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INDUSTRIAL ARCHAEOLOGY NEWS

The Newsletter of The Association for Industrial Archaeology

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AIA Conference 2025, Bradford

AIA's annual conference returns to its traditional format in 2025, running from the 6th to 10th September. Located in Bradford, West Yorkshire, the event will combine a weekend conference with some days of visits in and around Bradford.

The city was once the wool capital of the world, which led to the development of a solid engineering and manufacturing base, as well as the development of a commercial warehouse sector. It later became a key financial centre.

Booking is planned to open in early Spring.

Watch for announcements in your mailbox, on our Facebook Group pages, and on the website:

<https://industrial-archaeology.org/Conference>

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Cover Story: *The cooling towers at the West Burton Power Station.* Image courtesy of Stephen Teather.

Exploring Liverpool's Waterfront

Vanessa Oakden, Curator of Regional & Community Archaeology, Museum of Liverpool, writes: In June 2024 the Mersey & Dee Young Archaeologists Club (YAC) group met for a special half-term day session to learn about the archaeology of Liverpool's waterfront. The day started with an introduction to the Waterfront Transformation Project before some hands-on activity. Following some finds handling of objects discovered from digs at the Piermaster's Green, Manchester Dock, and Brownlow Hill, Liverpool, the group spent time walking around the historic waterfront to explore the industrial landscape.

<https://www.liverpoolmuseums.org.uk/waterfront-transformation-project>

YAC were then given the opportunity to redesign one of the superlambanana sculptures which welcome visitors to the Museum of Liverpool. A superlambanana combines a lamb and a banana, two things that would have been imported and exported through Liverpool's docks. Find out more about them here:

<https://www.liverpoolmuseums.org.uk/stories/what-superlambanana>.

The new design would represent the archaeology of the waterfront and some of the 100,000 objects cared for within the Regional Archaeology Collection at the Museum of Liverpool. Following the session, Museum of Liverpool curators voted for their favourite design. Winner Emily (age 10) met the

Some of the Mersey & Dee YAC members, including: Emily in the 1989 top; Rosie in the stripy jumper; and Jamie in the yellow t-shirt, in front of the YAC-designed superlambanana.



artist to share her ideas and learn more about the process: 'I was excited to meet a real artist, and it felt good talking about the design with him. I loved seeing my name for the first time. It feels really really special. It feels so good because superlambananas are a massive thing in Liverpool and I am very proud to have designed one!'

Taking inspiration from the industrial landscape, finds excavated from Manchester Dock and Piermaster's Green, the design features oyster shells, clay pipes, glass bottles and pottery within layers of stratigraphy. The Museum of Liverpool, which sits on the footprint of Manchester Dock, also features the superlambanana, above the stratigraphy facing the city. Facing the museum the design features more finds and includes the depth gauge which was excavated in 2007 from Manchester Dock. Above is the logo for the Young Archaeologists Club. Rosie (age 11) said 'he inspiration for my design was what I love about archaeology and the buzz I get from digging and finding pieces of history, so I tried to base my design around these things.' Jamie (age 16), who took part as a YAC member, is now a young leader with the Mersey and Dee branch and noted: 'When I first found out my design was one of the few picked to help the artist I was amazed and very excited to see the finished result. When I saw the finished superlambanana for the first time I thought it captured the archaeology of the area perfectly'.

'Archaeology (2004)' was designed by the Mersey and Dee Young Archaeologists Club to celebrate archaeology in Liverpool. Featuring finds discovered in the layers beneath our feet, it joins four other superlambananas welcoming visitors to the Museum of Liverpool.

<https://www.liverpoolmuseums.org.uk/collections/museum-of-liverpool-collections/regional-archaeology-collection>

Historic Southdown Bus Joins Amberley Museum's Fleet

Richard Vernon writes: Amberley Museum in West Sussex has recently welcomed a new addition to its historic fleet – a 1939 Dennis Falcon bus, formerly part of Southdown Motor Services. This bus, bearing the number plate FUF 181 and affectionately known as No. 81, has a storied past and represents one of the last peacetime purchases by Southdown before the outbreak of World War II. The acquisition and transport of this significant vehicle were made possible thanks to a generous donation by David Mulpeter, who also covered the cost of its heavy transport to the museum.



Bus FUF 181 arriving at Amberley Museum. Image copyright Amberley Museum.

The origins of FUF 181 trace back to the late 1930s when Southdown Motor Services took over the Tramocar business in Worthing. The company needed lighter, more suitable vehicles to navigate the poorly constructed roads of West Worthing and to meet passengers' expectations for centre-entrance buses. As a result, Southdown decided to purchase two Dennis Falcons with 30-seat centre entrance bodies designed by Harrington, marking a bold step since they had no other Dennis buses in their fleet at the time.

Delivered to the Portslade Works on May 23, 1938, the Dennis Falcons began their service on June 1, 1938, on route T1, replacing three Shelvoke & Drewry freighters. However, the outbreak of World War II in 1939 led to service reductions, and by December 1939, another Tramocar was withdrawn from service. The remaining four Tramocars were retired in June 1940, with routes taken over by standard Leyland single-deckers, while the two Dennis Falcons were put into storage in December 1942.

The post-war period saw FUF 181 re-emerge from storage in March 1946 to assist with relief workings. By June 1947, it was assigned to the 31F route between Worthing and Ferring. However, the advent of double-decker buses on this route in 1950 led to its transfer to Portsmouth depot and later to Havant to serve on the Hayling Island routes due to a bridge weight restriction.

After the new Hayling Island bridge opened in 1956, FUF 181 was retired from service and moved to Hambledon garage for sale. Unlike its counterpart, which quickly became a mobile shop, FUF 181 had a more prolonged journey, finding new life in 1958 with an Eastbourne charity for the elderly. It later served similar purposes in Bexhill and Cuckfield Hospital before entering preservation in 1968. The bus changed hands several times over the ensuing decades, becoming the property of renowned preservationist Derek Priddle in 1978, and ultimately passing to David Mulpeter in 2015. The Southdown Omnibus Trust, a registered charity, is dedicated to preserving and showcasing the rich history of



Bus FUF 181 in the 1950s. Image copyright Amberley Museum.

Southdown Motor Services. The trust's collection, unparalleled in its historic range and regional significance, spans vehicles dating back to the First World War. These vehicles are housed in three replica Southdown bus garages at Amberley Museum, offering visitors a unique glimpse into the past.

The addition of FUF 181 to the Amberley Museum's collection not only enriches the historical narrative of Southdown Motor Services but also ensures that this iconic bus is preserved for future generations to appreciate. Through careful restoration, the museum aims to bring No. 81 back to its former glory, allowing it to continue telling its remarkable story.

