

# INDUSTRIAL ARCHAEOLOGY NEWS

**193**  
SUMMER  
2020

THE BULLETIN OF THE ASSOCIATION FOR INDUSTRIAL ARCHAEOLOGY

FREE TO MEMBERS OF AIA



200 years of John Pilling • Wetheriggs Pottery • Newfoundland industry  
Elsecar • 2019 Report



# INDUSTRIAL ARCHAEOLOGY NEWS 193 Summer 2020

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## COVER PICTURE

*The well-known Chesterton Windmill, five miles south of Leamington, illuminated in blue to recognize the work of the NHS and all carers. Local residents have taken the initiative to raise money for the Warwickshire Air Ambulance. The photo by Finn Toner was first seen on BBC Midlands News.*

## Message from the Chair

Like all voluntary and charitable organisations the AIA's activities have been affected by the current COVID-19 health crisis. In the short term we have had to cancel our Ironbridge weekend looking at the slate industry in Wales, which was due to take place at the end of April. We hope to run this again once the current crisis has eased. However, we are still intending to deliver our annual conference at Liverpool in August and preparations are continuing. At this stage the only change we have made is the waiving of the late booking fee. We are following the Government's health guidelines and are in contact with Liverpool Hope University and will act accordingly nearer the time should the health restrictions remain in force.

The wider Industrial Heritage and Industrial Archaeology sector has been severely hit by the health crisis. All museums are closed, all local society meetings cancelled, educational charities such as the Workers' Educational Association are now only functioning online, and professional archaeology fieldwork mostly suspended. These are worrying times and the financial viability of many museums and archaeology units is in danger of being undermined. Both the Arts Council and the National Heritage Lottery Fund have launched emergency grant funds to support museums and heritage visitor attractions. The Government's business loan support scheme should be accessible for professional archaeology units. Yet, that leaves the local voluntary sector, and in particular industrial heritage and archaeology groups and societies who rely on membership income, in suspension with no prospect of external support. It is very likely that some of these groups, who look after local industrial heritage sites but are not part of the registered museums sector, will be forced to close as a result of a loss of income and members.'

Hope that's not too apocalyptic but we live in strange times.

*Mike Nevell  
Chair AIA*

## A great way to take the Association and Industrial Archaeology forward

Council have decided to establish a Young Members Board as a sub-committee of the Association, composed of people who are in mid-career or younger. We recognize the ageing demographic of both the membership and Council and believe that by engaging with younger people we can together better deliver the aim of the Association to 'give our past a future'.

The Board will be able to set its own agenda and will have executive powers to deliver it, subject to prior approval of policies, plans and budgets by the main Council.

### IF YOU ARE INTERESTED CONTACT

Geoff Wallis at [jandgwallis@gmail.com](mailto:jandgwallis@gmail.com)

The Board will provide an exciting new opportunity for you to work with like-minded people to influence the direction of the Association and IA generally, raise your own profile, develop your personal skills and knowledge, build your cv, network with some interesting and knowledgeable people, take on real responsibility.....

.....and you get free membership of the AIA for a year!

## FEEDBACK PLEASE

Do you know someone who would benefit from this opportunity?

Do you want to comment on the idea or help administer it?

Then please contact Geoff Wallis or any member of the Council.

## New editor needed

Old age is has crept up by another three months—this edition is No193 — edition 195 for which the copy date is the end of September will be my last.

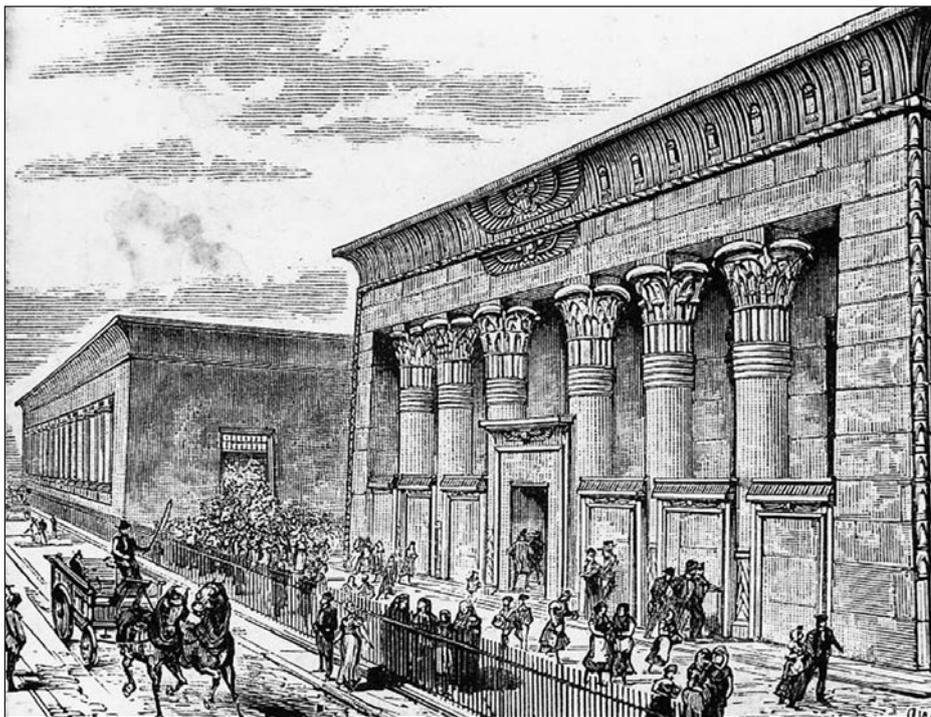
### Who would like to take on this very satisfying job?

I estimate that it takes about three weeks of modest work every quarter with a small amount of attention in-between editions.

If you would like to know more about what is involved please get in touch with me or with David de Haan, the AIA Secretary.

*Chris Barney  
Editor (for a little while longer)*

## New Hope for Leeds Temple Works



Temple Mill

engraving Harper

Urgent action by SAVE Britain's Heritage has helped rescue one of the major architectural landmarks of the Industrial Revolution. This is Marshall's remarkable Egyptian Mill in Leeds, known as Temple Works, which has been selected as the potential new home for a new British Library of the North, a £25 million project which will bring the magnificent mill and its giant weaving shed back into use.

Temple Works is the former mill in Holbeck, Leeds, designed by the engineer James Combe, a pupil of John Rennie, David Roberts who visited Egypt to learn Egyptian flax working and the architect, Joseph Bonomi the Younger, and built in an Egyptian style based on the temple at Antaeopolis and the Temple of Horus at Edfu by John Marshall for his flax business between 1836 and 1840. It is listed Grade I.

Three years ago, plans to renovate Temple Works collapsed. Hearing that the Works were likely to be sold at auction with a nil reserve – leaving it vulnerable to purchase by a speculative buyer solely interested in the value of the land – SAVE secured sight of the engineering assessments which had led the previous owners to conclude that demolition was the only option. The campaign, launched by SAVE in December 2018, immediately commissioned specialist conservation engineers, The Morton Partnership, to examine the building.

This was soon after part of the mill roof, immediately behind one of the Egyptian facades, had collapsed and was shored up by a mass of scaffolding.

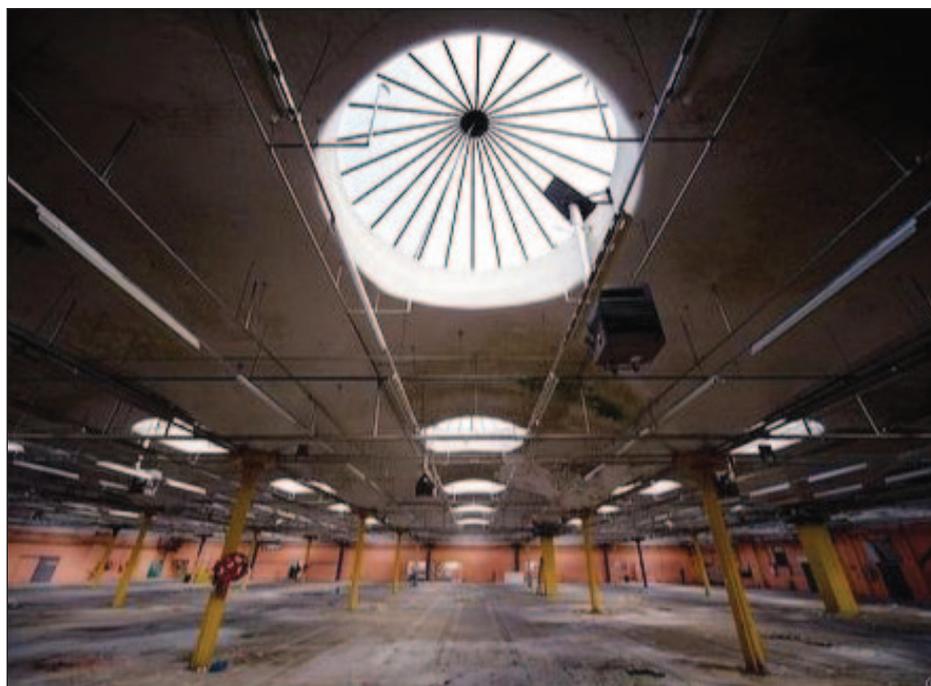
When Temple Works was completed in 1843 its vast single-story weaving shed was said to be the single largest room in the world. It covers two acres and is lit by 60, 14 foot diameter conical

glass skylights. The roof was originally covered in eight inches of soil and grassed over to help maintain the necessary humidity and even temperature for working the flax. The story that

the grass was grazed by sheep lifted up to the roof by an early form of hydraulic lift, is apparently true, although whether the practice was stopped after a sheep fell through one of the skylights, to the detriment of the sheep and one of the operatives, is less certain.

In 2015 *IA News 174* reported that Historic England had launched a study to come up with solutions for the reuse of a selection of West Yorkshire's textile mills – especially those on the Heritage at risk Register. At that time Historic England was working with the developer Citu and Leeds City Council for it to be a cultural venue at the heart of a redeveloped residential and commercial area. These plans came to nothing and it was then that the city decided to sell Temple Works by auction with a reserve of just £1 although the purchaser was required to have evidence of their intentions and financial means. In January 2018, *IA News 184* reported that the developers CEG had acquired the site and both Leeds City Council and Leeds Civic Society were hopeful that the project would move forward, but were disappointed. It was at this point that SAVE took up the challenge.

Noting that the initial mention in *IA News* was in edition 174 and the subsequent reference was in 184 while this edition is 193 so may we hope that there is real progress before another ten editions have been published.



Inside the works

photo M Binney

### AIA e-News

The spring edition of the AIA *e-News* was published in early April and sent to all members and others who have requested it. If you do not receive it and would like to do so please go to the AIA website and subscribe to the mailing list.

# John Pilling & Sons – 200th Anniversary

## Lancashire Loom and Machine Makers

*John Pilling and Sons, machine makers of Trawden and Colne, were loom designers and makers, founders, joiners, spindle makers, millwrights and tex-tile machinists, well known in the Lancashire trade. In 2019 they celebrated their 200th anniversary. The history of the firm will be presented in two parts.*

*Part 1 will describe the development from domestic weaving to timber framed power looms.*

Anthony Pilling



*17thC Stag Hall, rebuilt in 1740 from its earlier masonry as the 2 bay Seghole loom-shop house on the right and extended before the end of the 18thC with a third 2 storey loom-shop bay on the left for the growing weaving trade.*

John Pilling, born in 1776, established the business bearing his name at the workshop in his house at Trawden in 1819, making fly-shuttle and dandy handlooms for wool, cotton, linen and silk then later with his son, John Pilling born in 1805, producing timber framed 'wiper' power looms. This branch of the family farmed both Seghole and adjacent Alderhurst End farms, which both had loom shops and cottages incorporated since the 1600s.

Trawden is a village near the ancient wool and market town of Colne, a sheep and cattle farming part of Pennine Lancashire in North West England. This area had an earlier tradition of hand spinning and weaving worsted so many of the houses were specially adapted to accommodate hand-loom shops with more windows for better lighting than would otherwise have been the norm in order to clearly see that no warp ends (threads) have broken as this would produce faulty cloth. In 1781 the Colne district produced 42,843 pieces. A piece was about 50 yards of faultless cloth. That is 300yards spun and woven for every man woman and child in the area!

### The 'Old' Hand-loom

The 'old' wool/worsted handloom relies on hand-held shuttles to introduce the weft threads and

enter each pick of yarn. Both the warp beam and the cloth roller tensions have to be adjusted manually every couple of inches of weaving to wind the woven fabric forward onto the cloth roller as it is formed. The shuttle has to be thrown by hand in front of the reed (comb) to enter each 'pick' of weft thread through the opened warp 'shed' and be caught as it exits. The reed is carried in a top hung sley, which is pulled forward to beat each pick up to the fell of the cloth. The shed formed by the warp threads is changed between

a third weaver to operate the central treadles was required or a loom with treadles at each side.

Improvements to increase productivity included a separate backrest above the warp beam, which allowed much longer warps to be woven. Many manufacturers also ensured warp beams and cloth rollers had interchangeable cast iron ratchet gears that could be slid on and off matching square shoulders, avoiding the need to transport these heavy gears and making the exchange of warps for finished cloth very efficient.

This is the type of loom that would have been in general use until the mid-1700s for production of wool and worsted cloth from hand spun yarn off the local sheep at Seghole and Alderhurst End farms when loom shops were first built there.

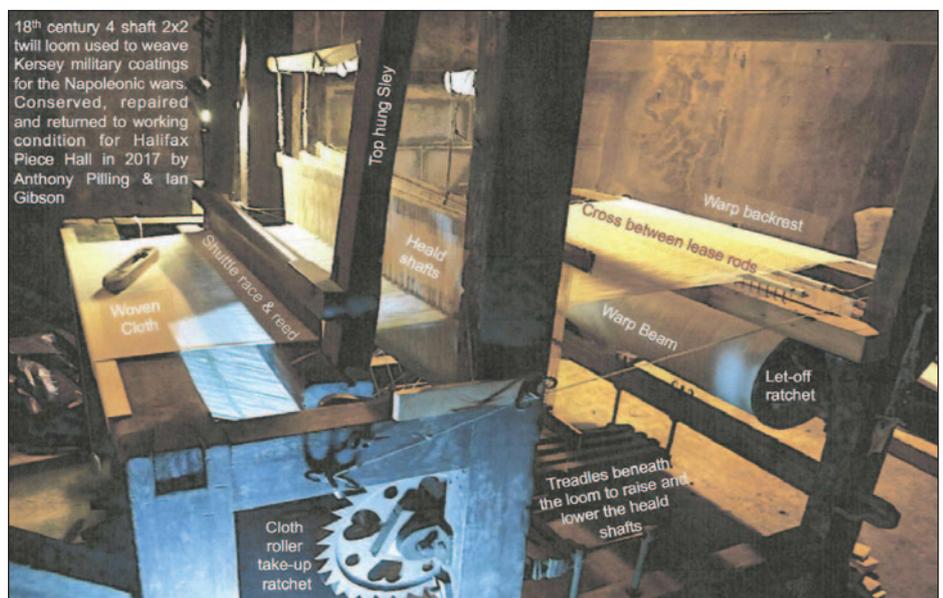
### Alderhurst End Farm Loom Shop

Only the eldest sons of large families inherited the farms and businesses, the younger ones having to find employment. Born to Sarah Pilling and without formal record of his father, John Pilling b.1776 did not inherit a share of Alderhurst End Farm. Having already learnt to weave on the handlooms in the farm loom shops he had to find employment – as a joiner. As both weaver and joiner he could make practical, effective fly-shuttle looms for himself, his extended family and all who had the money to buy them – establishing his loom making business.

