsletter, 154, Spring 2020; 155, Summer 2020

Somerset Industrial Archaeological Society Bulletin, 143, April 2020

South West Wales Industrial Archaeology Society Bulletin, 138 June 2020

Suffolk Industrial Archaeology Society Newsletter, 149, May 2020

Surrey Industrial History Group Newsletter, 226, May 2020

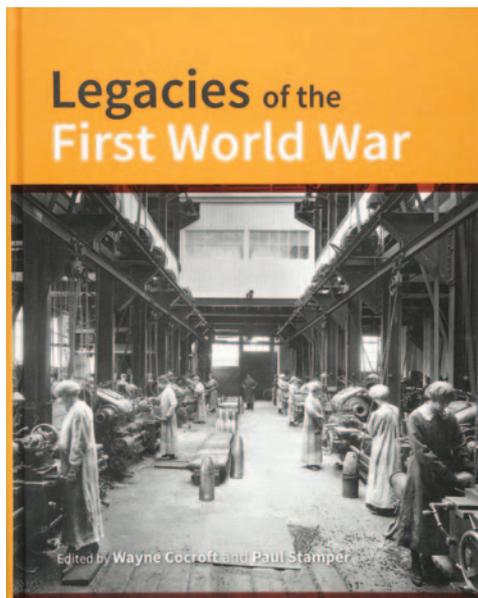
Trevithick Society Newsletter, 186 Winter 2019; 188, Summer 2020

Yorkshire Archaeological Society Industrial History Section Newsletter, 109, Late Spring 2020

Books

Watermills of Arran, by Alastair Weir, Ayrshire Archaeological Society and Natural History Society 2020, 58 pp, numerous illus and drwgs, ISBN 978-0-9935573-4-7. Pbk £6.

No 47 in the series of Ayrshire Monographs this is a comprehensive survey of the 30 identifiable, mostly agricultural watermill sites on the island. The individual descriptions are preceded by a clear description, which is well illustrated by clear drawings, of the different types of watermill and how they were operated.



Legacies of the First World War, Building for Total War, edited by Wayne Cockcroft and Paul Stamper, 256 pp, 300 illustr, ISBN 978-1-84804228-8-81, Hbk, £50.

The First World War has been described as the first total war, a conflict in which a country's people and resources were harnessed towards final victory. During 2014-18 Historic England set out to uncover and study the physical remains left across England by the First World War.

This is a series of twelve essays covering all aspects of the home front. It was the place to train and equip new armies, to manufacture armaments, to treat the wounded and to grow more food. As millions of men joined the armed forces, women entered the workforce in munitions factories, as tram and bus conductresses and as farm workers.

Winner of the Peter Neaverson Award for Outstanding Scholarship – see page 17 for details of the substantial discount available to AIA members.

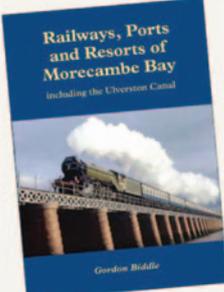
The English Windmill

This film by Martyn Taylor describes the evolution and operation of windmills in England from their first appearance in the thirteenth century up to the time of their supersession by steam and later electric power. It continues with an account of the restoration of surviving mills. Post mills, smock mills and tower mills are all described and the improvements engineered by Andrew Meikle, John Smeaton and John Rennie are explained. The part played by Rex Wailes and the SPAB in the survival of these often magnificent structures is recounted and there are numerous interviews with current millers, millwrights and others with specialist knowledge including several AIA members.

There is a trailer available at – youtu.be/JaBf5TadX3o and the complete film (98 mins) may be downloaded at – thedigitalpublishingcenter.com/70/ew – at a price of £10. It is also available as a CD.

All the money from the sale of this film will go towards windmill restoration and conservation.

A long-awaited new perspective by local author
NOW AVAILABLE



Railways, Ports and Resorts of Morecambe Bay

including the Ulverston Canal

BY
GORDON BIDDLE

64 pages
59 illustrations,
many in colour
PAPERBACK
£10 post free in UK

Railways transformed Morecambe Bay, creating the industrial town of Barrow, the resorts of Grange-over-Sands and Morecambe, and culminating in the new deep-water port at Heysham in 1896. This book looks at these achievements as well as a long and fascinating pedigree, beginning with perilous foot crossings of the bay which for centuries formed the main route to Furness.

Special attention is given to the now forgotten ports of Milnthorpe, Greenodd and Ulverston – the last with its ship canal – and their role in the area's principal trading route. A final chapter focuses on viaducts across the rivers Leven, Kent and Beeda, the first two now the two most prominent features of the bay. There is a profuse selection of illustrations, many of which portray structures still surviving from a former heyday.