Prestwich Fire Station Excavations

Steve Tamburello & Oliver Cook of Civic Heritage write: In December 2024, an excavation was undertaken by Civic Heritage on the site of the former Prestwich Town Yard and Fire Station at Fairfax Road, Prestwich (SD 81261 04263). The excavation followed on from a previous phase of evaluation undertaken by Brogan Archaeology earlier in the year, which had confirmed the survival of archaeological remains in the southern part of the site. Both investigations were commissioned as part of the ongoing regeneration of the town centre.

The town yard was established in 1880 by the Prestwich Local Board to provide much-needed services to the burgeoning population of Prestwich. It served as a depot to store vehicles, tools and materials, and as a place to stable the council-owned horses. The excavation recorded the foundations and surfaces of buildings, which were arranged around three sides of a large courtyard. One of the buildings targeted was the town's stable; this was divided internally into a series of rooms, several of which had stone-sett floored stalls and an adjoining stone-flagged front passage. A larger central room may have served as a tack room or



Drone Photograph of the excavated remains at Prestwich Fire Station. Image courtesy of Civic Heritage.

loose box for the horses. A hay loft would have been located above the stable rooms, within the tall, pitched roof. The partial outline of a house, comprising the rear outshot, yard and outbuilding, were also recorded fronting onto Fairfax Road. Census returns from the early twentieth century show the town yard cottage to be occupied by a series of officials, whose responsibility it was to see to the day-to-day running of the yard; at various points, these included the Council Carter, the Horsekeeper, the General Foreman of the yard and the Driver-Mechanic in charge of the Prestwich Ambulance. A wagon building was also recorded fronting onto Fairfax Road which had been repurposed at the turn of the twentieth century for use as the Prestwich Fire Station. The excavations revealed two phases of construction, comprising a small room backing onto the rear yard and an adjacent room rebuilt with frogged bricks and a concrete floor. The alterations to the building were confirmed by entries in the Prestwich Urban District Council Minutes of the Offices and Towns Yard Committee, who ordered renovation works on Fire Station in 1907 to improve the facilities, provide electric lighting and accommodate a new

Fire Station building and Town Yard cottage at 13 Fairfax Road, c.1960s. Image courtesy of Civic Heritage.



Ambulance Service within the building. A public open day was held at the end of the excavation. Around 100 people from the local area and across Greater Manchester were welcomed onto the site to view the remains. Maps and historic photographs of the buildings were on-hand and volunteers were given the opportunity to walk within the buildings. A number of individuals could remember the buildings occupying the site and shared their own recollections of the fire station.

Hereford Waterworks Museum Celebrates 50th Anniversary

In 1974, a group of heritage enthusiasts founded the Waterworks Museum at the Hereford Victorian Pumping Station, built to supply clean water for Herefordshire. Now a thriving Museum, it has one of the country's widest collections of pumping engines, including early beam and hot-air machines.

The vision of founding member Stephen Southall with colleagues William Herbert Austin, Herbert Penhale and John Townsend was all about telling the story of water supply and preserving and restoring machinery and engines for public enjoyment. The Victorian building has been restored and includes the original Worth Mackenzie steam engine which used to take water from the Wye and pump it to the adjacent treatments works. The Museum first opened its doors in April 1975. Ever since, we've been caring for the collection and welcoming visitors to this very special place. Our collection has grown to include additional water treatment exhibits and buildings and this tradition continues into 2024 with the inauguration and formal opening of two newly restored exhibits, the Sisson Engine Set and the Brockhampton Set.

Throughout its 50-year history, the museum has been supported financially by two benefactors, Dwr Cymru Welsh Water and the Southall Trust. The Museum is run entirely by volunteers and receives no public funding.

The Hereford Waterworks Museum. Image copyright Dr Michael Nevell.



Cooling Towers

Stephen Teather writes: Davenport Engineering of Bradford designed and built many wooden cooling towers for power stations and industry prior to 1945. Post war they began to build concrete cooling towers including those at Eggborough and West Burton A power stations in the 1960s. The towers at West Burton were in use until May 2023. An article in the Spring 2018 edition of *IA News* explained how cooling towers work. This article began from research about a photograph found in the archives of the Narrow Gauge Railway Society.

The photograph of the Isle of Man power station at Pulrose outside Douglas (see below), was taken in the early 1950s for Davenport Engineering Ltd of Bradford, the builders of the new cooling tower in the background. Plans to enlarge Pulrose to generate sufficient power to supply most of the island were finalised in 1948. Construction of a new building to fit between the wooden cooling tower on the right hand side of the photograph and the original turbine hall and switchgear building behind the wagons and rear coach had begun.

Davenport Engineering (telegraphic address "Humidity Bradford") established in 1910 to design and build wooden cooling towers, finally disappeared around 1997. Davenport had built 183 wooden towers by 1920 and had another 56 under construction. In 1922 an advertisement in the "Engineer" stated that the towers they had built for power stations, steel works and collieries were cooling more than 31,500,000 gallons of water per hour.

Towers were usually 70 feet high; the overall dimensions of the base were selected from a standard series of sizes to give the capacity required. An exception was Bradford Valley Road power station demolished in 1979, which had 12

Pulrose Power Station, Douglas, Isle of man, with its cooling towers built by Davenport engineering, in the 1950s.



distinctive 140-foot high Davenport towers. Pensacola pitch pine was used for the main upright posts and bracing; Swedish redwood for the cladding and cooling stack interiors. All ironwork was heavily galvanised and timbers pressure impregnated with creosote.

Wooden cooling towers were prone to catching fire, rot and rust. Professor Frederick van Iterson an expert in reinforced concrete (concreted iron) in collaboration with civil engineer Gerard Kuypers built the first modern cooling tower at Limburg in the Netherlands in 1918. 34 metres in height its hyperboloid shape gave great structural strength.

The first UK natural draft hyperbolic cooling towers were built at Lister Drive Power Station, Liverpool, in 1924. Designed by civil engineers L G Mouchel they were 120 ft high, 100 ft wide at the base and narrowing to 33 ft towards the top giving them the profile of a carafe. The thickness of the concrete shell ranged from 4½in to 7½in.

Hyperbolic concrete shells were stronger, easier to maintain, fire-resistant and considerably more efficient than timber-walled alternatives. They were essential in keeping pace with the rising demand for electricity. Princes Power Station 'A' at Nechells in Birmingham needed 45 timber cooling-towers supplied by Davenports when built in the early 1920s to circulate 7.8 million gallons of water per hour. At Princes Power Station 'B', commissioned in the early 1950s, three hyperbolic cooling-towers circulated 9.6 million gallons of water per hour.