### The Fly Shuttle Hand-loom

The flying shuttle, invented by John Kay of Bury in 1733, introduced a step change for handloom weavers. With this innovation a single weaver could weave broad cloths wider than their arms could span at a greater speed by flicking the shuttle from side to side between shuttle boxes fitted to catch the shuttles at each end of the shuttle race. This was achieved by using a central handle connected by cords to alternately pull left

each pick by a weaver treading on the foot treadles beneath the loom. Narrow cloths up to 3 or 4 feet wide can be woven by one weaver, but broad cloths wider than the reach of a single person need two weavers, one to throw and the other to catch the shuttle and for very wide cloths





A fly-shuttle drop box handloom at Helmsore Mills Museum with the later addition of an automatic cloth take-up ratchet and a shaft machine or dobbie operated by a single foot treadle



Left, a timber framed fly-shuttle dandy loom for broad cloth with geared ratchet cloth take up motion, weighted let-off and multi shuttle drop boxes at Helmsore Mills Museum. Right, a simple metal framed dandy loom for producing plain cloth showing in red the passage of the warp from right to left and the open shed formed in the warp by the heald shafts through which the shuttle flies.

and right pickers in time with their feet working the treadles to form each warp shed. As well as having a separate warp back rest or roller to maintain a constant warp height, separate flanged warp beams allow the longest practicable warps to be entered into the loom. With warp let-off controlled by the friction of weighted ropes these looms could also maintain warp tension automatically. However, the weaver still had to stop frequently to draw the cloth forward, manually replace the empty weft pirn from the shuttle with one full of weft yarn and monitor warp tension, gradually reducing the weights as the warp diminishes to compensate for its leverage decreasing.

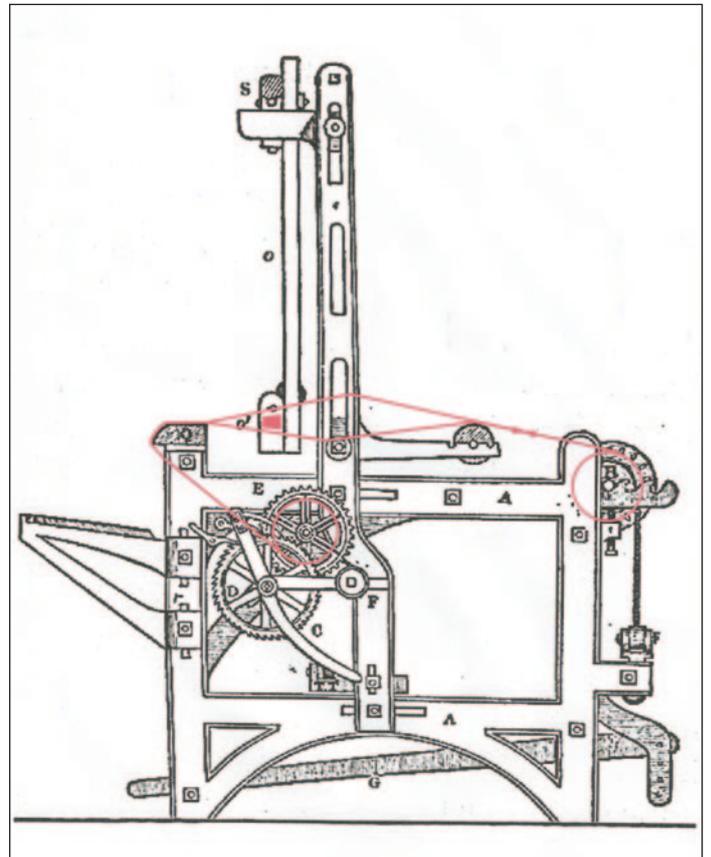
About 1760 Robert Kay, John's son, invented the multi shuttle drop box to allow the rapid selection of different shuttles speeding production of tartans and coloured check fabrics in which the Colne weaving district specialised and for which John Pilling could make the type of multi-shuttle fly looms required.

### The Spinning Revolution

The factor limiting cloth production had been the ability of hand spinners to produce sufficient yarn, as it took six or seven cotton spinners to keep each weaver working efficiently.

The mechanisation of spinning focused the minds of a number of eighteenth century inventors. In 1738 and 1758 Lewis Paul was granted patents for a draughting-roller spinning machine to draw out hand prepared roving fibres but this was unreliable. In 1748 he had patented a carding machine to prepare cotton fibres for spinning, but it was not until Preston entrepreneur, Richard Arkwright, developed these ideas into a water powered spinning frame in 1769 that a commercially effective machine was produced. To avoid machine breakers, Arkwright moved to Cromford and set up the first water powered spinning factory in 1771. Preparation of rovings from carded cotton by hand was the next brake on progress, resolved when Arkwright's 1775 patent mechanised the conversion of carded cotton into rovings suitable for spinning on his water frames.

After the spread of Arkwright's cotton spinning factory system and the erection of ever more water powered yarn spinning mills in the late eighteenth and early nineteenth century, cotton became a commercially



viable fibre on a large scale, so much so that weaving became the factor limiting cloth production.

Initially manufacturers, like Trawden's William Wilkinson, supplied factory-spun cotton yarn to domestic weavers working at home and collected completed pieces of cloth for sale to the customer. However, with mass production of yarn, weaving systems were reinvented to keep pace with the supply of yarn and the demand for cloth.

### Dandy-loom and Dandy Shops

Edmund Cartwright's first power-loom were inefficient and could not weave faster than a hand-loom, though they did prove that machines could weave cloth. The incentive to improve the fly-shuttle loom continued and in 1802 William Radcliffe invented a variable ratchet take-up



motion to advance the cloth by exactly one weft pick at a time with each beat of the fly shuttle's sley, as the reed carried by the sley pressed the previous pick of weft against the fell of the cloth. Combined with a weighted let-off maintaining warp tension, this wound the finished cloth onto the cloth roller and automated its precise passage through the loom. The ratchet motion saved the time it previously took for the weaver to release the warp, every two inches or so, wind the cloth forward and reset the warp tension, as well as making it easier to produce a consistent quality of cloth. Fly shuttle looms with these improvements were called 'Dandy' looms and cloth manufacturers with loom shops would upgrade existing looms as soon as they could afford to do so. William Wilkinson helped John Pilling (b.1776)



*A photomontage showing Wilkinson's Lane-house Dandy-shop / Cotton Mill in black and white (demolished 1968) with his yarn preparation and warehouse buildings incorporating John Pilling & Son's Mechanics Shop and first Power Loom Works still existing at Trawden in 2020. Produced from an old photograph of Slack Booth cottages from J&G Greenwood modified to show the elevation before its conversion into dwellings after removal of the steam plant by about 1860.*

to establish his loom-making business at Slack Booth in 1819, by commissioning him to upgrade his existing looms and make the new dandy-loom he needed for his 3 storey loom-shop. Cotton masters like Wilkinson maximised cloth production, quality and profit by building dandy-shops for perhaps 60 looms. Weavers who could not afford their own fly-shuttle dandy-loom could now weave more efficiently in his premises.

John Pilling and Son lived over a Slack Booth workshop directly opposite Wilkinson's manufactory with its adjacent yarn preparation and cloth despatch warehouse at Lanehouse, Trawden. Using his own patterns, he obtained the small volume of metal castings required from a foundry in Clitheroe. Pilling looms would have looked very much like the dandy-loom from the Platt collection stored at Helmshore Mill Museum. Each selection of heald shafts lifts a different set of warp threads and is operated by a different treadle. With sufficient treadles and heald shafts a range of cloths can be woven including – two shaft basic plain weave fabrics, three shaft 2x1 twills (jeans), four shaft 2x2 twills (shirtings and coatings) and five shaft sateens (quality clothing, sheets and curtains for dyeing).

The weaver makes the heald shafts open each warp shed for the shuttle to enter with feet working in time on the treadles and makes the weft shuttle fly with one hand using the picking handle, before the other hand beats up that weft pick with the reed fixed in the top hung sley which moves the woven cloth roller gear forward one weft thread at a time and causes the warp tension to be let off by a weighted friction brake rope slipping by the same amount. These features are also the basic, yet essential, pre-requisites of practical power looms. A proportion of the dandy-loom would also have had three or four drop boxes on each side allowing three or four shuttles with different weft colours to be rapidly changed to create fancy coloured plain and twill checks for

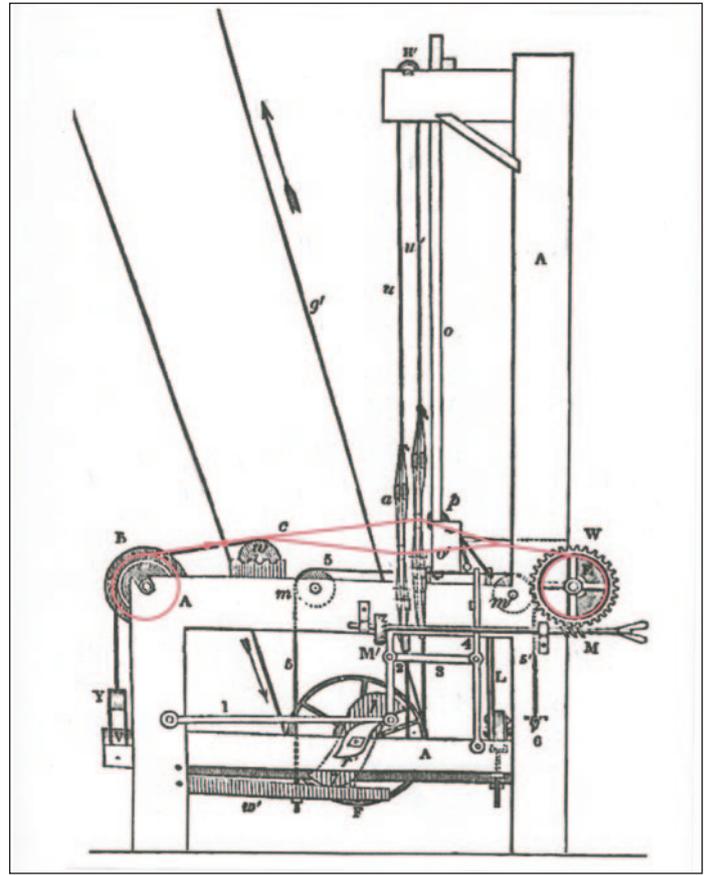
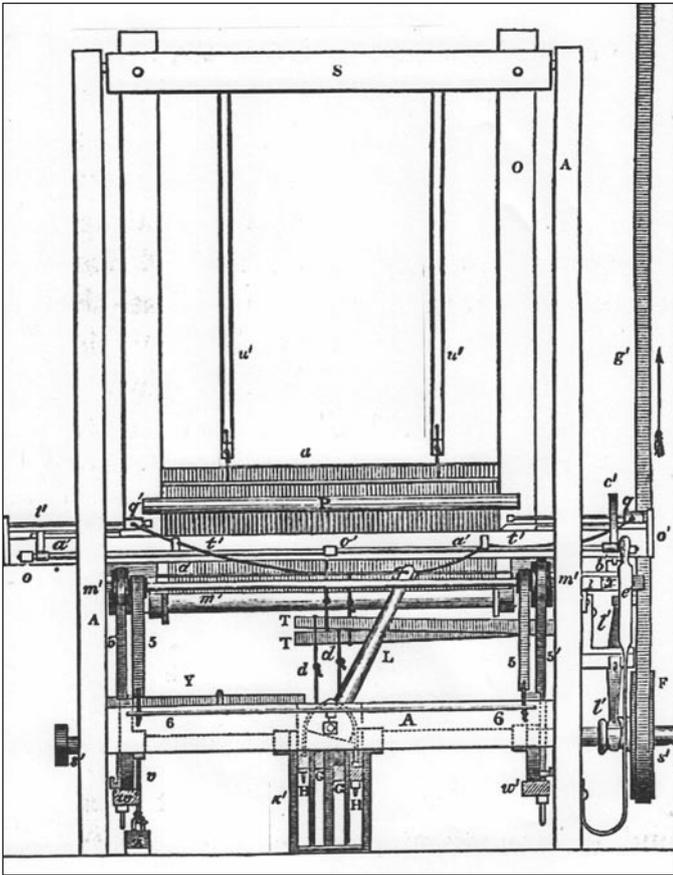
which the Colne district became famous.

Through the close relationship with Wilkinson and his dandy-shop, the loom making business grew and as it expanded John Pilling and Son built a second much larger mechanic's workshop onto the rear of William Wilkinson's warehouse building – their first power loom works.

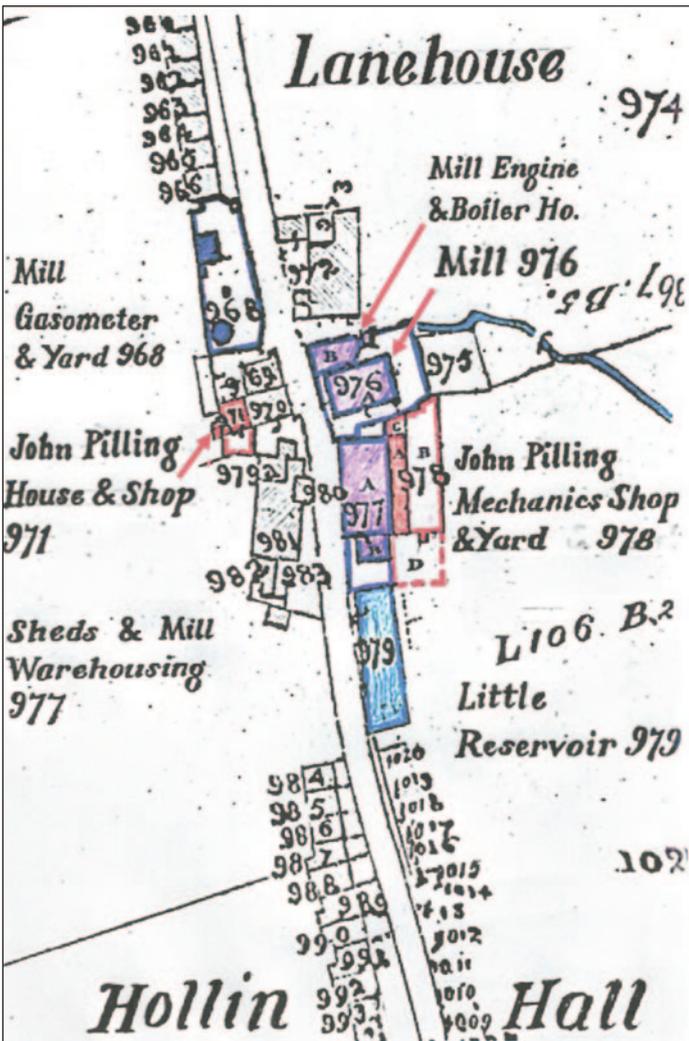
### Power Looms

The early wooden framed 'wiper' loom was so called because the drive belt powers a camshaft, each set of cams 'wiping' against treadles to drive each motion of the loom. One set operates the warp shafts timed to open the shed ready for the shuttle to pass. Another pair of cams suddenly moves the centre picking stick under the loom, timed to drive the shuttle alternately left to right and right to left. Yet another pair of cams releases a spring that drives the sley forward carrying the reed to beat up the inserted weft yarn pick onto the fell of the cloth and which then returns the sley and pre-tensions the spring reed for the return flight of the shuttle. A final cam drives a ratchet lever to slowly turn a worm gear that advances the cloth take-up roller by a single pick. By the 1820s practical and effective wooden framed 'wiper' power loom designs were being made that did not infringe the 1822 patents of the more up to date but more expensive Richard Roberts cast iron looms being produced in Manchester. One of the designs with centre under-pick picking is illustrated here although there were others. It is understood locally that the first John Pilling and Son power looms were timber framed wiper looms similar to these, dating from the late 1820s.