Gordon Biddle has written fourteen books on railway civil engineering and architecture as well as inland waterways. He is a founder member of the RCHS, its first secretary, and now a vice-president. He lives at Silverdale, overlooking Morecambe Bay.

To order this book
please go online to www.rchs.org.uk
or write to RCHS Books, 28 Christ Church Close, Stamford PE9 1HS
enclosing a cheque payable to 'RCHS'

Railways, Ports and Resort of Morecombe Bay including the Ulverston Canal, by Gordon Biddle, RCHS Books, 64 pp, 59 illus mostly colour, paperback £10 post free in UK.

ROGERS & Co BOILERMAKERS, of Bristol, ORDER BOOK 1830-1866 edited by Steve Grudgings, Chair, Early Engines Conference and available from Folly Books. ISBN: 978 1 9161789 15. £25.

Information concerning the construction of boilers for early steam engines is few and far between and detailed drawings even rarer. This is a high quality facsimile of the Order Book of Rogers of Redfield Bristol for the period 1830-1866. This may be the only surviving book of line drawings giving details of the diverse range of steam boilers constructed in this period. In addition to boiler and plate sizes and shapes, the book also lists the 177 different customers, most of whom have their works in and around Bristol. Printed with hard covers and 187 pages of high quality paper by Folly Books, further details and order forms can be found by searching – Folly Books – This will be a very short print run for delivery in July 2020.

DIARY

The regional IA conferences that were due to be held in 2020 have been postponed to 2021. These include SWWERIAC, which was to be held in Malvern in September and Devizes, due to be held in October.

2021 The Year of the Railway see page 26

**10-16 May 2021
AIA SPRING TOUR TO
POLAND**

See page 30

**10-13 June 2021
7TH INTERNATIONAL EARLY
RAILWAYS CONFERENCE**

National Waterfront Museum,
Swansea

**29 August to 4 September
2021**

TICCIH CONGRESS XV111
Industrial History reloaded
Montreal, Canada

**19-26 August 2021
AIA ANNUAL CONFERENCE
LIVERPOOL**

**11-19 August 2022
AIA ANNUAL CONFERENCE
DUBLIN**

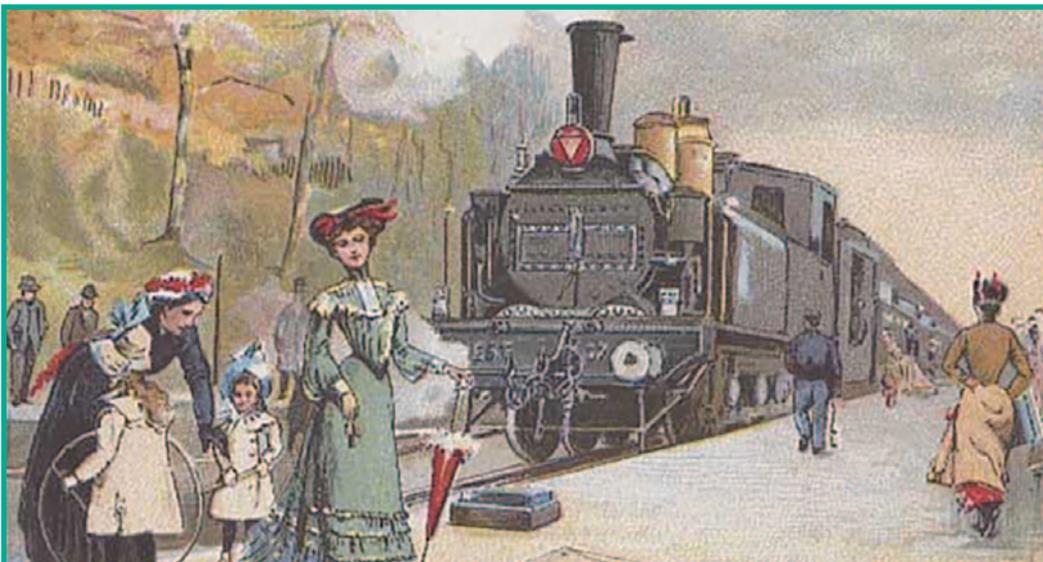
**FOLLOW THE AIA ON
TWITTER – JOIN OVER 3300
FOLLOWERS –
@INDUSTRIALAARCH**

During lockdown many organisations have held talks, films and web conferences on the internet and have publicised them on the on the AIA website. This is a very good way to attract participants so if your organisation would like to take advantage of this facility please go to the AIA website.

Information for the diary should be sent directly to the Editor as soon as it is available. More Diary Dates can be found on the AIA website at www.industrial-archaeology.org



Contrasting impressions of early railway travel See diary June 2021



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- 1 April for May mailing
- 1 July for August mailing
- 1 October for November mailing

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

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