They would however take longer and be more expensive to build which may explain why their continued to be a market for wooden towers until at least the late 1930s. The last wooden cooling tower to survive in the UK, built by Davenport in 1937 for the alumina plant at Burntisland in Fife was demolished in 2003.

Until the early 1960s Mouchel were the principal British designer and builder of hyperbolic cooling towers, having by then built over 600 across the UK, Europe, Africa, India and China. Davenport Engineering and Film Cooling Towers (1925) Ltd, the main builders of 'traditional' timber towers, began building concrete towers post war for the power and chemical industries.

The Central Electricity Generating Board (CEGB) was established in 1948 after the nationalisation of Britain's electricity supply industry. Its remit was to provide an efficient, coordinated and economical electricity supply whilst minimising the impact of power stations and overhead transmission lines on the environment. After road building, electricity generation and transmission had the greatest effect



The cooling towers at the West Burton Power Station. Image courtesy of Stephen Teather.

on Britain's landscape in the 1960s and 1970s. Before the CEGB era landscaping for power stations was usually low-key. The prospect of cooling towers dominating the countryside attracted widespread public disapproval. The CEGB employed eminent landscape architects who used earthworks, planted woods, arranged the cooling towers in different patterns and often painted them various colours to soften their presence.

Ten coal fired 'super-stations' were constructed in the early 1960s. Davenport Engineering were responsible for the design and construction of the cooling towers at West Burton and Eggborough the first and third stations to be built.

At West Burton construction started in 1961 with the first 500MW generating unit being commissioned in September 1966. The eight cooling towers with the capacity to cool 6,750,000 gallons/hour, are 350 ft high, have an internal diameter at sill level of 284 ft, and are 164ft wide at the top. Careful positioning of the towers in two groups at either end of the station (four in lozenge formation and four in line) improved views from the surrounding area. Extensive model studies using a heliodon demonstrated how different groupings would appear at various dates and times of day. Similar methodologies are still used for the siting of visually intrusive infrastructure such as wind farms. At Eggborough built between 1962-67 the eight cooling towers were arranged in two parallel lines north of the station's buildings.

West Burton received an award from the Civic Trust in 1968 for its "outstanding contribution to the surrounding scene". It was described as "an immense engineering work of great style which far from detracting from the visual scene, acts as a magnet to the eye from many parts of the Trent Valley".

Power stations with cooling towers are now rare. In 1966 241 towers were identified in a CEGB safety audit; in 1984 there were 139. No hyperbolic

concrete towers from the pre-war and pre-nationalisation eras survive. The towers at Lister Drive were demolished in 1972 and the two towers at Tinsley, Sheffield (known locally as the 'Twin Towers' or the 'Salt and Pepper Pots') in 2008, The only survivors from the 1950s, five cooling tower shells at Willington near Derby were turned down for listing in 2007.

Privatisation of the electricity industry in 1990 led to closure of the least efficient stations. A decade ago coal fired plant provided 40% of UK electricity, last year the figure was 1.5%. Eggborough closed in March 2018 and was demolished in 2022. Fiddlers Ferry, visited by the AIA during the 2014 Chester Conference closed in 2020; four of its towers were demolished on the 3 December 2023

Two "super-stations" survive. The cooling towers at West Burton were the oldest working examples in the UK until electricity generation ceased in May 2023. During the 57 years of operation 491,792 GWh of power were generated enough to power 164 million homes for one year. Demolition will begin in 2024 after decommissioning is completed. The UK Atomic Energy Authority plan to build the UK's first prototype fusion power station on the site. The last working coal-fired power station, Ratcliffe on Soar, closed in September 2024.

At the time of writing 37 power station cooling towers survive: at least 20 are likely to disappear within the next two years. The environmental costs of demolition have led to thoughts about whether they could be repurposed to enable their survival as historic monuments. Documenting examples in different countries by the engineering and heritage community has been encouraged.

The twelve cooling towers at Drax will be the last working survivors. Drax's two coal fired units have closed, the four units burning compressed wooden pellets will remain in service at least until 2027 when the present subsidies expire. Drax is already an old power station opened in 1974. Its thermal efficiency

Adverts for Davenport Engineering found in Grace's Guides. Image courtesy of Stephen Teather.





West Burton Power Station from the air. Image courtesy of Stephen Teather.

is only around 38%. A modern biomass energy plant fitted with technology to capture waste heat can be up to 90% efficient.

Historic England's advice to date is that cooling towers are not distinctive enough to deserve protection. A certificate of immunity from listing has recently been renewed, clearing the pathway for future demolition. Cooling towers are still used in other industries for instance at Grangemouth oil refinery, itself at risk of closure in 2025.

Sir Antony Gormley has described the cooling tower as a 'Man made volcano...wonderful relic of the carbon age, a memorial to our 200-year-long romance with the second law of thermodynamics'. In June 2023 an exhibition was organised by the Twentieth Century Society (C20 Society) as part of the London Festival of Architecture. It chronicled the silent sculptural beauty of cooling towers, examined their impact on the British landscape and what future they might have. The C20 Society has attempted to secure national listing for the examples at West Burton and has included them in their Risk List of the Top Ten Buildings under threat in 2023. Demolition risks losing an entire building typology that provides important landmarks and monuments to twentieth century industry.

Innovation in an Early Industrial Landscape: The Swansea Canal

Stephen Hughes writes: A new book has been written by Stephen Hughes, formerly the Secretary-general of TICCIH, the international industrial archaeology group. Swansea was an international centre of a succession of industries in the early industrial revolution: copper-smelting, tinsplate production, iron-smelting and coal-mining and export, and of early railway development. The Company of Mine Adventurers, based on Sir Humphrey Mackworth's smelting activities in south-west Wales was one of the first fully globalised industrial companies in the modern era. By 1720 the

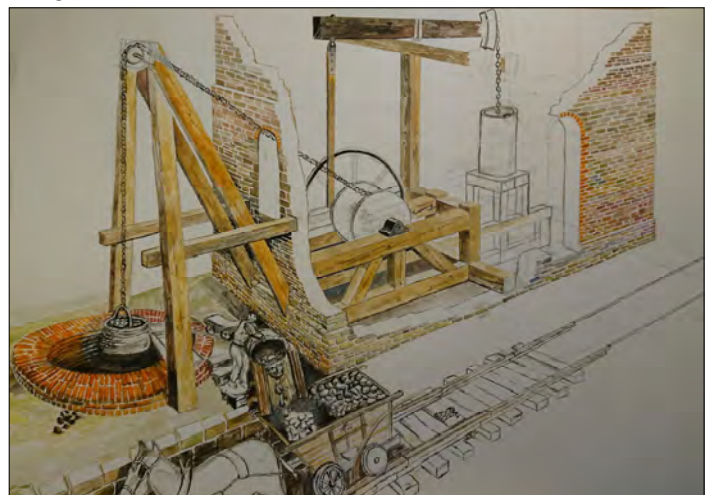
above and below-ground railway networks at Mackworth had spread to the lower Swansea Valley.