Before 1834 it was known that William Wilkinson had installed a small steam engine and boiler house to replace the dandy-shop looms with John Pilling and Sons timber framed wiper power looms in the former dandy-shop shown as Lanehouse Cotton Mill on the 1844 OS map. The



Wiper loom with centre underpicking



mill buildings' uses and layout and the gasworks, for lighting to extend winter working beyond the daylight hours, are all shown on the more detailed Tithe maps surveyed in the same year. The associated ledger and court rolls refer to the owners and tenants at the time when William and John Wilkinson removed to larger premises at Bough Gap and just before the loom maker's son, John Pilling (b.1805) moved the business into the larger machine shops he built in 1849 at Primet Bridge, Colne. It was the late Mike Rothwell, a meticulous industrial historian, who suggested the Tithe Maps and Court Rolls were the places to look for such information – and so they were.

In the later nineteenth century, this small weaving mill was converted into three cottages, one housing Pickles' bakery and another Wilkinson's grocers. They were used residentially for about 100 years before being demolished in 1968. Nevertheless, some much altered parts of Wilkinson's adjacent Warehouse and Pilling's Lanehouse Mechanics' Shop still remain opposite Slack Booth Barn.

This was one of the earliest and smallest steam powered weaving mills in East Lancashire of which the associated families have been aware for decades, although no ledgers survive from this period. The writer's great grandfather's full name was Wilkinson Pilling, born at Seghole, marking the relationship between its two founding families.

By the end of 1849 John Pilling (b.1805) had moved the loom making business to his newly erected three storey Mechanics Shops at Primet Bridge, Colne. Adjacent to the newly completed railway, he greatly increased his access to engine coal, forging coke, steel & wrought iron bar and iron

*Lanehouse Cotton Mill surveyed near the end of its working life in 1844. This drawing has been marked up from a copy of the Tithe map courtesy of Lancashire Archives: DRB1/188, Trawden Tithe Award and Map. The help of the Lancashire Archive staff in Preston is gratefully acknowledged.*

*The Mill buildings have been shaded purple, the engine, boiler and chimney are plot 976 B and the 3 storey weaving mill 976A, while the yarn preparation and cloth inspection & despatch warehouse is at 977A with the mill lodge to service the steam plant at 979. The Gasometer and retort house for lighting is across the road at 968 and became the gas works for the village.*

*John Pilling's house and dandy loom making workshop c. 1819 are plot 971. As business grew John Pilling built a larger workshop, 978A, where power looms were built and developed for the earliest mills in the locality.*

castings from foundries he used in Clitheroe and Keighley to make completely new ranges of efficient, robust metal framed power looms. He and his sons and grandsons were now well placed to go on to produce many tens of thousands of high class cast iron looms, tons of spindles, textile machine and engine parts, plus line shafting and metal fittings for the new iron framed weaving mills already being planned in East Lancashire.

Part 2 will cover the firm's transition to the manufacture of iron framed looms in Colne, the development of Primet Foundry to meet

increasing home and international demand, formation of the Limited Company and the main loom types produced prior to the outbreak of the First World War.

The Helmshore looms illustrated belong to the Higher Mill Museum Trust and are looked after by Lancashire County Council's Museums Service who run Helmshore Mills Textile Museum which has a fine collection of spinning and weaving machinery including much of the Platt collection of early textile machinery.

Sources include: Rothwell M – A Guide to the Industrial Archaeology of Colne, Trawden and

Foulridge, 2015; Greenwood J&G – Trawden Looking Back, 2010; English Heritage, Taylor S – Pendle Textile Mills, 2000; RCHM, Pearson S – Rural Houses of the Lancashire Pennines 1560-1760, 1985; Bannister – The Annals of Trawden Forest, 1922; White G – A Practical Treatise on Weaving, 1846. Tithe Map of Trawden, 1844 and Court Rolls held at the Lancashire Archives, Preston; 1844 OS maps.

All illustrations are from the author's collection.

## Floods in Ironbridge



Rear view of demountable defences holding back the Severn

Back in November 2000 when the Severn burst its banks, the water reached 7.04m (23ft) above its normal summer level. The riverside road through Ironbridge is at 5.7m and since 1910 it had been flooded 26 times, but apart from 1946 and 1947 the level in 2000 was the worst.

Fortunately, this released funding for demountable barriers, which were deployed for the first time in 2004. The barriers were erected five more times in the ensuing years, the worst being in February 2014 when the level reached 6.1m and they did a good job protecting properties along the Wharfage. That was until 25th February 2020, when the river peaked at 6.79m in Ironbridge. It made the national television bulletins and press every day for a week, with a 'danger to life' warning in place and residents being evacuated.

Apart from people on half term holiday coming to gawp, most shops were closed and businesses suffered badly. National news tended to convince people that Ironbridge was closed, and for weeks after the waters had receded visitors stayed away because they 'knew' it was still closed. Telling them that it is open again was not newsworthy, so the myth continued.

Two of the riverside museums – The Museum of the Gorge and Coalport China Museum – were badly flooded with damage and loss of earnings estimated at £250,000.

A month later with the clean-up still in progress those sites were closed. And then along came the Coronavirus.

David de Haan

## Turntable unearthed

HS2 Ltd has unearthed what is thought to be the world's oldest railway roundhouse at the construction site of its Birmingham Curzon Street station.

The roundhouse was situated adjacent to the old Curzon Street station, which was the first railway terminus serving the centre of Birmingham and built during a period of great significance and growth for the city. Built to a design by Robert Stephenson, the roundhouse became operational on 12 November 1837 – meaning the recently discovered building is likely to predate the current titleholder of 'world's oldest' in Derby by almost two years.

HS2's initial programme of trial trenching at Curzon Street revealed the remains of the station's roundhouse, exposed toward the south-eastern corner of the site. The surviving remains include evidence of the base of the central turntable, the exterior wall and the 3ft deep radial inspection pits which surrounded the turntable.

The nineteenth century station at Curzon Street is among the very earliest examples of mainline railway termini and the limited later development of the site means that any surviving remains of the early station represents a unique opportunity to investigate a major early railway terminus in its entirety. As the HS2 project heads towards Main Works Civils, the final archaeological excavations on the site are about to take place.

Initially providing passenger services, Curzon Street originally consisted of two station termini, servicing the London and Birmingham Railway (L&BR) and the Grand Junction Railway (GJR), before being converted to a single goods station (following the opening of Birmingham New Street Station in 1854), and which operated until the 1960s.

The roundhouse, and specifically the turntable, was used to turn around the engines so locomotives could return back down the line. Engines were also stored and serviced in these facilities. The railway's 1847 roundhouse at the southern end of the line is now better known as the Roundhouse music venue in London's Camden.

The L&BR terminus opened to passengers in 1838 and was fronted by the grand 'Principal

Building' which survives in situ (as do elements of the GJR neo-classical screen wall). This Grade I listed building represents the world's oldest surviving piece of monumental railway architecture. Various structures were demolished from 1860 to 1870 to allow for the expansion of the goods station, including the engine roundhouse.

The archaeology undertaken ahead of the construction of the new Curzon Street station will record the historical significance for the site and determine whether the remains can be preserved in situ.

## Bethnal Green Gasholders



At the Marian Place Gasholder Station, Bethnal Green, it is planned to retain the guide frames of the canalside Gasholders Nos. 2 and 5 and build new blocks of flats inside them.

Supporters of the East End Waterway Group are concerned that the intended scheme would fill the frame of the particularly notable Gasholder No.2 of 1865 - 6 with flats and not leave it as an open space which they would prefer. When the last British public-supply low-pressure gasholders were decommissioned in 2014, Gasholder No.2 was the oldest working gasholder in the country, and probably the world. For more information on this site, and a fine photograph of Gasholder No.2 looking south across the Regent's Canal, see the article by Tom Ridge on page 6 of I A News 172 Spring 2015.

Robert Carr

## Elsecar – a model industrial village

*Historic England have published new research on Elsecar, a small village in the heart of South Yorkshire with a big industrial past. The Historic Area Assessment report is the result of extensive work carried out as part of the Elsecar Heritage Action Zone, a three year partnership between Historic England and Barnsley Museums.*

*Dr Tegwen Roberts*

*Elsecar Heritage Action Zone Officer*

Elsecar was developed as a model industrial village by the Earls Fitzwilliam of nearby Wentworth Woodhouse from the 1790s onwards. As well as building a canal, ironworks and collieries. They created a new industrial community at Elsecar, building attractive, high-quality cottages for their workers, as well as a new school, a church, allotments, a cricket club, shops and pubs. Elsecar was a precursor to later model villages, like Saltaire, and was built as a showpiece – designed to impress royals and aristocrats, who were regular visitors throughout the nineteenth and twentieth centuries.

Elsecar sits within a planned landscape, designed to show the influence of the Fitzwilliam family, including follies, churches and other monuments. Interestingly, the new research suggests that the Earls used their industry at Elsecar in a similar way. They built ironworks where the huge furnaces could be seen for miles, and when the first deep colliery was sunk in Elsecar, the grand pumping engine (the Elsecar Newcomen engine) stood proudly at the heart of the new village. The Earl also ordered grand stone entrances for his two collieries. They are known locally as footrills and were used by visitors, including the Duke of Clarence, later King William IV, who went underground when he came to view the colliery workings in 1828. Both footrills survive, although they are now blocked, and not accessible to the public.

The new research has also discovered more about the two huge ironworks that dominated the Elsecar skyline from the late 1790s until the 1880s. Elsecar is generally known as a colliery



*The Elsecar Miners Lodging House, built in the 1850s as part of the model settlement, to house unmarried men coming to the village to work. An impressive landmark, it was one of the first buildings in the village to have gas lighting*

*Photo Barnsley Museums*

village (the last coal mine, Elsecar Main Colliery, closed in 1983). However, its early industry was focussed on iron. The Elsecar ironworks was built by Darwin and Co. of Sheffield in 1795, and the Milton Ironworks was established by Walker Brothers of Rotherham around 1798. The two sites were owned by the Earl Fitzwilliam and made use of his coal, from the mines at Elsecar, and also his ironstone, from the mines at nearby Tankersley. By the late 1830s the sites were connected by a network of wagonways that ran between Tankersley and the canal basin at Elsecar. Both ironworks operated until the 1880s, under the direction of various tenants. The Elsecar Heritage Action Zone has shown that significant parts of the Elsecar ironworks still survive, including the furnace bank, former casting shed and the mid-nineteenth century blowing engine house. A

community excavation at the Milton ironworks, which involved 100 volunteers from the local community, discovered an early calcining kiln in a previously unknown part of the site.

During the nineteenth century, Elsecar was a centre of innovation. The Earls invested in new technology, and a number of nationally important developments took place there – including new inventions in mining and mine ventilation, which fundamentally changed the industry and improved working conditions for miners. Evidence of these innovations still survive at Hemingfield Colliery, formerly Elsecar Low, built by the Fitzwilliams in the 1850s. The site is now owned and run by the Friends of Hemingfield, who were awarded an AIA restoration grant towards the ongoing conservation of the colliery buildings in 2016.

In 1850 the Earl created the Elsecar New Yard, a new centralised workshop complex serving his collieries, ironworks and the wider Wentworth Estate. In 1857 he built a new gasworks, to provide lighting for the workshops and key buildings in the village. Readers of *IA News* will remember the survey of the gasworks that was undertaken by students from the University of Leeds, which was awarded the AIA dissertation prize last year. The former New Yard workshop buildings are now home to independent businesses, as part of the Elsecar Heritage Centre.

The Fitzwilliam family continued to influence the village until the nationalisation of the coal industry in 1947. Their last major development was a new garden village created at the east end of the earlier model village, built to house workers at the new Elsecar Main Colliery.

The report can be downloaded from the Historic England website. Just go to <https://research.historicengland.org.uk/> and search for Elsecar. For more information about the Elsecar Heritage Action Zone please contact [ElsecarHAZ@barnsley.gov.uk](mailto:ElsecarHAZ@barnsley.gov.uk)



*Hemingfield Colliery, formerly Elsecar Low Colliery, built for the Earl Fitzwilliam in the 1850s. Now owned and looked after by the Friends of Hemingfield Colliery, it is a rare survival of a mid-19th century colliery and was a centre of innovation.*

*Photo Barnsley Museums*

## Wetheriggs Pottery, Clifton, Cumbria

*Wetheriggs Pottery may be the only example of a complete country pottery left in Great Britain. It is now under a severe threat — see the letter on page 22. The method under which it operated is described here by a former potter and proprietor.*

*Peter Strong*

With a good supply of local clay, it began as a brickworks about 1760, supplying bricks and land drainage tiles (pipes) for the farm lands and buildings of the Brougham estate.

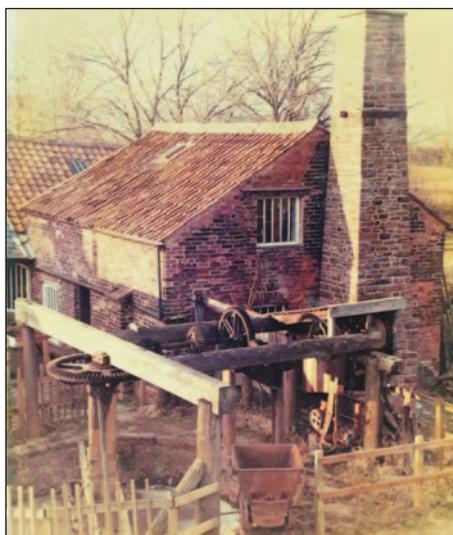
A hundred years later in 1855, the Schofields, a large family of potters from the north-east were brought to the site to start production of everyday crocks – kitchenware, tableware, flower pots and horticultural items – for which there was a high demand. By the late 1850s the pottery extended over the seven-acre site, with two 'Newcastle type' brick kilns and a large circular 500 cu ft beehive updraft kiln, a sophisticated design for its time.