Their use has been confirmed by the discovery of the remains of an enclosed engine-house (Gwernllwynchwyth) which stood alongside one of the multitude of wooden railway branches developed there from 1755. The Newcastle engineer George Kirkhouse built a tunnel in 1762 to a coal warehouse & river wharf at Landore, Swansea. In 1776 the managing director of the Lockwood, Morris enterprise ordered all-iron rails from the Coalbrookdale Iron Company. Within a few years other local Swansea gentry coal-owners were also using iron rails underground.

As noted by the great canal historian Charles Hadfield it was at Gwauncaegurwen, on the western fringes of the Swansea Valley, that the first underground mining canal was tunnelled in 1757. In 1774 a mile long underground canal was driven into the hillside by the Lockwood Forest Copperworks at Swansea.

In 1794-96 the highly innovative engineer James Cockshutt was brought in to almost double both the width and length of the Morris surface canal from Clyn-du underground waterway. It then formed part of the new 16.5 mile length Swansea/Trewyddfa Canal line to exploit the untapped coal resources of the upper Swansea Valley. Cockshutt was the former managing director of what was developing into the largest ironworks in the world at Cyfarthfa, Merthyr Tydfil. However, the controlling partner of the works, London-based William Crawshay considered Cockshutt to have no business acumen and to have an obsession with large iron castings. Examples included such new two-ton iron hammers and from 1788 new iron-framed roofs used in rolling-mill construction and innovative iron railway bridges over the River Taff connecting the now disparate parts of the works. After Crawshay sacked Cockshutt his successor as technical managing

Gwernllwynchwyth. One of first steam-driven rotary engines in the world. Image copyright Stephen Hughes.





The world's first recorded Railway Tunnel at Landore in 1762. Image copyright Stephen Hughes.

director at Cyfarthfa was the artisan-engineer Watkin George who in 1794 completed the massive iron aqueduct feeding the large Aeolus blast water-wheel together with the surviving Pontycafnau iron railway bridge & lower aqueduct as a sub structure.

Joshua Gilpin, an American industrial reporter or 'spy' reported on meeting James Cockshutt, and the Swansea Canal Company engineer at Swansea in 1796 who explained how they were using hydraulic (Aberthaw) lime rather than cumbersome clay to waterproof the aqueducts, wharves and locks of the new waterway. This was 5 years before Thomas Telford completed and claimed his use of hydraulic lime to waterproof the sides of the Chirk Aqueduct was the first use of this material for that purpose.

The Swansea Canal was unique in the extent in which it provided a water-power resource attracting new industry. The local gifted engineer, George Martin, originally from Whitehaven saw an opportunity. In 1810 he built a large cornmill on the canal banks (at Trebannws) to use the waste canal water flowing into the River Tawe above the intake of the two large coppermill complexes on the river. During the construction of the Swansea Canal the intended top two locks of the canal were never built

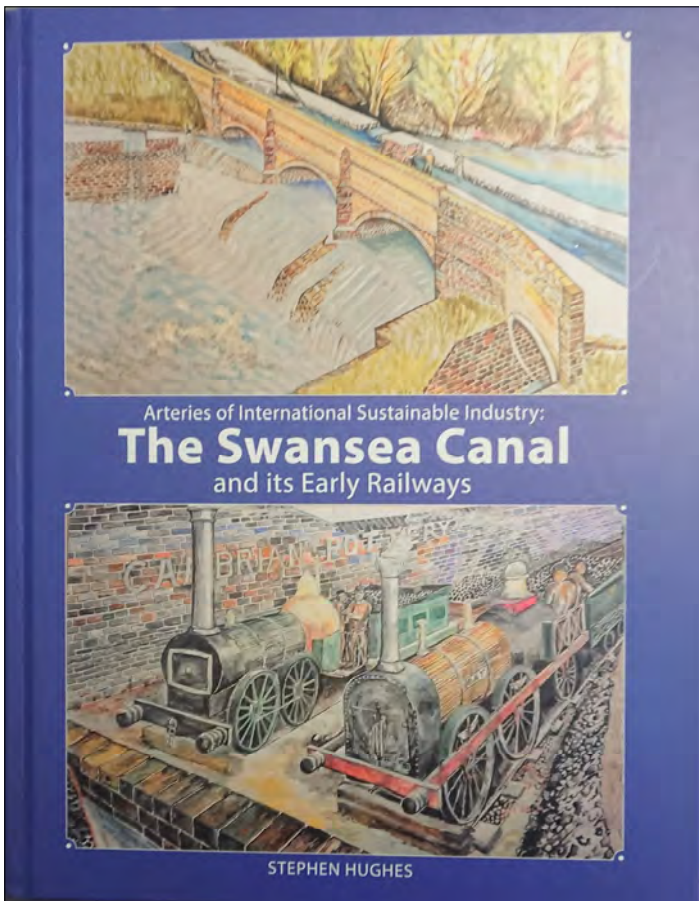
but the large head feeder to the canal from the River Tawe was constructed at its earlier intended high level. In 1824 this available water resource prompted the construction of the first ironworks (Aber-craf) to attempt to smelt iron with hard anthracite coal rather than softer bituminous coal as previously used.

Continued experiments at nearby Ynyscedwyn Ironworks in 1837 were successful in applying hot blast to the anthracite iron process using blast water-wheel powered blast, partly using waste-water from the canal conveyed along a navigable canal branch. This breakthrough had profound implications for the growth of the anthracite-fuelled iron industry both in the UK and the USA. In the Swansea Valley it led to the construction of a single line of 11 blast-furnaces built into the side of the Swansea Canal at Ystalyfera, possibly the largest single line of such structures at the time.

The Swansea Canal was a very heavily locked canal and the first water-power installation to use the ample waste water resources flowing down the canal was the newly established Clydach Iron Foundry of 1829 which used the by-wash, or bypass, channel to power a waterwheel driving a

Portal of Clyn-du Underground Mining Canal of 1774 Image copyright Stephen Hughes.