The pottery employed up to 12 people; there were sun pans, a large mechanical blunger (or washmill), moulding rooms, a steam engine, associated workshops and sheds for clay preparation, throwing, drying with heated benches or hypocausts, a large hovel (kiln surround), covered yard for drying, a blacksmith's workshop for the pottery and the estate as well as a reservoir to supply water to the whole works. Coal was brought into the works and the products shipped out on a spur from the adjacent main line.

The traditional Wetheriggs pottery was known as slipware. With great skill, white liquid clay (slip) was trailed over the darker body of the pots using a cow's horn and a goose quill. The patterns originated in the fishing villages of the north-east where they were embroidered on lace and represented the men, the sea and fish.

### The process

Making pottery at Wetheriggs started with preparing the clay. Raw clay dug from the claypit was hauled up a steep incline by narrow gauge railway, which can be seen on the site map.



*The blunger*



*The pottery – late nineteenth century*

The mechanical blunger, mixing clay with water, was an ingenious invention which in the beginning was turned by a horse, and later by a steam engine (much greater horsepower).

The clay was dug by shovel and steam-winch from the claypit up the embankment to the blunger, here the tubs were emptied until the water/clay ratio was correct (approx. 1000 gallons of water to about 3 tons of clay). The mix was stirred and thrashed continuously until all the clay was suspended in the water in the form of a thin slurry. After a brief pause to allow any heavy stones to settle to the bottom of the blunger the sluice was opened and the liquid clay would start its long winding run down the trough or gripp on a shallow fall, to the entrance of the sunpan, where it would run into all corners and gradually fill it to a depth of about 18 inches.

The sunpan, where the clay settled and the excess water evaporated, was sited to pick up as much of the sun as possible. The clay, blunged and run off in the spring months, was tended to and turned by hand with shovels during the summer and finally lifted and barrowed out in the autumn ready for the next stage of the processing; working in the pug mill and throwing.

Gravity and fall was used to grade the coarseness of the clay for the different types of pottery produced. The liquid clay that ran to the furthest corners would be the smoothest, as the most grit had settled out and this produced the finest material, known as cupping clay. This was used for the cups and saucers, cream jugs, tableware etc.

The clay in the middle area of the pan would settle holding enough grit for the medium-sized pots, and where the clay settled at the point of entry to the sunpan it was at its grittiest. This was

used for the largest pots to give them good strength while being thrown on the wheel, and for flower pots and oven pots to give them excellent resistance to frost and heat; the really coarse sand and gravel in the gripp was dug out and sold to builders.



*The sunpan*

As the sunpan filled with blunger loads of liquid clay much of the water would come to the surface as the clay settled. When a lake of water had formed on the surface it was pumped back up to the blunger to be re-used.

The reservoir (now the pond) was fed from a nearby spring and sighted some distance away, beyond the main buildings and high enough to create the fall needed for the supply to all the buildings as well as the blunger. Copious amounts of water are needed in pottery making and of course, this water was free.

The sunpan is now a haven for wildlife, for great crested newts, toads, frogs, all manner of wetland creatures and particularly rare sand lizards who adore the environment at the bottom.

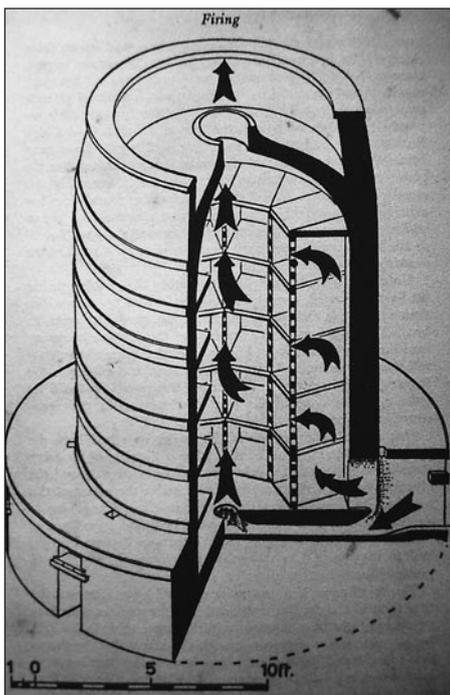


*The pottery in 1900*

### The Wetheriggs Beehive Kiln

The beehive kiln is so-called because of its domed roof, similar in appearance to the beekeeper's straw skeps, as well as the inside appearance being like a honeycomb.

It is an updraught kiln where the whole structure acts as a chimney, fire hurtles up in a controlled way while the smoke pours out of the top. The kiln itself is within a larger brick surround that creates a room with four sides and a roof that tapers in to meet the main kiln just below its top; this surround is called the hovel. The kilns were constructed in this way so that strong winds in open countryside were prevented from causing chaos with uneven burning in the fireboxes. The interior of a hovel was inevitably black with soot



*How the kiln operated*

and smoke, hence the expression of somewhere being 'a filthy hovel'.

The heated stone benches (hypocausts, or horizontal flues), built against the inside walls of the hovel, actually started in the throwing room; wet pots were placed on them to dry, gradually being moved and turned by hand, along into the kiln room, so when finally dry, they were available for stacking straight into the kiln.

Coal was brought to the site by train which backed down the spur into the pottery works. The fuel used was high grade low-sulphur coal called doubles, which were used in industry for melting steel. It was called doubles because of the length of flame created which produced much more heat – but it was expensive. The coal would be dumped from the railway trucks into a gully by the kiln door and would then be barrowed to the corners of the kiln room for ready access during the firings. The coal was also distributed around the works to the numerous fires required in the pottery making process, and also to the busy blacksmith whose workshop was on the site and who maintained the giant steel bands around the brick kiln which would expand and contract with the heat. He was also needed for the steam engine, and for the many other pottery related jobs, as well as for work on the Brougham estate. The pottery also had a weighbridge and sold coal to the local community.

On average the kiln could hold up to 6000 items; these were stacked in cupboards around the inner wall to protect the sensitive lead glaze from the direct blast of the fire. Within the central area were piled saggars (fireproof boxes) and in these were placed the smaller finer wares on a bed of fine sand or spurs which prevented them from sticking to each other with the molten glaze.

The saggars were made of fireclay, and could be used many times; the craft of saggarr making was a skilled one, made famous by the man whose job it was to hold up and tap the saggars, listening for splits and cracks; if damage was

found a new saggarr would have to be made, otherwise a whole stack could come crashing down. The new base would be beaten out with a huge flat mallet to bed the saggarr box to the base of a replacement. He was called the 'saggarr makers bottom knocker'. These men were generally itinerant or journeymen potters moving around from one pottery to another.

The base of the kiln was reinforced with a 4 ft high plinth of solid bricks in which were housed the eight fire boxes. These tapered from wide stoking mouths to narrow slits as the flames issued into the inner chamber.

During firing, the kiln achieved a range of temperatures, being cooler at the bottom and hottest at the top and the pots were stacked according to the variation of temperature needed. This ranged from 950 degrees to 1120 degrees with flower pots at the bottom and cookware at the top.

### The technical bit ...

The method of firing these big kilns was designed to prevent reduction through lack of oxygen. It began with a long pre-heat and a slow rise in



*Packing the kiln*

temperature in order to thoroughly clear all the moisture out of the kiln, then the fires were stoked steadily but with increasing frequency in order to maintain a good oxidizing atmosphere in the kiln. If the fuel became starved of oxygen by being too smokey or not being able to pass through the kiln quickly enough it would create a disastrous reduction atmosphere and boil the delicate lead glazes which turned the colour of the pottery body slate grey instead of a bright healthy earthenware.

Once the pottery had been placed or 'set' in position, a task for which only one day was allowed, the large doorway of removeable bricks, known as the wicket, was stacked tightly with

bricks and smeared with a thick coating of clay and ash (clam), to insulate against draughts – this process known as clamming up the wicket. A low fire was lit in each of the seven fireplaces to dry out the ware overnight. During the next twenty-four hours the temperature was gradually raised to 400 degrees centigrade, the small vents above each fireplace being left open to allow a certain amount of cool air into the fires to reduce the total heat intake. Firing then continued at a moderate rate for twelve hours after which the small vents were blocked up with bricks. The flame was lengthened during the firing towards the top temperature by small mouse holes at the top of the fireboxes; these were opened to introduce air into the swirling flames and up into the ware to avoid reduction. At the height of the firing, great roaring flames and smoke could be seen leaping out of the kiln chimney. The fires were stoked to their fiercest heat until the required temperature was reached, a further twelve hours later. The pottery firemen (or stokers) had to work in shifts throughout the firing until near the end, when all hands were called for and shovels flew. Test pieces were withdrawn from the kiln on the end of a long iron pole and if they had matured satisfactorily the fireplaces were quickly bricked up and the whole kiln left to cool for three more days before being opened. On the morning of the fourth day the load was withdrawn (a five-hour task), the entire process of firing having taken a total of five and a half days to complete using six tons of high-grade low-sulphur coal.

The kiln was constantly being repaired as the enormous heat stress took its toll. The process was built on the stable supply of cheap fuel, tied labour and zero inflation, and its viability only came into question as these factors changed, culminating with the closure of the railway during the Beeching cuts of the 1960s.

### The Steam Wheel

The steam powered potter's wheel at Wetheriggs is a wonderful piece of Victorian engineering much admired by Fred Dibnah for its ingenuity

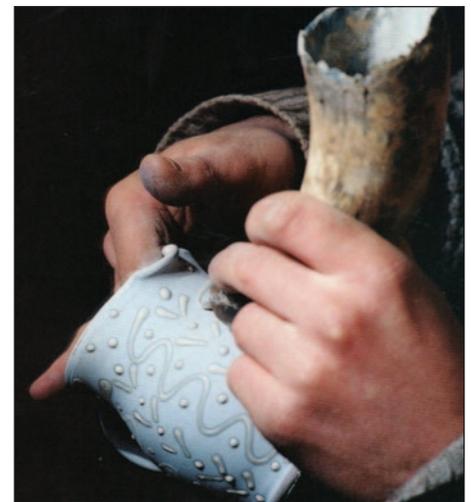


*Working on a large planter*

and capability. A powerful machine with a variable speed capable of producing at one extreme egg cups and cream jugs up to managing a whole hundredweight of clay for enormous flowerpots and glazed storage bins. Controlled by a foot pedal, it would go from zero to an extremely high speed. The power came from the steam engine, a considerable distance away and was conveyed from the engine to the wheel by a series of line-shafting, pulleys and flat belts as can be seen in the old photograph of John Schofield working with his apprentice – you would certainly not want to get your fingers in the way.

In 1995, Fred Dibnah restored much of the machinery at Wetheriggs Pottery to its former

glory, including the steam engine, pugmill and steam wheel. About the blunger Fred is quoted as saying, "I really, really enjoyed working on restoring this piece of tackle and it was one of the best jobs that I had ever done in all my career."



*Applying the slip*



*Fred Dibnah restoring the wheel*



*19c salt pots*

# The National Museum of Industrial History (USA)

*Chris Hodrien has forwarded this link to an American museum, probably little known to most of our members. The text is copied from the museum's website.*

The National Museum of Industrial History is located on the Steelstacks campus on the former Bethlehem Steel site in Bethlehem, Pennsylvania. The museum houses over 200 artefacts from across the world, telling the tale of America's industrial might and the evolution of industry over time.

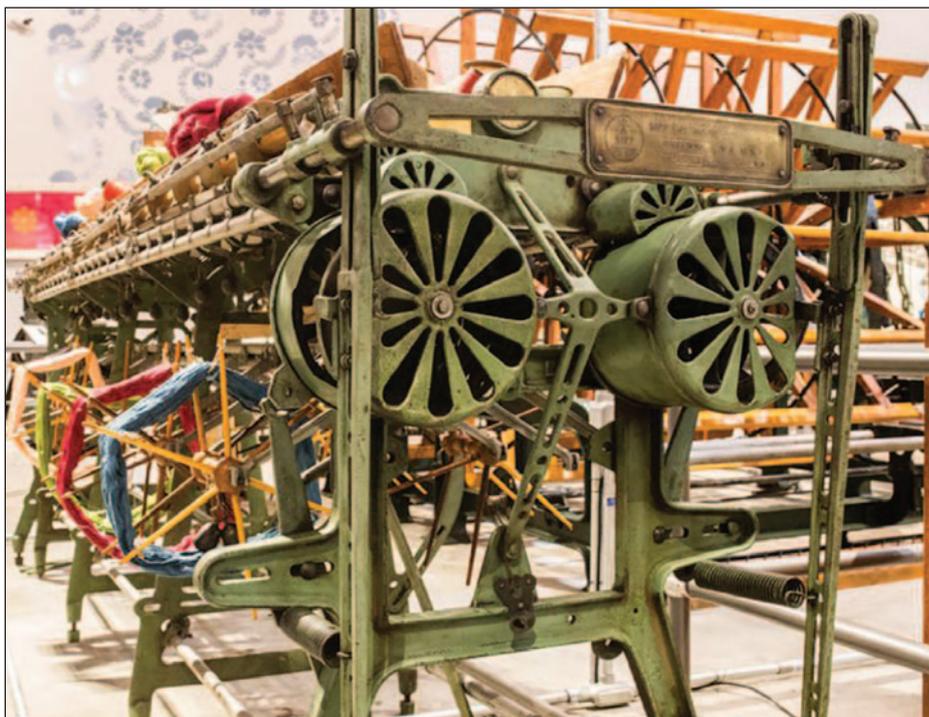
'The story of American industry is about people whose hard work and restless creativity and innovation led to new technologies and inventions that quickly shaped America into an industrial powerhouse supplying products to the world. The extreme scale of industry transformed the American landscape, workforce, way of life, and global perceptions, as well as Americans' perceptions of themselves. NMIH's exhibits explore these national stories through a local lens'.

## Machinery Hall

The first gallery tells the story of American industrial power on display at the 1876 Centennial in Philadelphia. It introduces the Museum's main themes – innovation, transformation, and scale. The exhibit tells the story of moving from foot-powered woodworking machinery to larger, steam-powered metal machining tools and includes 19 artefacts on loan from Smithsonian's National Museum of American History. The most significant artefact is a massive 115-ton Corliss steam engine, currently being restored to operating condition.