Front cover of the *Swansea Canal & Early Railway Book* featuring the hydraulic-lime waterproofed Twrch Aqueduct, above, and 1830s locomotives on an extended Scott's Colliery Railway alongside the Swansea Canal, below. Image copyright Stephen Hughes.

blast for a cupola furnace. Two of the earliest tinplate works (Pheasant Bush & Primrose), established in 1839 and 1844, by two brothers at what became the world centre of the industry also used the by-wash or bypass waters of two sets of twin locks. Over two-thirds of the 36 lock platforms on the Swansea Canal were developed for water-power use. At least 44 known water-power sites are known from lock, waste-water and feeder sites on the canal. The Swansea Canal Act of 1794 sanctioned the canal committee to approve the construction of new railways for a distance of up to eight miles from the Swansea Canal and these had to be public railways open to all users upon payment of the same tolls as current on the main canal. Eventually there were over 140 miles of surface railways connected to the Swansea Canal and at least an equal number in the multiplicity of colliery and iron-ore tunnels underground.

In 1803 Richard Trevithick was ordered down to Swansea in by the Merthyr Tydfil ironmaster Samuel Homfray to construct a high-pressure engine for one of his most important potential customers: Sir John Morris, managing director of the Lockwood, Morris & Co. copper smelting company. The engine was probably the one that Trevithick had said was

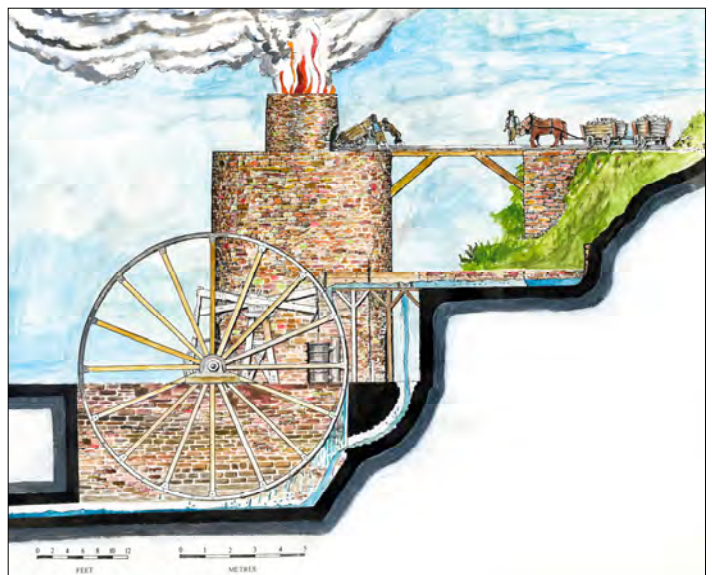
originally intended to be placed on wheels and run as a railway locomotive; instead it was completed as a winding-engine for the Cwm Pit Colliery alongside a railway to the Swansea Canal and River Tawe.

The Swansea-based Cambrian newspaper was the first to publish an account of the successful run of the Penydarren-built Trevithick locomotive in 1804. In the same newspaper the engineer/entrepreneur Edward Martin announced that because of the successful run of the locomotive, the seven miles Oystermouth Canal scheme around Swansea Bay was to be changed to a railway construction. This was the first railway to be designed for steam locomotive operation. The Oystermouth Railway Act specially allowed for the use of locomotives rather than horses but Trevithick chose to concentrate on other schemes rather than his proposed lighter locomotive that could have run on the Oystermouth line's brittle cast-iron plateway track.

On opening, the Oystermouth Canal was a commercial failure, with branch colliery line (Clyne Valley) and underground mining canal (Rhydydefaid Colliery) only reaching a series of steeply sloping and fragmented colliery seams. A direct connection to a limestone quarry (Oystermouth) failed to materialise. One of the redundant limestone wagons was adapted to run the world's first timetabled public railway passenger service. Timber-framed river ferry buildings at Swansea formed the first railway station to be established internationally.

The third independent railway to be built in the lower Swansea Valley was the three mile long Scott's Coal Pit Railway engineered by Roger Hopkins. It was the first new line to be run using a steam locomotive from its completion in 1818. Its railway line to the Swansea Canal over the Beaufort Bridge Viaduct was a public railway designed to use an early Stephenson locomotive, one of the first two to

Aber-craf Ironworks. Image copyright Stephen Hughes.





Ystalyfera Ironworks. Image copyright Stephen Hughes.

be operated outside the Newcastle Coalfield. George Stephenson and Nicholas Wood were both present at the opening and both were also associated with the three miles Palleg-Cwmllynfell Railway that was subsequently converted to a gravity operated edge-railway on the Stephenson model.

This archaeological, architectural and historical study, comprising three substantial volumes studying and recording one of the earliest industrial landscapes has produced a series of discoveries changing perceptions of technical innovation.

These discoveries are detailed in the following book published jointly by the Royal Commission on the Ancient and Historical Monuments of Wales (UK) and the Swansea Canal Society & written and illustrated by Stephen Hughes.

Arteries of Sustainable Industry: The Swansea Canal and its Early Railways by Stephen Hughes, can be purchased for £45 online at www.swansea-canal-society.com/swansea-canal-book-sales and the 82 reconstructions painted by the author for the book can be seen at

The First station at Swansea Ferry terminal in 1807. Image copyright Stephen Hughes.

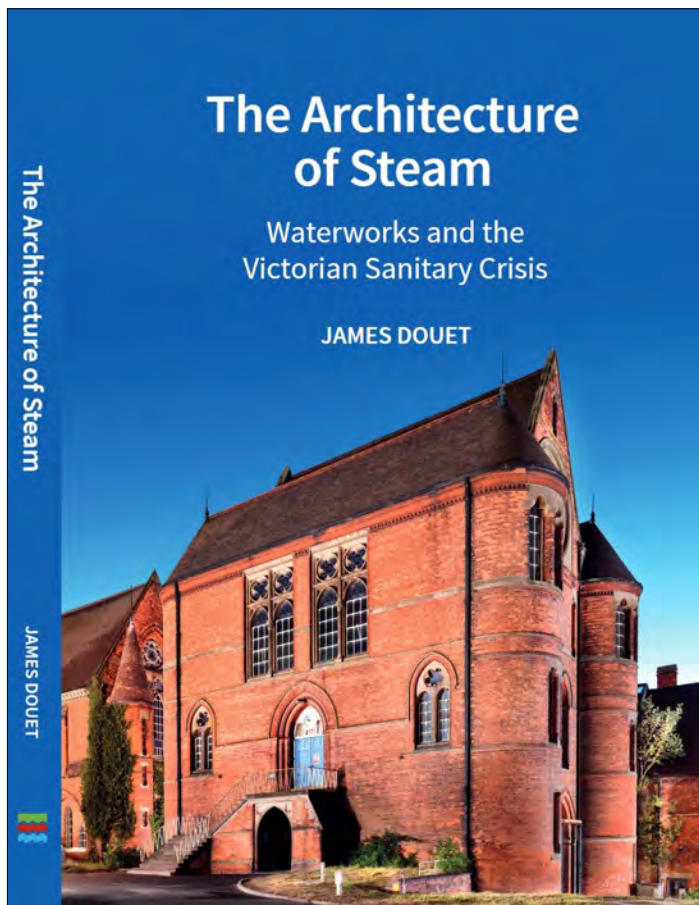


Scott's Pit Stephenson Locomotive. Image copyright Stephen Hughes.