## Iron & Steel

The second gallery tells the story of iron and steel as the building blocks of the Industrial Revolution and bedrock of modern, industrial America as it rose to become a world power. This gallery features the stories of transporting, defending,



and building America. It also gives the visitor context for how the local Lehigh Valley, with its natural resources and its industrial boom, became a national icon of industry with Bethlehem Steel. The exhibit dives into how iron and steel are made, the life of a steelworker, and how Bethlehem Steel transformed the nation. Significant artefacts include a 20 foot tall Nasmyth steam hammer on loan from Smithsonian's National Museum of American History, original Bethlehem Steel models of steelmaking processes, equipment from Bethlehem Steel's Homer Research Labs facility, and more.

## Silk & Textiles

The third gallery tells the story of silk and the hard work behind manufacturing this

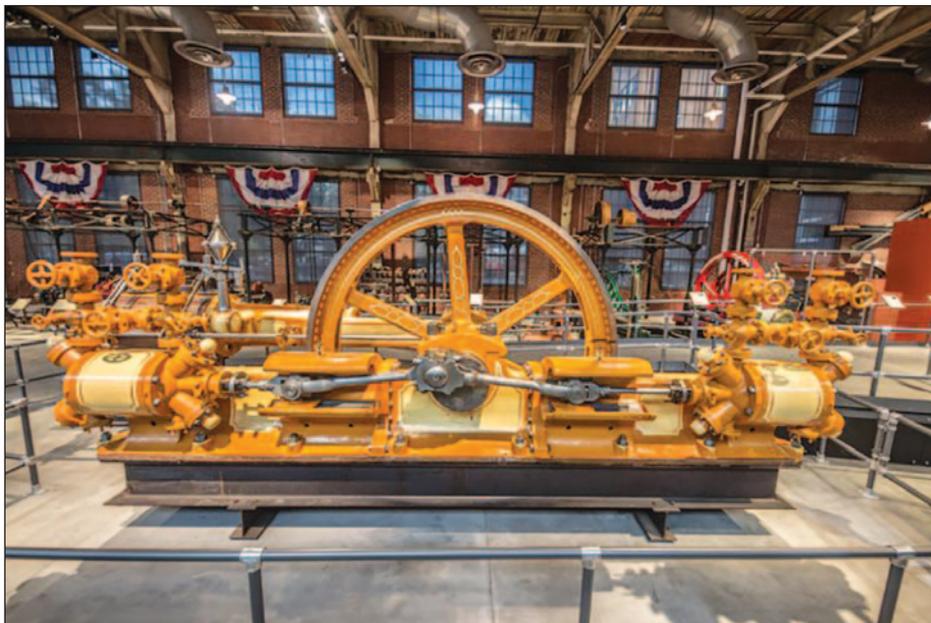
extraordinary product, including how it became more broadly available with industrialized production. It also allows the visitor to learn how women and children, hired as unskilled workers, played an important role in how the silk industry of the Lehigh Valley grew to national importance.

## Propane and Energy

The fourth gallery tells the story of propane as an energy source. It allows the visitor to follow the century-long history of the industry by participating in a series of interactive exercises that address the challenges faced and opportunities seized as the industry adapted to service an ever-growing demand for propane in this country. Visitors can take a virtual hot air balloon ride, as well as learn the story of Walter O. Snelling, an inventor who discovered how to make propane into a usable fuel. Significant artefacts include personal effects, including notes, sales records, and lab equipment from Snelling's family.

## A warm welcome to our new members:

Peter Banbury, Whitstable  
Roger Bisgrove, Griffydham, Leicestershire  
Chris Brown, Ulverston, Cumbria  
Richard Bunce, Fareham (joint member)  
Trevor Earnshaw, Barrow-in-Furness  
(joint member)  
Nils Hagen, Kristiansand, Norway  
Rachel Jones, Bangor  
T Arron Kotlensky, Allegheny, Pittsburgh  
James Miller, Forfar  
Anthony Radstone, Bourne End, Bucks  
Nigel Wall, Ipswich



# The Albion Mines Iron Foundry, Newfoundland

*Most people would associate Newfoundland with fishing and forestry and the more cynical might add fog but they would be surprised to know that mining and iron working was established there as early as anywhere in North America.*

*David Rollinson*

*Research Assistant Nova Scotia Museums*

In June 1827 Richard Smith, a native of Tipton, Staffordshire and the late Mines Agent for the Earl of Dudley's extensive Black Country coal interests, stepped ashore at Pictou, Nova Scotia. Accompanied by experienced deep shaft coal miners, artisans and engineers, Smith was about to launch the Industrial Revolution in Canada's North American colony.

The area to the south of Pictou was known to have significant coal reserves, and some coal had been mined using bell pits or drifts. Surveys in 1826 not only confirmed the presence of coal but reported that the seams were more substantial than first thought and contained bituminous coal. It was to exploit these seams that the General Mining Association (GMA) of London had dispatched Richard Smith, with the intention of exporting coal to the eastern seaboard of the United States, where domestic demand in the growing urban centres such as New York, Philadelphia and Boston was thought to be profitable. The industrial-scale mining operation planned by the GMA was close enough to the East River and the Atlantic Ocean so that a tramway, lighters and schooners could be used to get the coal to market.

The GMA's plans were extensive, and sufficient funds were available to Smith to carry them out. The coal was to be accessed by deep shafts, and steam engines were to provide both pumping and winding services. A tramway was to take the coal from the pit head to the loading point on the East River from where lighters could carry it to deeper water for reloading on to schooners. The company town of Albion Mines was established to provide housing and services for the workforce and their families. Shaft sinking, brick making and engine house erection was carried out with some speed, and the first coal was raised in December of 1827. This is thought to be the first example in North America.

As an integral part of the GMA's plan for an industrial-scale coal field, the company built an iron foundry, complete with a 14 hp condensing steam engine, cupolas, machine shop, pattern shop and sawmill. The brick-built foundry building was, perhaps, 5,000 square feet and was fully equipped to both maintain the original equipment and machinery and also to build new



*Excavation of the foundry interior*

as the need arose. The company erected a blast furnace adjacent to the foundry. This was designed to use local iron ore and limestone and produced cast iron for the foundry, replacing material imported from either England or Scotland.

Archival sources have shown that the foundry was in operation until the late 1860s. It is unlikely that it continued long after that as its machinery would have become outdated and its capacity inadequate. New and larger collieries were developed with their own workshops. The final fate of the building and machinery remains uncertain, although it is recorded that the original foundry engine was in situ in the late 1890s. By the time of the first world war Pictou County was quite industrialized and it is probable that anything made of metal that was surplus to requirements was used as scrap to aid the war effort.

Built on the reclaimed site of the GMA mines complex, the Nova Scotia Museum of Industry opened to the public in 1995. Fortunately, the foundry site was outside the main museum area and in the late 1980s several archaeological investigations of the assumed site were undertaken. The digs revealed masonry features and yielded a large number of artefacts, many of which had foundry connections. In 2016 a public archaeology dig took place on the foundry site and following this further public and professional excavations have been held each summer, yielding additional features and, to a lesser extent, artefacts.

At the same time, research projects specifically related to the working life of the foundry and the community of Albion Mines continue. A key concept for the research is that as

Richard Smith came from South Staffordshire, and would have had personal knowledge of the local workforce; many of the miners and key technical personnel he needed were recruited from the coal mines, iron works and related businesses in that area. There is certainly archival evidence for this assumption, and the research team's collaboration with the heritage communities in South Staffordshire is beginning to prove very fruitful.

Fortunately, a series of detailed maps of the Albion underground workings, produced in 1876, have provided an accurate location and footprint of the foundry building. Our work now is to review an 1840 inventory of the foundry to see if we can locate the manufacturers of the machinery listed among the numerous steam engine builders supplying collieries in South Staffordshire at the time. The two engines that Smith bought with him, one for the foundry and one for winding and pumping, were probably Newcomen-type low pressure engines, a common type on the Staffordshire coal field. While some internal features of the foundry have been exposed, to date no significant masonry plinths or platforms have been located. When they are, it will be useful to have some ideas about their past use.

The Albion Mines industrial complex was the first of its type in North America. While the coal mining was not the financial success its investors hoped it would be, it did establish metal working and manufacturing industries in Eastern Canada. Continuing archaeological investigation of the foundry, and its interpretation, should enhance visitor experience at the Museum of Industry and increase our understanding of early nineteenth century ironworking in North America.

**VISIT THE AIA  
WEBSITE**

[www.industrial-archaeology.org](http://www.industrial-archaeology.org)

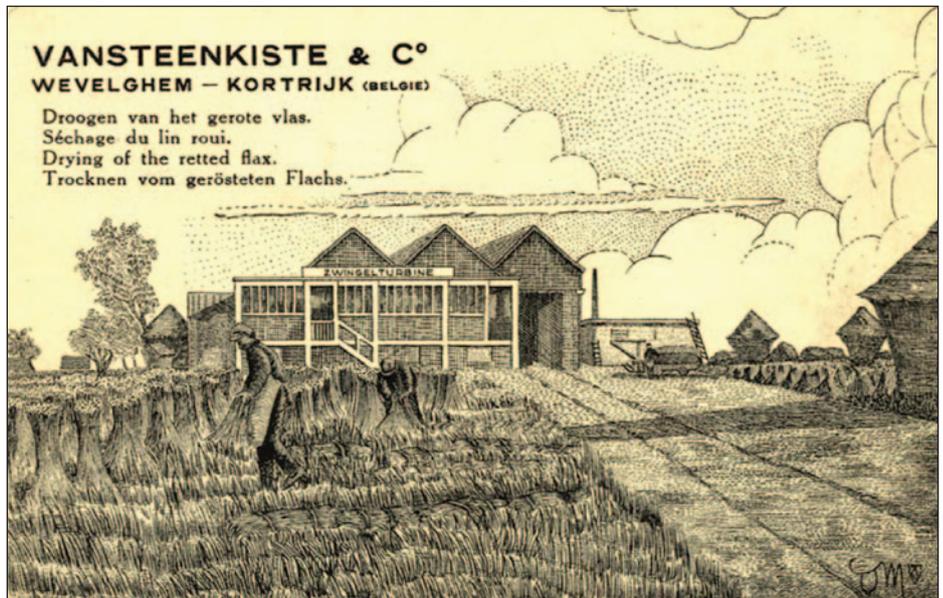
## The Flax Valley

The River Lys rises in France in the Pas-de-Calais and flows east until it flows into the Scheldt in Ghent in Belgium. On the way it passes north of Lille and Roubaix and through Kortrijk in Belgium.

Since the middle ages the valley of the Lys in south-west Flanders has been a centre of production: – flax, textiles and other crafts created the economic and social landscape of the region. Traditionally, it was an area of small industries where, as well as flax, many crops were grown and processed – hops, tobacco, chicory and oilseeds. Flour was milled and beer brewed; windmills and flour mills can still be seen in the landscape and along the river, while many steam engines are preserved.

From early times the rich Ypresian clay was used to produce bricks, tiles and pottery. From the end of the nineteenth century, new large and mechanized tileworks were established using large drying sheds, where the tiles dried under controlled humidity conditions, heated in winter by excess steam from the steam engine, air-conditioned in summer by a stream of artificial air.

Flanders, or more particularly the Lys valley became the major European centre of the linen industry from the middle ages until the beginning



*Drying the retted flax*

of the Dutch market after Belgian independence from the Netherlands in 1830. However, the rise in the price of cotton during the trade embargo during the American Civil War enabled a recovery and new investment in the sector. The flax

to a local inventor Constant Vansteenkiste and the discovery at the Pasteur Institute in Lille of the anaerobe bacteria which were responsible for the retting process.

The 'white flax' from the Lys area, or the 'Kortrijk Flax', became renowned through the world. In the nineteenth and early twentieth century flax from Flanders was sold to spinning and weaving mills in Ireland and Italy; today most of it goes to China.

But flax is more than a plant just producing fibres for spinning and weaving. Flax is a plant of which every part is used; the Latin species name *linum usitatissimum* means 'most useful'. The flax seeds were used in traditional medicine, internally (directly soaked or as tea) and externally (as compresses or oil extracts) for treatment of disorders of the respiratory tract, eyes, infections, cold, flu, fever, rheumatism and gout. They also yield linseed oil.

Most applications of linseed oil exploit its drying properties, e.g. as paint binder. It was first used for this by the Flemish Primitive Painters such as Van Eyck in the fifteenth century. It is also used to produce traditional glazing putty, which consists of a paste of chalk powder and linseed oil, and for wood finishes and gilding. Linoleum is made from linseed oil with wood dust, cork particles and related matter.

Linseed oil is an edible and used as nutritional supplement, also in animal feeds and animal care products. It is used as a rust inhibitor, a lubricant and in leather treatment.

Fibres too short to spin were, and still are, used for papermaking – including American dollar bills. The wooden remains of the stalk were burnt in boilers to generate steam and to produce the warm water for retting - while the ashes were used as fertiliser on the fields.

Information from EFAITH Newsletter March 2020

\*Could this be the most terrifying machine ever made – see picture Ed.



*Scutching using the flax turbine*

of the nineteenth century - and later became the centre of flax fibre production.

The Lys valley had good connections with France, the River Lys and its tributaries (e.g. the Deule connecting to Lille), an early network of paved roads and the Scheldt-Lys canal. The first cross-border railway line in the world, between Kortrijk and Tourcoing, was opened in 1843, and two years later a steam train ran on the Paris-Lille-Kortrijk-Ghent-Brussels line connecting two capitals.

In the first half of the nineteenth century flax cultivation and the production of linen suffered from cheap imported cotton – for which processing was easier and less labour-intensive. Flemish spinners and weavers also lost the French market after Napoleon's defeat at Waterloo, and

spinning frame, invented in 1810 by the French engineer Philippe Henri de Girard (1775 – 1845), was introduced in all flax regions in Europe, as were numerous new tools for flax scutching. At the same time new, easier, healthier (and less smelly) techniques were devised for retting the flax.

The 'industrial revolution' in flax fibre production (retting, breaking, scutching, hackling) took place in South-West Flanders between 1890 and 1914, and spread from there to other parts of Europe – after WWI especially – to Normandy, Holland and Silesia. The development of controlled warm water retting in tanks (not using ponds or rivers) producing better quality white fibres and the automation of the breaking and scutching on a so-called 'flax turbine'\* were due

## Restoration Reports

### The Hat Works

Stockport Council's Hat Works Museum is embarking on some exciting changes to make a more sustainable future.

The Gallery of Hats and the Factory Floor have been temporarily closed to visitors while work takes place. The re-development will restore 30 hatting machines, create a vibrant space for visitors, with better interpretation, new learning facilities and more of its wonderful hatting collection on display.

A grant from the AIA has made this possible and we couldn't be more excited. This will help to restore hatting machines used in the fur-felt hat making processes such as cleansing, blending, forming, planking, finishing and trimming and also machinery used in hat block manufacture.

How good would it be to feel the vibration and hear the rattle of Victorian hatting machines working on the factory floor again? Well it's full steam ahead as restoration began on these magnificent beasts. Specialist engineers have carefully brought them back to life by replacing old gearing systems and corroded wiring, repairing leather pulleys and removing cotton dust.