[CanalArchaeology - Etsy UK](https://www.etsy.com/uk/shop/CanalArchaeology). The present volume is part of a trilogy of books: the earlier volumes were: *The Archaeology of an Early Railway System: The Brecon Forest Tramroads* and *Copperopolis: Landscapes of the Early Industrial Period in Wales*, are available as ebooks from the online shop at [RCAHMW | Royal Commission on the Ancient and Historical Monuments of Wales](http://RCAHMW.org.uk)

Steam Waterworks Research

James Douet writes: The Association awarded its Peter Neaverson Award for Outstanding Scholarship in 2024 (see page 21) for my book on water pumping stations, *The architecture of steam, waterworks and the Victorian sanitary crisis*. Started originally as an examination of one of the most emblematic buildings of the Industrial Revolution, the research suggested that obtaining a reliable supply of drinkable water, and a little later removing the revolting waste produced by homes and factories, was so important for the inhabitants of industrializing towns that pumping stations came to be treated more as civic, rather than simply industrial, buildings. The British model of industrialization was based on a first phase of industrial expansion led by private enterprise, with a



The cover of the 'Architecture of Steam' book, published by Historic England.

subsequent period in which the public or civic realm caught up, led by municipalities building the schools, hospitals, libraries, town halls and public baths necessary for civilized urban life. Judged by their architecture, I felt that waterworks should be counted in this latter category. Unfortunately, I could find very little direct evidence to support the thesis. Justifying the Pugin-esque Tees Cottage waterworks in Darlington, the most prolific, and architecturally-literate, of sanitary engineers, Thomas Hawksley, told shareholders they could only expect a good return on investment if they had buildings and engines of the highest quality. In 1865, the ex-president of the Institute of Civil Engineers (ICE), George Bidder, defended the four big pumping stations commissioned by Joseph Bazalgette for the pioneer London Main Drainage, saying 'the only criticism he had heard was, that they had been executed in a style superior to the requirements of the case; but he considered that Mr. Bazalgette was quite right in what he had done.' In fact, the only interest that Bazalgette evidenced in their appearance was in appointing an architect to design them, the first such commissions in Britain. But these comments aside, no Victorian civic leader or sanitary engineer seemed to have made a clear statement about the civic values and high social purpose of pumping stations, and the need to signal these publicly in their design. The absence of direct evidence is where I understand the scholarship to have begun.

In my delight at being given the award, I hurried to explain what 'scholarship' meant to my family and friends in Spain, where I live. But there is no equivalent word in Spanish (or any other romance language). So I told them that scholarship usually involved an amount of diligent *investigación*, perhaps even some *erudición*, but that it mostly depended on high standards in the *interpretación* of the evidence.

Interpretation is the philosophical field known by the slightly alarming name of hermeneutics. For centuries, hermeneutics was the technique used for interpreting religious texts, such as the Bible. Then in the twentieth century, it was gradually extended to include literary texts, and in recent decades it has been applied to metaphorical texts of all kinds, such as old photographs, urban plans, cultural landscapes and buildings. Using another metaphor, these texts are interpreted by being 'read' to elucidate a better understanding of what they mean.

This may seem a pretty subjective way to advance understanding. Nevertheless, hermeneutics has developed principles or criteria which will look familiar to all of us working in cultural heritage. Interpretations must be coherent, thorough, appropriate, contextual, account for the author's intentions, and potentially be extendable to further analysis. Most of all they must explain the evidence in a way that is persuasive.

My claims for the civic importance of waterworks are based on such interpretations of different varieties of evidence. For instance, the elegant clothes and top hats of the visitors in photographs of the site inspections of Crossness sewage pumping station support the argument that this was widely understood to be a vital infrastructure for the success of the Empire's capital. The participation of important symbolic figures in their inauguration is another indication. Royalty don't open waterworks today, but in the mid-nineteenth century we find Queen Victoria's heir in Canada in 1857 to set the Hamilton waterworks in motion, and in south London eight years later to do the same for Crossness. The four engines to lift the sewage were even named after him and his siblings.

Interpreting dress in old photographs can help uncover other social conditions. This is the 'reading' of a photograph of Ryhope waterworks in County Durham, illustrating the hermeneutic method: 'Some deductions can be made about the men who raised the 22 ton beam from their clothes, their beards, and especially their headwear. Every man photographed on site that day in 1868 wore a hat, which gives a clue to their trades and professions, as well as suggesting the associated attribute of class, although hats can indicate aspirations as well as real social status. The largest and thereby least skilled group, labourers and builders, have soft, peaked caps and wear a waistcoat. Four or five men



Kempton II pumping station. Image copyright James Douet.

wear bowlers, which were invented about fifteen years earlier as an occupational protection for gamekeepers. Bowlers are hard to interpret as they spread to numerous professions as well as becoming, in the 20th century, the archetypal head gear of 'white collar' office workers. At Ryhope they may have been worn by the builders' foremen or the clerk of works hired by the Sunderland and South Shields Water Company to oversee the construction project. Finally, three men are wearing top or stovepipe hats. Top hats appeared on the heads of the upper classes at the beginning of the 19th century and leached socially downwards, reaching unskilled labourers by the 1850s, but here they surely indicate a profession, that of the engineers, or an economic interest as the representatives of the owners or of the Newcastle engine manufacturers R and W Hawthorn, overseeing the installation' (p 64).

However, the principle source of evidence for my interpretation of waterworks must be the buildings themselves. Two examples from London will suffice to indicate the use made of the architecture of the pumping stations to support the contention that they had a more central importance for urbanites in industrialising cities than their modern role might indicate. Kew Bridge was the first waterworks in

Ryhope Pumping Station during construction. Image copyright thanks to Ryhope Engines Museum.



London to move away from a functionalist design, based around the configuration of the beam engine, in 1835: 'Anderson [the company engineer responsible] had travelled in Italy... and had advised on the water supply of Paris. The public agitation over the quality of the Grand Junction's water may also have had its effect on the design of the new engine house. If Ralph Walker had chosen the Sublime at Old Ford as the mood most appropriate to a new class of large industrial building, Anderson evidently believed a more conservative, classical character was appropriate for the Kew Bridge pumping station. In fact, there was little about the building to suggest it had any connection with industry at all. The upper floor windows looked more like bedrooms. With a path up to the front door and suitable planting it could pass for a well-proportioned Georgian town house. Stepping inside, however, visitors would have found themselves not in the quiet hall of a vicarage but in the midst of four vertical engines, a forest of heaving machinery and splashing pumps' (p 33).

At the opposite end of the historical narrative of the steam waterworks, and not far from Kew, we find Kempton Park II, the last great pumping station built in Britain, and opened by the Metropolitan Water Board in 1929. 'In every other way, however, the second engine house was exceptional, a magnificent piece of mechanical engineering and an outstanding combination of architectural expressiveness and good taste. The round-arched windows proudly identified the building as part of the waterworks tradition, consciously or otherwise harking back to Wicksteed's first Italianate engine house at Kew in 1845. The combination of red brick walls and Portland stone dressings was a noble English architectural trope that can be traced to Christopher Wren, a little downriver at Hampton Court. The clasping corner towers with paired pilasters had appeared on muscular engine houses such as Swithland, Elkesley and the George V, and seemed intended to articulate the tremendous power contained within the building, as if without these reinforcements it might burst apart. Finally, the architectural elements, the stone base, heavy rustication, pilasters and mouldings, place the whole building in the context of the Edwardian baroque, the style in which the British imperial project, albeit unknowingly, was now winding down.'(p121)

Readers will decide for themselves whether they find these interpretations persuasive.

The Architecture of Steam can be ordered from the Liverpool University Press website (<https://www.liverpooluniversitypress.co.uk/doi/book/10.3828/9781802077537>). Applying the code 27HERESEARCH for a 10% discount.

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Tuesday: Shoe Making & Textiles

Sue Constable writes: The first morning was spent in Izegem where we visited two sites. The town was home to both brush making and shoe making. At one time there were 160 brush factories and 200 shoe factories in the town, though there are very few which have survived to the present day. The *Museum Eperon d'Or* is housed in a former shoe factory and shows both brush and shoe making. The front building dates from 1920 and is in Art Deco style while the rest of the factory was built in 1910. The tour covered the making of brushes by hand and the development of brush making machinery, and the making of a woman's shoe by hand and machine.

The second visit was to the *town power station*. Izegem was one of the first towns to develop its own power station in 1901. It provided DC power for industrial, street and domestic lighting. The engine house and chimney survive and on the day we visited there were steeplejacks on the chimney rebuilding the top of it which added to the interest of the visit. The station was in operation until the early 1960s. There were several upgrades to the engines over the years. The engine house contains an SEM Carels-Vandekerchove Tandem Compound steam engine of 1650hp installed in 1937, the last of several engines to operate the power station. It is the largest preserved engine in Belgium. Much of the associated equipment also survives including the control panel. One point of interest is that the engine drove both a three-phase AC generator and a DC generator, DC still being distributed to some of the homes and factories who retained DC equipment right up until the whole town switched over to electricity from the grid.

John Boucher writes: Our Tuesday afternoon visits were to the flax industry in West Flanders. Belgium has a long history of flax and linen production, and the ideal growing conditions along the west side produced the highest quality in Europe. Initially a cottage industry, the 19th century welcomed increased output with early mechanised equipment, increasing until the mid C20th when production dropped off due to competition from artificial fibres, but there has been a recent resurgence in the production of high quality linen using advanced machinery. Traditional production followed a series of processes – harvesting by pulling up (with the separation of seeds for linseed oil), laying out in the sun for bleaching, retting (soaking in water to soften the outer fibres), drying and breaking (to separate the hard outer shell from the fine central fibres), scutching and hackling (to extract and prepare the central fine fibres), spinning and weaving. It was not possible to see the



Part of the switch mechanism at the Izegem power station.

complete processes in any one place, but our series of visits covered most of them.

Our first visit was to the now unique Preetjesmolen scutching mill at Heule. This small hollow post mill is the only one left of over 10 similar windmills at work in the area when it was built in 1866. It was restored in 1996 to full working order, but sadly has deteriorated through lack of funding for maintenance so could not be seen working by wind, and the upper parts were deemed unsafe to enter so we could not see the brakewheel and gearing within the buck. Although the mill was designed for a single operation, our hosts had brought along some early hand equipment to demonstrate flax breaking and hackling, and were able to get one of the three scutching wheels working at speed by electricity and gave us a demonstration of the hazardous process of scutching. With mechanisation, an industry grew up to refurbish and offer second-hand equipment to the developing market. Our next visit was to the company Vyncke in Harelbeke which had developed from a small village blacksmith to a large engineering company selling large specialist biofuel boilers across the world. Over the years they had retained a lot of the early machinery, especially boilers and steam engines used to power the larger flax mills, many of which were stored in the yard outside. In another building they had set up a museum collection, but most unfortunately, a company contracted to remove asbestos cladding from this building had arrived on site a few days before we did, so that part was out of bounds to us.

The flax retting and scutching mill Verschaeve at Kuurne is one of the best preserved flax sites from the interwar years. Here power was provided by a steam engine (preserved but not working) using steam raised in a boiler fired on flax waste, the steam also being used to heat the concrete retting

pits, a 1936 development to speed up the retting (or 'rotting') process. After three days in the pits, the flax was set up to dry before breaking and scutching, using the advanced scutching turbine set up in 1952. One pit of four tonnes of flax yielded 800kg of textile fibres.

Wednesday: Gent Industrial Museum

Geoff Wallis writes: Our second day started with a walk through Gent's picturesque, historic streets to the Industrial Museum housed in a spacious, sensitively-converted 1905 textile mill. Having single-glazed windows and north-light roofs, a 'box within a box' concept has been used to protect and display vulnerable exhibits, where spotlighting and dark backgrounds focus the visitors' attention very effectively. Captions included English translations, and guides were multi-lingual, making understanding easy. The displays have developed gradually since opening in 1975 to include major exhibitions of flax, wool and cotton processing, printing, and many other industries. Several textile and printing machines were demonstrated for us by Collections Manager Pieter Neirinckx who highlighted operational difficulties, including obtaining suitable alloy for casting print-blocks and shuttles for the looms, and locating asbestos-removal specialists capable of working on historic machinery rather than buildings. Spares for most machines are no longer available, and the skills to re-make them are being lost. Skilled technicians and volunteers too are in short supply, with the Museum's master-technician being in his 90s and his apprentice is in his 60s.