The machines have been jet cleaned, polished, oiled and are ready to work once more. Some might even blow steam again and get their whistles back! This work has taken many months and there were some challenges along the way.

Throughout the nineteenth century, Stockport was at the centre of British hat manufacturer. Hatting was the region's specialist trade and one for which it was held in high regard across the world. Fur felt hatting is a distinctive and fascinating branch of the ancient art of hat making.



*Fur former – burnished*



*Before restoration*

Stockport has the UK's only museum dedicated to the hatting industry, hats and headwear. Alongside the factory floor of 30 fur felt hatting machines, there is a hatter's cottage, a hat block maker's workshop, a haberdashers and a collection of rare and exquisite hats. The museum opened in 2000 as a popular attraction and is widely appreciated by visitors, groups and schools. It has re-invented itself to become an explosive hub of creativity and innovation for milliners and has contemporary relevance.

However, inspections had showed that urgent restoration was required. If work was not carried out there was a real risk of the machines becoming permanently obsolete.

#### **The work needed involved:**

Replacement, tensioning and treatment of belt staples and leather straps. Lubrication of bearings, replacement of old, corroded wiring, adjustments to fly wheels and replacement of control panels. Removal of cotton-dust which had caused pit-rot, painting, jet cleaning and mineral oil coating to protect each machine. Removal of gearing systems and installation of a control panel and inverter to drive a modified system which reduces wear and tear. Installation of safety devices to allow the machines to be operated during guided tours via remote switches.

It was planned that the initial work would take 12 weeks. This involved an assessment, scoping, procurement and creating a schedule of works. Engineers measured and photographed all the machines – working alongside museum curators and technical staff. They took casts to make bespoke components offsite. Work involved repairs to belts, pulleys, wheels and rods in situ, restoration of woodwork and glazing, plus temporary removal

of parts from our largest machine, the Tangye engine, for adjustments and restoration. The final stage was rust and pit-rot removal, copper polishing, repainting of metalwork, jet cleaning, lubrication and a sparkle clean.

The work to restore the machines has been carefully documented with photographs of the different stages of work.

The grant from the Association for Industrial Archaeology is acknowledged through press releases, written articles, blogs, video, social media, website and on notices displayed on the factory floor.



*Gearing system – cleaned and restored*

## Big Pit Headframe

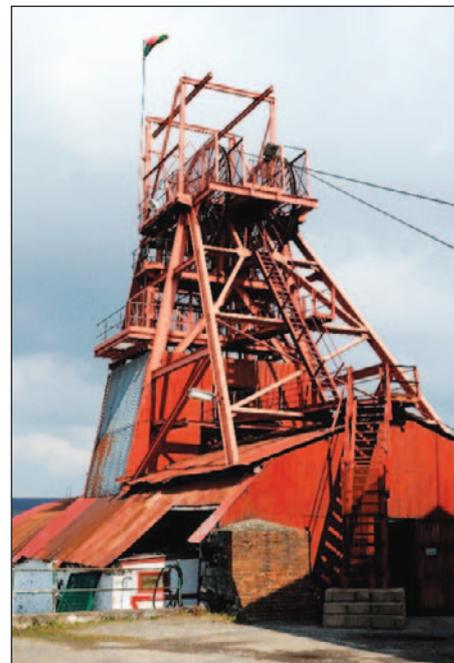
Following a survey of the headframe structure at Big Pit National Coal Museum by Opus International Consultants (UK), in 26 September 2016, it was recommended that a scheme of extensive renovation works be put in place to restore, repair and preserve the entire headframe structure after the discovery of serious corrosion. The steel headframe structure at Big Pit is a Grade II\* listed structure and an important element of the site's rich cultural heritage. Big Pit is a defining feature of Wales' identity as an industrial nation and set in an industrial landscape designated as a World Heritage Site by UNESCO. The all-steel headgear is now the last working winder in the UK that allows visitors an authentic experience of going down the mine shaft.

The essential maintenance work was carried out on the headgear between 2 and 29 September and involved repairing, restoring and repainting the winder.

The project with a total budget of £71,300 was made possible through funding from the National Lottery Heritage Fund and from Amgueddfa Cymru – National Museum Wales. The Association for Industrial Archaeology made a grant of £20,000 from its Restoration Fund.

The work, carried out by JJ Williams Ltd, has now been completed, tested and the winding headgear is back in operation. JJ Williams Ltd has been trading for over 35 years and has won various awards including the Johnstone's 36th Annual Painter of the year awards, and the restoration category for its expert redecoration of Castle Arcade in Cardiff.

Following the successful tender, scaffolding was erected around the headgear on 19 August 2019. The outer scaffolding was erected by night so as not to interfere with normal operations followed by the inner scaffolding erected when the shaft was closed. The work then commenced from 2 September onwards, restoring the headgear and then painting it. The headgear was prepared to ST3 standard before the painting work commenced. Any bare steel was spot primed using Hempadur mastic 45889 primer, then the entire headgear was primed with Hempadur mastic 45889 primer. Once this restoration work was completed the headgear was given a topcoat of Hemptane Topcoat 55610, which will give the headgear long term protection. The entire project was completed, all of the scaffolding taken down and the final checks and snagging done by 31 October.



*Big Pit headframe restored and painted*

During the work, two of the Museum's Mechanical and Electrical apprentices were able to use elements of the restoration, such as the headgear checks and the inspection of the Guide Rope Tensioners, as part of their coursework at Gower College. They are studying for an HNC and BTEC as part of their apprentice qualifications. Using the headframe structure as part of their coursework is an amazing opportunity that very few apprentices have. We're delighted that they could both be involved during the project.

A meeting took place on the 11 December between the site's Mechanical Engineer and Coleg Gwent to look at how the headgear and winding system can be used for an A level mathematics project for the future. This is expected to be in place by March 2020.

The report continues with much information about the handling of visitors while the work was in progress, substituting surface for underground tours and presenting new attractions. These temporary arrangements proved very popular and the Big Pit intends to continue with them even when underground tours restart.

The report was discussed at the AIA Council meeting in February and much appreciated. It was described as a model for restoration projects reports.



## Hope for the Chance Glassworks site

Ambitious proposals to breathe new life into the Chance Glassworks site next to the M5 in Smethwick first emerged in 2016. Progress is steadily being made, with experts having now on board to move the project forward.

It is hoped that 160 two-bed apartments, a small conference facility, café, retail space, heritage educational centre, enterprise space and an iconic 30-metre tall lighthouse – a nod to its past – will eventually stand on the site. In its heyday Chance Glass supplied specialist lenses to 2,000 lighthouses across the world.

Delays and complications with the site led to questions about whether the project would ever come to fruition, but work is now beginning.

The first phase will include the renovation of

the seven-storey building which overlooks the motorway. The project has the support of Sandwell Council bosses and it is hoped work on the site, which has been largely abandoned for almost 40 years, will start next year.

Birmingham-based property consultants Vail Williams LLP recently provided property valuation advice, which will support the acquisition of the building and phase one development works. Shares are being offered to the public to help raise funds for the project.

## Extracts from the minutes of the Council meeting 7 March, 2020

**Coronavirus and Liverpool.** The booking numbers for the conference will be reviewed at the end of April and a decision made whether or not to cancel. Those who have booked should consult the Association's website. The same advice applies with regard to local society and regional conferences, and to Heritage of Industry visits.

On a more positive note, speakers lined up for the Friday seminar on *The Effect of Climate Change on Heritage Sites*, should it go ahead, will include Rob Williamson, Miles Oglethorpe and David Knight. David de Haan has been invited to give a paper on the impact of the floods in Ironbridge.

### **Vacancies on Council.**

Members are urged to seek and nominate members to join Council at the next AGM, whenever that might be held. There will be five vacancies, and ideally we would like to see younger people and a Council more reflective of the national gender balance.

The most crucial post to fill is that of Newsletter Editor: see the advert in this issue, and please contact Chris Barney directly for further information.

### **Giving our past a future.**

One of the key outcomes of this meeting was a proposal by Geoff Wallis to establish a Young Members Board, the exact name still to be decided, as a sub-committee of the Association. The purpose is to engage with members who are mid-career, or younger, to ensure that our industrial past itself has a future, and create a pool of possible future main Council members to carry our work forward.

Geoff's proposal was agreed in principle, and he has subsequently drafted a detailed proposal for discussion at the June Council meeting.

Following the General Election the **All Party Parliamentary Group for Industrial Heritage (APPG-IH)** has been reformed for the ensuing year. David Perrett attended this meeting during which Nick Thomas-Symonds MP was re-appointed Chairman, and all the officers were re-appointed. Shane Gould gave a presentation covering Heritage at Risk sites, an overview of the 600 preserved Industrial Heritage sites in England, the lack of available training, and that there are no relevant university courses.

{Nick Thomas-Symonds has since been appointed Shadow Chancellor}

**Restoration Grants:** John Jones commented that since the scheme began in 2008, donations and gift aid claimed on them amounted to almost £950k. In 2020 there will be £153k available for new grants.

Following an earlier decision that a Small Project category should be introduced, at the time of the meeting only one application had been received ahead of the 31st March deadline. The criteria for this category are on the website, along with the criteria for the larger grants.

Comprehensive coverage of the progress on recently-funded projects is to be found in *IA News*.

**Planning Casework.** Amber Patrick, our casework officer, explained the details of our new working relationship with the Ancient Monument Society (AMS) which replaced one we had with the CBA. Commenting on planning applications is an important part of the Association's work; the *IA News* normally carries a report on this work, and fuller details are to be found on our website under News/Planning.

The **Communications** team reported on the progress of the new quarterly *e-News*; it is now circulated to 600 members, supporters and other groups. The feedback received has been positive.

An email was circulated in January highlighting the awards and grants we offer to students and academic researchers, this was sent to almost 30 UK university departments which have courses that include an element of industrial archaeology or heritage.

**IA Review.** The next issue, due in May, at around 90 pages will be our largest ever normal issue. This will include articles on: water-powered textile manufacturing sites in Nottinghamshire; the process of industrialization in County Durham's Derwent Valley; the remains of an 1805 railway in Cheshire; and articles relating to tobacco factories in Spain and sulphur mining in Chile.

**Mike Nevell, our Chairman** has left Salford University to become the Industrial Heritage Support Officer, based at the Ironbridge Gorge Museum. He started in March with a good hand-over document from his predecessor, Joanna Turska. He is looking to set up the three final Industrial Heritage Networks, to reinstate the meetings of the others and to work on promoting sites in Historic England's Heritage Sites at Risk register.

**Awards.** Marilyn Palmer has revised the Publications and Dissertation Awards criteria, and drafts have been circulated for Council's discussion. It was agreed at Council that future award winners would be offered two years free membership.

### **Other matters deliberated on:**

2019 financial accounts have yet to be audited, but they will show a small operating surplus for the year.

Membership at last year-end was 496, down slightly on the previous year.

Data for 2019 has still to be provided by Taylor & Francis, but institutional access to the Review, via subscription, sales deals, or subject collections continue to grow. Additionally, there were almost 8,900 individual article downloads in 2019. All this activity demonstrates a healthy and growing interest, both nationally and internationally, in *Industrial Archaeology Review* and in our Association's work.

*Bruce Hedge*

## AIA Restoration Grants

As the total distributed since 2008, together with the money still available in the AIA Restoration Grant Fund, approaches a million pounds, it is apparent that the scheme is now well known in the IA world and clearly a considerable success.

The scheme started with a generous donor who wished (and wishes) to remain anonymous. This individual continues to support the scheme very generously and has recently been joined by another. They are known to the Council as AD1 and AD2! The fund also benefits from the government Gift Aid scheme which allows the AIA to claim the tax back on donations, adding 25% to the total.

Over 30 applications are received each year and the AIA is able to make about eight to ten grants. While we are pleased to support many excellent projects which have been described in the *IA News*, unfortunately many other worthy schemes have to be disappointed. There are a number of conditions to the grants, such as providing a suitable report to the *IA News* and publicly acknowledging the support from the fund.

In deciding which projects to support an important consideration is that the grant must represent at least a quarter of the cost of the project – this precludes grants where the AIA contribution would be lost in a major scheme and directs our funds towards more modest projects which often have difficulty in raising money. We also like to support schemes where there is a substantial volunteer input. A proportion of the money is now set aside for small schemes with minimum administrative resources as it is recognized these projects can have particular problems.

The AIA Council is well aware that many members would like the Association to do more and we would if we could. We are therefore appealing to any members who would like to support the fund by donating to it, either regularly or as a single donation. Any such contributions could be publicly acknowledged or anonymous.

Recently the Association was delighted to receive a generous legacy from a long-standing member and this could be another way in which to support restoration projects.

If you would like to help please contact our Treasurer, John Jones.

### **Richard Hartree**

We are sorry to announce that Richard Hartree, has died after a long illness. He was the AIA Hon Treasurer from 2003 until 2005 and a regular member of AIA Spring Tours.

A full obituary will follow in the next edition.

# General Report of the Trustees for the year ended 31 December 2019

The full report will be presented to the AIA Council in June and, if approved, it will be circulated to all members before the AGM. Some sections of the report are omitted here but will be included in the report as circulated.

## Objects and activities

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

## Council Meetings

In 2019 the AIA Council met three times: Leicester in March, London in June and Ironbridge in October. Extracts of the meetings were posted on the AIA website and reported in *IA News*.

The Secretary fielded 34 Restoration Grant applications in the weeks approaching the closing date of 31 March, before seeking the views of judging the Panel. This was the highest number since the grant programme began. Council's approval was sought for their shortlist at their June meeting in London. Details of the decisions are given later in this report.

## Lobbying, Advocacy and Communication

### Planning Casework

During the year Amber Patrick, the Planning Casework Officer, looked at 78 industrial archaeology cases and commented on 15 of them, including referrals either from local authorities or direct from AIA members. It had been agreed in October 2018 that the Ancient Monuments Society (AMS) and the AIA work together on applications in respect of industrial buildings/sites cases. This was implemented in June 2019 and has worked well. The AMS undertake the initial sift and refer appropriate cases to Amber Patrick indicating whether they wish to comment; she checks the application and if appropriate submits comments on behalf of the AIA. If the AMS is also commenting then we draft a response including appropriate guidance and legislation, sent with sufficient time for them to submit the comment.

### Communications Plan and e-News

A working party was set up to produce a Communications Plan and in March the details, purpose, roles and responsibilities were agreed. A

high priority was a quarterly e-bulletin, which Ian West compiled and Bill Barksfield circulated. Council has noted that the social media reach is growing and at the beginning of the year there were 2,748 followers on our Facebook page. Paul Collins, the Facebook manager, was commended for this.

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

Due to all the other business that Parliament had to deal with, including a General Election, the only event in 2019 was the Industrial Heritage summit, which took place on Thursday 11th July. This event – thought to be the first ever national summit to promote the value of the UK's industrial heritage – was held at the Victoria & Albert Museum in London, with an invited audience of 100 speakers and delegates representing the industrial heritage sectors in all four nations of the UK. The AIA was very well represented not only as delegates, but our Chairman, Mike Nevell gave one of the keynote speeches, President, Marilyn Palmer, Vice-President, Sir Neil Cossons, and Joanna Turska were speakers and panellists.

## Annual Conference

The Association held its annual conference at the Cannington campus of Bridgwater College from 9th-14th August, organised by Peter Daniel. At the Friday Seminar on 'Tourism and Industrial Archaeology and Heritage' presentations were given on Historic England's Industrial Heritage Strategy, on Industrial Heritage Networks, Timber and Tin, Disability Access, Industrial Tourism in Ironbridge, the European Route of Industrial Heritage and on Chinese Railway Museums. The following day there were lectures on the Grand Western Canal, Coker Sailcloth, the Somerset Coalfield and an update on the Restoration Grants. These were followed by presentations from five recipients of awards before the annual dinner at Taunton Racecourse. After the AGM on 11th August attended by 76 members and guests Dr Peter Stanier gave the Rolt Memorial Lecture on 'Landscape without Machines: remembering the little things'. On subsequent evenings there were lectures on Hope Cement works, land drainage in Somerset, and Yeovil's gloving industry.

On the Sunday there were three concurrent visits – to the Brick & Tile Museum, the town and docks of Bridgwater, to the West Somerset Railway at Williton and Minehead, and to Coldharbour Mill at Uffculme. On Monday half the delegates visited land drainage pumping stations at Gold Corner, Currymore and Westonzoyland, while the rest went to Chard Museum, Hornsbury Mill, Burrow Hill cider farm, and Coates willow farm at Stoke St Gregory. On Tuesday there were two visits – either to the iron mining sites in the Brendon Hills, the West Somerset Mineral Railway and Watchet harbour, or to the Fleet Air Arm Museum at Yeovilton,

Dawes Twineworks at West Coker and quarries at Stoke-sub-Hamdon. On Wednesday there were two more visits. The first was to the Mendips and covered Moons Hill quarry at Stoke St Michael and the adjacent Earth Science Centre, Whatley quarry, a large hole at Asham Wood and a short ride on the East Somerset Railway from Cranmere Station. The second visit went to Street, home of Clark's Shoes, to the old Anglo-Bavarian brewery at Shepton Mallett, to Boyd's Horsehair works at Castle Cary and to the Rose & Crown pub at Huish Episcopi. A full illustrated report appeared in the winter edition of *IA News*, number 191.

Full credit must go to Peter Daniel, Iain Miles and Mary Miles and for the excellent support from John McGuinness and Steve Miles. Our thanks also go to the many host organisations for their involvement with the study visits.

## Publications

*IA News*: Our quarterly is the bulletin and main communication organ of the AIA. Four full and informative issues under the editorship of Chris Barney were published in 2019, encouraging high standards in all aspects of the study of industrial archaeology. Illustrated reports covered all the Association's activities as well as short technical articles, reports on the work of the AIA Council, affiliated societies, regional news, international news, visits, conferences, letters, etc. Highlights during 2019 included illustrated reports on current AIA grant-funded restoration projects, our annual conference in Bridgwater, tall chimneys, the Spring tour in Hungary and the Wenzhou alum mine in China.

We were saddened to lose several long-standing members during the year, and obituaries for Tony Yoward, Jim Arnold, Ray Riley, Richard Hills and Joan Day appeared in *IA News*.

*IA Review*: Peer reviewed and with an international Editorial Board, the journal of the AIA is now in its 40th year and was edited by Dr Ian West and Ian Miller with Rebecca Haslam as Assistant Editor. Published by Taylor & Francis, we have seen a dramatic increase in article downloads.

Vol 41.1, the first issue for 2019, was delivered in late May. It contained articles on a range of national and international subjects, including the first contribution to *IAR* from China, which charts the evolution of salt production in the Three Gorges region up to the late 19th century. The second international article examined the adoption of British steam-engine technology on Caribbean sugar plantations. Other articles are on china-clay production in Devon, the excavation of a locomotive and carriage works in London, a study of a lock-keepers cottage on the Regent's Canal, and an account of the sources of mill stones across Ireland. All 80 pages in the new format had been filled, and 34 pages were in full colour.

Issue 41.2 was circulated in November and carried Geoffrey Stell's 2018 Rolt Lecture on



Langham Hill Mine – a showery day during the Bridgewater Conference

Science and Engineering at War in Orkney. It was otherwise a themed issue on the subject of iron manufacture and processing. Papers covered English iron-working sites that include new historical evidence for Coalbrookdale, and excavations of ironworks in Tyne & Wear and South Wales, together with a slitting mill in Cheshire. A further paper considered aspects of the iron industry in the US Confederacy.

## Awards

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

The winner of the **Peter Neaverson Award** for Outstanding Scholarship was John Barnatt of Historic England, for *The Archaeology of Underground Mines and Quarries in England*.

The **Voluntary Societies Publication Award** went to Dr AH Andrews (editor) of Staffordshire Industrial Archaeology Society, for *SIAS Journal No 25 – Golden Jubilee Edition*.

**Archaeological Report Awards:** Two awards were made to John Pickin, Penny Middleton and Kate Chapman of Northern Archaeological Associates, for *Low Bonsor Dressing Mill: Archaeological Community Landscape & Building Survey*, and for *Penny Rigg Copper Mill: Archaeological Community Landscape & Building Survey*.

**The Postgraduate Dissertation Awards:** The winner in the PhD category went to John Bowman, School of History, Classics & Archaeology, Newcastle University, for *The Iron and Steel Industry of the Derwent Valley*. The winner of the MA category was Samantha Frandsen, MSc in Exploration Geophysics, University of Leeds, for *A multi-platform geophysical investigation of an industrial archaeology site: Microgravity surveying and modelling constrained by GPR & ERT, applied at the former Elsecar Gasworks (Barnsley)*.

**The Dorothea Award:** The award went to the Ellenroad Steam Museum, Rochdale for the rebuilding of a horizontal steam engine. Manufactured by the Railway & General Engineering Company of Nottingham, it was originally from Downing's Brick & Tile works near Stoke on Trent.

**Research Grant:** This new award was first offered in early 2019. Two awards were made:

To Charlotte Gooode for travel to and a survey of the Gamble sugar plantation, Ellington, Florida. £820; and to Karen Pollock for recording historic graffiti (1860s to 1940s) at Dinorwic Quarry Hospital, Llanberis, Wales. £680.

**Creative Re-use Award:** The award went to the University of Northampton for a former 1872 railway engine shed and office which have become the headquarters for the Students' Union. With the help of Heritage Lottery Funding, the engine shed has been restored back to its original state externally, complete with lantern roof. It now houses the HQ of the Students' Union, with a café, games area and meeting spaces in a two storey 'pod' at the far end. There are glass doors to some rooms, engraved on which are various old images of the railway, maps etc., which are an innovative reminder of the origins of the building. The small office not far away now serves as the student post room, and a section of railway line has been installed between this and the main shed. The original inspection pits were uncovered during the refurbishment, but after recording they are once again hidden beneath the floor. The building therefore provides a number of ways of giving new generations of students an understanding of the heritage of the site. The Engine Shed is also open to the public as a café from 9am-5pm Monday to Friday.

## Restoration Grants

In 2019 the Association received further very generous donations from our two anonymous donors to support our Restoration Grants. As in previous years new restoration projects and progress on the on-going ones were reported in greater detail to the annual conference in August. As usual the fund was heavily over-subscribed and this year there were 34 applications requesting total grants of £530,301. This was the highest number so far. The spread included: five locos; five buildings; five vessels; four water mills; four for machinery; four vehicles; two stationary engines; one mining headgear; one railway carriage; one aeroplane; one timber waggonway and one signpost.

Eight awards were made totalling £130,683, listed below in the order of ranking by the Grant Panel:

Stephenson Railway Museum, Tyne & Wear, for the preservation of an early 19th century timber waggonway for display in Newcastle

Discovery Museum. £11,000.

Chatham Historic Dockyard Trust, for the restoration of 1854 rope-making machinery. £17,200.

Macclesfield Silk Museum, for the conservation of two Jacquard silk weaving looms to allow them to be demonstrated. £16,000.

Big Pit, National Museum Wales, for the restoration of headframe structure. £20,000.

Gwili Vintage Carriage Group, for the restoration of chassis, running gear and brake gear of Taff Vale Railway locomotive No 28 of 1897. £18,250.

Hat Works Museum, Stockport, for the restoration of belt drives, lubrication and air jet cleaning of 30 fur felt hatting machines. £16,463.

Bristol Aero Collections Trust, for the Restoration of 1954 Bristol Freighter Type 170 by volunteers. Transport, tools and equipment. £11,770.

Susan Trust, Chelmsford, for the Restoration of the 1953 wooden lighter 'Susan' from the Chelmer & Blackwater Navigation. £20,000.

## Industrial Heritage Support Officer

Building on the work begun in late 2018 to establish Industrial Heritage Networks (IHNs), there are now groups in eleven regions of England, each resending between 20 and 50 organisations and sites. The first networks were in the North East, the South West and the West Midlands. Since then there have been further networks set up in Cornwall & Devon, the East of England, the East Midlands, Hampshire, London, the North West, the South East and Yorkshire. During 2019 meetings were held in ten of the eleven regions, each one attended by the Industrial Heritage Support Officer, Joanna Turska.

A dedicated web site offers an information hub, blog posts and support, with guidelines that can be downloaded from [www.industrialheritagenetworks.com](http://www.industrialheritagenetworks.com). It includes a role description for Industrial Heritage Network Co-ordinators. These are volunteer roles aiming to provide a professional development opportunity for junior staff members and volunteers across the industrial heritage sites/organisations who join IHNs. These Co-ordinators have been trained and line managed by the IHSO and deliver various tasks including administration, organisation of IHNs meetings and social media output. The key aim of the IHN Co-ordinator roles is to address the skills gap and shortage across the sector (soft skills, social media skills, etc.).

Other work included the IHSO's attendance at the Association of Independent Museums Conference and providing articles about the IHNs for the Association of British Transport Museums' newsletter, the AIA newsletter and the new AIA e-bulletin. Joanna Turska left the IHSO post on the 30th August 2019 and was replaced in March 2020 by Mike Nevell.

## Visits

**Country House Comfort & Convenience tours**  
A new tour for 2019 led by Ian West, 'Weald of

Kent & Sussex', took place 3rd to 6th June. 18 people in total enjoyed visits to Petworth house and the nearby Coultershaw water driven pump, Nymans, the Salomons Estate, Bateman's (former home of Rudyard Kipling) and Scotney Castle. A further tour, 'The North West', also led by Ian West began on 30th September and featured visits to Lyme Park, Quarry Bank Mill & the Greg family house, Tatton Park including the water-powered water pump house, and Dunham Massey.

## Spring Tour 2019, Hungary 13th – 18th May

In a busy schedule the Tour included a ride on the famous 'Pioneer' Railway (operated by children) and visits to the Szentendre Open Air museum, a Coal Mine, a Windmill, the Paks Nuclear Power Plant, a Boat Mill, the Technical Study Stores in Budapest and ended with a dinner cruise on the Danube, all of which was very well received by the group. There were 44 people in total including Bill Barksfield, and Ágnes Walker who took the vital role of interpreter.

## Financial statements

The net surplus for the year amounted to £21,338, with £18,482 attributable to restricted funds, £nil to designated funds and a surplus of £2,856 attributable to unrestricted funds (2018: net surplus of £103,987, with £95,559 attributable to restricted funds, £nil to designated funds and a surplus of £8,428 attributable to unrestricted funds).

In preparing this report, the Council has taken advantage of special exemptions applicable to small companies conferred by Schedule 8 of the Companies Act 2006.

## Reserves Policy

The policy remains unchanged from 2018 whereby Council maintains a contingency for a late cancellation of the annual conference, for a cancellation of an issue of *Industrial Archaeology Review*, and for a sufficient reserve to cover cash flow fluctuations during the year. The Council considers that a reserve of not less than £60,000 is required.

## Changes on Council

Tony Crosby and Mark Watson left the Council at the AGM and their places were filled by Joanna Turska and Geoff Wallis. David Perrett became the Vice Chairman. Tony Crosby was co-opted. However, shortly after the AGM both Joanna Turska and Shane Kelleher resigned due to pressure of work. The Honorary Secretary continued to act as the Liaison Officer, who throughout the year supported Council, dealt with queries and forward information to the appropriate quarter and managed the applications for Restoration Grants. We are very grateful to all officers and members of Council for the extensive amount of time and effort that they commit voluntarily to ensure the smooth running of the Association through Council and its committees.

David de Haan  
Hon Secretary



*The Engine Shed reopened*

The 2019 award was presented by the President, Marilyn Palmer, together with Chris Barney, Editor of *IA News*, to the Engine Shed in the University of Northampton on 5 February 2020. Receiving the award were Simon Badcock, the Project Manager, Estates and Campus Services, and Kathryn Baker, Students' Union Vice President Welfare.

The University of Northampton has developed a splendidly spacious new Waterside Campus which opened to students in September 2018. Surviving on this site, amongst its new state-of-the-art campus buildings, was a former railway engine shed and office which have become the headquarters for the Students' Union on the Campus. The brick-built engine shed of 1872 was situated at Hardingstone Junction, where the Midland Railway's Northampton (St Johns) to Bedford railway line met and crossed the London and North-Western Railway's Blisworth to Peterborough line. The area adjoins the River Nene and had been developed as an industrial site. The building ceased to be used as an engine shed in the early 1920s and then remained empty for a long time, but in the 1960s it became a welding school for British Railways. This closed in 1998, and the shed was the victim of an arson attack in 2000, which destroyed a

large portion of the roof at the western end of the building. It then became derelict and covered in vegetation, as the various excellent display boards around the building show.

With the help of Heritage Lottery Funding, the engine shed has been restored back to its original state externally, complete with lantern roof. Inside



*Kathryn Baker – Students' Union Vice President Welfare and Simon Badcock - Project Manager receiving the award from Marilyn Palmer*

some of the original trusses are still in place. It now houses the HQ of the Students' Union on the campus, with a café, games area and meeting spaces in a two storey 'pod' at the far end. Here there are glass doors to some rooms, engraved on which are various old images of the railway, maps etc which are an innovative reminder of the origins of the building. The small office close by serves as the student post room, and a section of railway line has been installed between this and the main shed. The original inspection pits were uncovered during the refurbishment but, after recording, they are once again hidden beneath the floor. The building provides a number of ways of giving new generations of students an understanding of the heritage of the site. The Engine Shed is also open to the public as a café 9am-5pm Monday to Friday.

Marilyn Palmer



*Before restoration*

## Radius bricks

Robert Carr's articles are always very informative; however, I was especially interested in his reference to 'radius bricks' (*I A News No 192*).

In 1995 when working on the rearrangement and development of the REME apprentice school at Arborfield, near Reading, I recovered four radius bricks from the stump of what must have been a small chimney. These are extruded bricks of two types, a header brick 270mm long and tapering from 210mm to 195mm and a stretcher which is smaller 100mm wide with the length diminishing from 155mm to 140mm.



Fig 1 Chimney bricks from Arborfield

I was unable to take a photograph of the bricks in situ, so the bonding must now be conjectural. I believe that the taper on the header bricks allowed both for the circular nature of the work but also allowed for the same width stretcher brick to be used on the inside as well as on the outside. Photograph 1. shows a probable bonding.



Fig 2 Staffordshire blue bricks

When I moved house some eleven years ago there were a number of standard sized radius Staffordshire blue bricks in the garden. What their intended purpose was is unknown. The header bricks are 220mm long and the width tapers from 150mm to 80mm. The stretcher bricks are 110mm long and taper from 210mm to 195mm. Photograph 2 shows a possible bonding if they were to be used in a curved wall.

It is unlikely that these were for use in arches, when voussoirs would all have been full length and the same in shape, with no horizontal bonding.

I would be very interested in any comments or suggestions.

*John McGuinness*

## Wetheriggs Pottery

Planning permission has been granted (with conditions) to build six luxury detached properties on the historic site of Wetheriggs Pottery, a scheduled ancient industrial monument located near Penrith, Cumbria.

Until quite recently Wetheriggs Pottery was a historic visitor attraction trading strongly with over a 100,000 visitors per year, where people could see traditional pottery being made, make a pot themselves and buy pottery to take away. [For a description of the works and processes please see page 10]

In relation to planning approval, considering the importance of this listed and protected site, there has been no effort by the authorities or developers to bring awareness to the local community as to what has been proposed.

We feel this development cannot be allowed to proceed, more public awareness needs to be raised and investigations made, to shine a light on what has happened here, and the possibility of the site being taken into trust, or a trust being formed, publicly or privately, to save Wetheriggs Pottery for the benefit of future generations.

Hopefully a way can be navigated forward whereby Wetheriggs Pottery, a site of national historic industrial importance, can be preserved. Any help which you can provide or suggestions of ways forward would be greatly appreciated.

*Russell Akerman*

Editor's note Unfortunately this application was not referred to the AIA and therefore there was no opportunity to comment.

## Warmley Water Works

Unfortunately, despite all the negotiations and requests for a meeting with the South Gloucestershire Council and a petition supported by 748 people, the buildings and the chimney on the site have now been demolished.

There has been a battle for years for local residents whose lives have been blighted by noise and fumes from use of the site by bin lorries. Local and national conservation groups objected to the planning application for demolition as did the council's own conservation officers and some councillors.

The site was Cowhorn Colliery during the 1800s and then used, from 1906 to 1970, by the West Gloucestershire Water Company to extract water by pumping up the shaft.

Unfortunately English Heritage decided the site was not considered worthy of grade 2 listing and sadly, it had never been locally listed either.

There are lessons to be learned from the process. First we need to come up with a costed plan for a new use for sites such as this at a very early stage, secondly we need to act to save any

worthy structures by ensuring that at least local listing is obtained

Thanks again for all the support for this petition.

*Richard Gosling*

## Historians beware

I've been researching Greenwich engineer Joshua Beale who leased a site at Enderby Wharf in the 1840s and was in partnership with them for a scheme which used naphtha. I found a reference in *Graces Guide* to a partnership 'Beale and Henderbury'. Following it back I find it mentioned in late nineteenth century journals – all of them probably copying off each other – and some more modern uptake by family historians. Now, I don't know about you, but I think that whoever wrote that original nineteenth century article just misheard 'Enderby' and wrote 'Henderbury'. So over the past 140 years Mr. Henderbury, the engineer, has acquired an existence he never had in real life.

*Mary Mills*

## In Bruges



*The Bruges crane*

*John Outram*

Escaping the Christmas market madness in central Bruges and following the 'windmill walk' in the guidebook, I came across something much less common – a wooden treadwheel crane on a canal wharf. Post-visit research reveals this is a 2002 small-scale replica, built for when the city was the cultural capital of Europe. The original was from 1288, rebuilt in 1434 and in service until 1767. There were two in Bruges in the sixteenth century, each able to lift a ton when worked by four men; two men were used for lighter loads.

At first, I thought the boxing-in, under the jib, was modern artistic licence, to keep people out, but Bruegel painted one just the same in his 1563 *Tower of Babel* picture, albeit without shelter for the treadwheels (*magna rota*). Next time you're in Bruges, head over to *Wulpenstraat!*

*John Outram*

## Local Society and other periodicals received

Abstracts will appear in *Industrial Archaeology Review*.

*Bristol Industrial Archaeological Society Bulletin*, 160, Spring 2020

*Cumbria Industrial History Society Bulletin*, 106, April 2020

*Greater London Industrial Archaeology Society Newsletter*, 306, February 2020

*Historic Gas Times*, 102, March 2020

*Irish Railway Record Society Journal*, 201, February 2020

*Merseyside Industrial Heritage Society Newsletter*, 396, April 2020

*Northamptonshire Industrial Archaeology Group Newsletter*, 153, Winter 2020

*North East Derbyshire Industrial Archaeology Society Newsletter*, 77, February 2020

*Railway and Canal Historical Society Bulletin*, 483, February 2020

*South West Wales Industrial Archaeology Society Bulletin*, 137, February 2020

*Suffolk Industrial Archaeology Society Newsletter*, 148, February 2020

*Surrey Industrial History Group Newsletter*, 225, February 2020

*Sussex Industrial Archaeology Society Newsletter*, 185, January 2020

*Sussex Mills Group Newsletter*, 185, January 2020

*The Trow: Cotswold Canals Trust Magazine*, 188, Spring 2020

*Worcestershire Industrial Archaeology and History Society Newsletter*, 55, December 2020

*Yorkshire Archaeological Society Industrial History Section Newsletter*, Early Spring 2020

## Tooley's Boatyard, Banbury

Tooley's Boatyard was once a thriving centre for horse-drawn wooden boats. Unlike so many other yards which are now long gone, Tooley's has been in continuous operation since it was built in 1778 and is now listed as a scheduled monument.

It is particularly known as the starting point of the historic voyage, in 1939, of *Cressy* and LTC Rolt, the first President of the AIA.

Tooley's is now entering a new and challenging chapter. A charitable trust has been established to take on a 150-year lease of the site, ensuring that it remains open to visitors whilst also securing the future of the boat-repairing business. A grant from the Architectural Heritage Fund is enabling Tooleys Boatyard Trust to employ Andrew Townsend Architects to undertake a detailed condition survey and plan the physical changes that are necessary to secure safe access for all. Alongside this, outline proposals for improved interpretation are being developed by Exhibition Plus and market research undertaken by Creative Heritage Consultants Ltd to explore options for securing long-term economic sustainability. Key to this will be an understanding of the needs of Banbury, its residents and visitors, so that the Boatyard can contribute to the vitality and prosperity of this historic town.

## Wind Tunnel Listed

A wind tunnel designed to test how pilots might overcome fatal spins is one of the latest structures to become a listed building. The Vertical Spinning Tunnel part of a former laboratory complex in Milton Keynes in Bedfordshire is now Grade II. The upright steel tunnel built between 1948 and 1953 was designed so that aeroplane models up to 7 ft wide could be positioned above a large fan. The tunnel is still in working order and, today, is used by people wanting to simulate the sensation of sky diving.

Reported in the Times 20 December 2019 and noted in the Northamptonshire IA Newsletter 154

## Lichfield Water Works

Historic England have placed the site on the Heritage at Risk Register. This is indeed sad news to see that this magnificent piece of industrial heritage is now officially at risk of permanent loss.

However, on a more positive note, the Trustees met with Persimmon Homes Ltd on 18 February. Our initial assessment of the meeting is, Persimmon have offered us a 50-year lease at £1.00 per year with a 5-year break clause.

This is much more advantageous to the Trust than we expected. The only really grey area is around the repair and maintenance point, which we can negotiate/argue about a bit further down the line.

It is important to understand that the building is in quite a poor state of repair and the trust will need to raise a considerable sum of money and considerable effort to bring the building back into reuse.

## Neil Redfern to be Director of CBA

The Council for British Archaeology is pleased to announce the appointment of Neil Redfern as Executive Director.

Neil joins the CBA after a distinguished career in heritage, most recently as Development Advice Team Leader and Principal Inspector of Ancient Monuments for Historic England.

During his time at Historic England Neil led teams delivering award-winning development advice in Yorkshire, developed their response to major environmental threats as part of the National Heritage Protection Plan and initiated a major project on the Yorkshire Wolds to address monuments at risk from cultivation, amongst other achievements.

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

This conference has been postponed to a new date as shown below, however this is provisional on the lifting of restrictions and social-distancing advice relating to the coronavirus pandemic.

**SATURDAY, 26th SEPTEMBER 2020 – ELIM CONFERENCE CENTRE, WEST MALVERN, WORCESTERSHIRE WR14 4DF**

The Worcestershire Industrial Archaeology and Local History Society (WIALHS) are pleased to invite you to attend this conference which we are proud to host in our 50th year since founding in 1971. We have chosen the splendid venue of the Elim Conference Centre in Malvern. As a residential college, the venue can offer accommodation to those wishing to arrive on Friday 25th September. Delegates to the conference should contact the venue directly on 01684 588967 to book. A special rate for B&B has been negotiated, but spaces are limited. Why not come early and book a visit to the Morgan Motors factory in Malvern—01684 892295 for details?

#### The draft programme includes

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

At least one other speaker to be confirmed

#### Visits after the conference are to be confirmed but include:

Malvern Town Centre, the Priory and water spouts; Great Malvern Station; Geology of the Malvern Hills

The conference fee of £23 is inclusive of refreshments morning and teatime and a three-course hot lunch. The programme and booking form is now available on our website at [www.wialhs.org.uk/aia-regional-conference-2020.html](http://www.wialhs.org.uk/aia-regional-conference-2020.html). Any queries phone Christine Silvester 01905 354679 or email [conference@wialhs.org.uk](mailto:conference@wialhs.org.uk)

## DIARY

20 – 27 August 2020

### AIA ANNUAL CONFERENCE, LIVERPOOL

NB The decision whether to hold this event will have been taken before this edition is published

26 September 2020

### SWWRIAC

South Wales and West of England IA Conference

Elim Conference Centre, West Malvern

see notice page 23

10-13 June 2021

### 7TH INTERNATIONAL EARLY RAILWAYS CONFERENCE

National Waterfront Museum, Swansea

30 August to 4 September 2021

### TICCIH CONGRESS XV111

Montreal, Canada

2021 AIA Conference

### Dublin

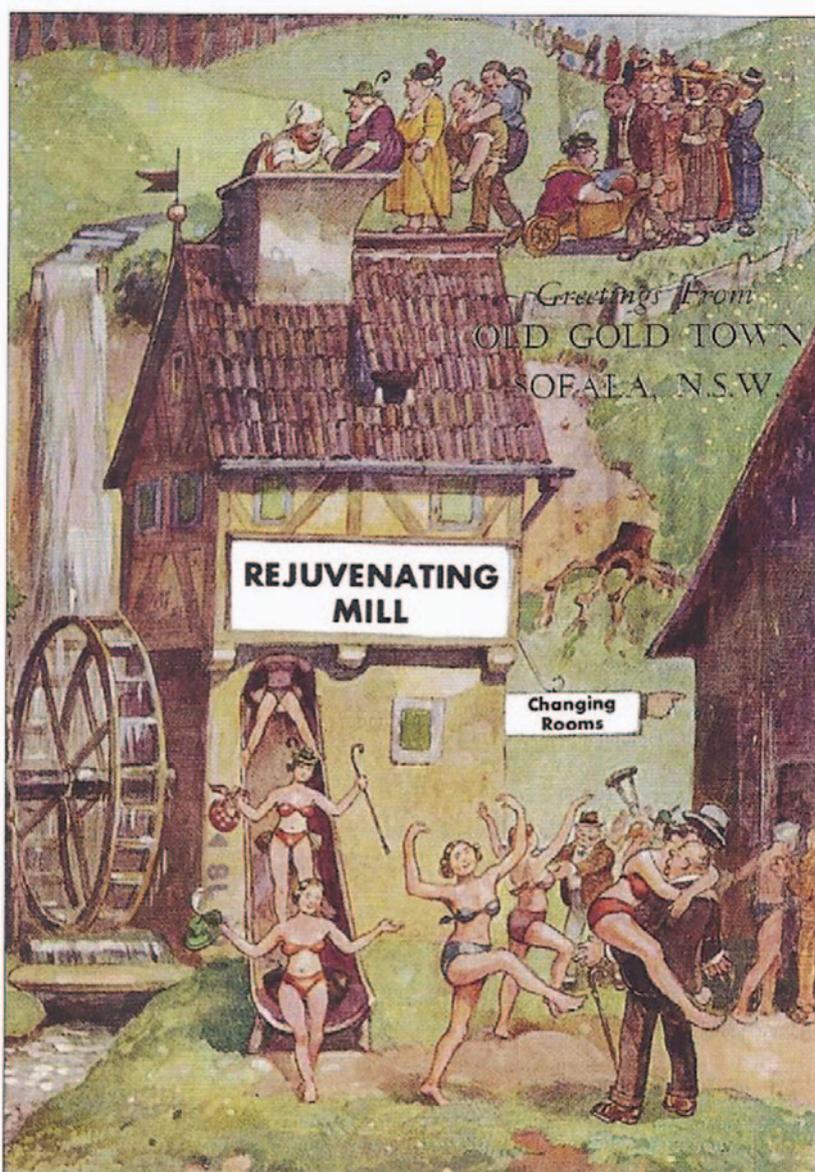
## Publicity on the Website

Very sadly the events diary on the AIA website is presently showing a long list of cancelled and postponed events. We offer free publicity in the events diary to a highly targeted audience for any of our affiliated societies and we encourage you to send details to the webmaster when things eventually get back to normal, to let people know you are still in business! The webmaster will also consider events organised by any other group relevant to industrial archaeology.

[webmaster@industrial-archaeology.org](mailto:webmaster@industrial-archaeology.org)

## Heritage of Industry

Because of government restrictions imposed during the Corona Virus epidemic in the UK and Poland, Heritage of Industry has had to cancel its tours (including the AIA Spring Tour) in April, May and June. It is planned that these tours will be run at a future date. The tours in the UK, Germany and New Zealand in September and November are presently under review. Check the website <http://heritageofindustry.co.uk> for further details and join the mailing list there for timely updates.



An Australian image of the Rejuvenating Mill.  
Picture - Mildred Cookson Collection.

This disgracefully 'incorrect' image – courtesy of Mildred Cookson of the Mills Archive – nevertheless illustrates the need of all organisations such as ours to continually seek 'rejuvenisation' – see page 2 (Ed)



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

Editor: Chris Barney

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Final copy dates are as follows:

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

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

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