In the textile gallery pride of place is taken by a wooden-framed 'flax twining' (twisting) machine dating from 1789, said to be the oldest such machine in the world. Much of Belgium's early cotton-processing technology was copied or brought from Britain by emigrants, represented in the displays by machines from mills in Manchester and Helmschore. A 1957 Northrop-Draper loom, and

Textile machinery at Gent Industrial Museum.



another made in Belgium were demonstrated for us. A temporary exhibition 'Ferro Non Ferro', created by our guide Patrick Gurdebeke, demonstrated the nature and properties of ferrous and non-ferrous metals, Belgium's historic dominance in producing copper from the Congo, zinc and coal, and some of the products made from them, especially machine-tools several of which were on display. There were clear, simple explanations of gear and thread-cutting, electric arc and laser-welding, gas cutting and welding, moulding and stamping, plate-work, metrology, bearing technology, surface-plate-making, and recycling. Simple displays encouraged children and adults to try out bending steel strips by hand, cutting internal and external threads, stamping their own name-tag, pop-riveting, using calipers and micrometers, and bending steel wire to make a pair of spectacle frames. These hands-on opportunities are engaging, exceptionally ambitious, and demonstrate that Health & Safety are not necessarily insurmountable constraints. Once owned by the king of Spain, the *Museum 't Aloam at Geraadsbergen*, a medieval site, is now privately owned by the Merckaert family who operate the historic mill machinery occasionally for demonstration. A Francis turbine drives two pairs of composition millstones, and eight Teisset Gose-Brault roller mills via traditional iron gearing. The Mill is complete with workable stones cranes, pneumatic and mechanical grain elevators, a wire-machine, and sack-hoist. A traditional 'miller's kitchen' features an unusual coal-fired stove, and a snug with bar provided an opportunity to relax with a Belgian beer.

The former silo tower now houses an extensive collection of trade and craft tools and equipment, including wooden-framed precision lathes. In the Mill's basements four early 20th century oil-engines are installed, one extensively restored by Pieter innovatively using metal-spray to build up a worn cylinder-liner. He gave an interesting talk about his work, and about the development of diesel engines. Three oil engines were started for us, so we ended the day with the names of Otto, Diesel and Daimler and the 'whomp' of working engines in our ears, the smell of hot oil in our nostrils, and our heads full of nostalgia, all shared with good friends. For me this is just what an IA tour should be!

Thursday: Papermills & Trams

Barry LeJeune writes: First stop on the third day's itinerary took us to the *Herisem papermill at Alsenberg*. Use of the site for paper production, by water power, goes back to the 16th century. There was substantial expansion from 1837, as the main production focus switched to cardboard. The first balance beam engine for steam power was introduced in 1882. In the First World War, the occupying German forces removed 30 percent of the machinery and production (which had expanded

to two additional sites) was scaled back. In 1943, the owner refused to sell products to the second raft of German occupiers and so the mill closed. The equipment and site was retained on a care and maintenance basis until 1956; but commercial production never restarted. The site became a listed monument in 1979. Restoration of machinery by a dedicated team of volunteers was undertaken from the late 1980s to early 1990s. We were given an extensive tour of the site, which now operates as a private museum. The demonstrations gave our party a detailed insight into how the manufacturing processes turned rags into paper and cardboard, by cutting, soaking, pressing and drying using first water and then steam power. And the engine was steamed for us (of course!).

We moved then to the *Tram Museum at Schepdaal*. Belgium is famous for its extensive network of local light railways, providing the means by which rural communities could transport themselves and their goods to the neighbouring market towns. The line from Brussels to Ninove was one such line. The first section (to Schepdaal) opened in 1887 and was extended the full 23km to Ninove in 1898. Initially operated by steam locomotives, the line was electrified in sections between 1910 and 1933. The last operations were in 1970, when the trams were finally replaced by buses. The site includes a passenger station, goods shed and maintenance depot, with buildings dating back to 1888. It has operated as a museum since 1962, open on two half days each month, and sadly now with no electricity supply nor overhead to allow the trams to run under their own power. The museum is home to an extensive collection of light rail vehicles, some fully restored and some still under restoration. We were given a welcoming presentation by Herman de Laet, the President of the museum, and then allowed freely to roam the site.

The day's itinerary was thirsty work. So what better place for our final visit than to a brewery? We followed the former light rail line to Ninove and the

The carriage built in 1896 for King Leopold II.



brewery of the family Slagmuylder. Here we were welcomed by Louis, the great, great grandson of the founder. The company's brewing operations started in 1860, originally on a different, smaller site. Needing space to expand, they moved to the current location in 1927. In 1979, the company was asked to brew Witkap beer too. In 1981, that company defaulted on its payments and Slagmuylder took over the brand. It now accounts for 90 per cent of the company's production. Louis took the party on a tour of the premises, explaining how the brewing process turned the raw materials of malted barley, water, hops and yeast into the finished, (very) drinkable product. On brewing days (we were there on a cleaning day) the brewery produces 5,500 litres, made up of both high and low fermentation beers. All beers are bottle or keg conditioned, with added sugar and yeast for ongoing fermentation. As with every brewery, the exact nature of the yeast is a well-guarded secret. It can be reused, brew after brew, for 20 to 30 years. The tour finished in the tasting room, where the company's products were freely available. The room includes a small museum, with a steam engine which was fired up for us. *The image right show the Thiriau steam engine and the brewery tap room bar.*

Friday: Antwerp Port & Brick Making

John Jones writes; Friday saw us in Antwerp, Belgium's largest port. In the late 19th century there was no electricity distribution to provide power to lock gates, cranes, capstans and bridges so, using the system devised by Armstrong in Newcastle, a hydraulic power network was installed. There were eight steam-driven power stations (known in Flanders as press houses) providing hydraulic power through 150km of pipes. We first visited the Zuiderpershuis, the only one of three surviving buildings to have any equipment remaining inside. Most of the interior is now occupied by a theatre group, who use the space which once held five boilers and two cross compound steam engines. At the front of the building, however, the hydraulic accumulator remains in situ. Powered latterly by electric centrifugal pumps, the accumulator remained in service until 1977, by which time it was operating just one swing bridge. From here we walked a short distance to the Sint-Felixpakhuis, a seven-storey warehouse. Inside the central street we saw one hydraulic jigger for a crane, although it appeared not to be in its original position. There must have been many more originally.

The high point of the day, literally, was the opportunity, for those brave enough, to climb up to the operators' cabs of two of the preserved quayside cranes. As well as having a bird's-eye of the river and quayside, we were able to view at close quarters the electric motors, winches and operators' controls. The final visit of the day was to the Rupel valley, where abundant deposits of clay had supported brickmaking on a large scale. The river



Preserved quayside cranes at Antwerp docks.

Rupel was a vital transport link, for both supplies of coal and the shipment of bricks over a wide area. As demand increased, the yards improved their processes and in 1868 the first Hoffmann kiln was built. Our party visited the former Verstrepen brickworks, now preserved as a museum titled Brik Boom. It had a 22 chamber Hoffmann kiln, built in 1925, and we were able to inspect the complex arrangement of flues which enabled the heat from the chamber currently being fired to pre-heat the next chamber. Advanced though the kiln was, the moulding techniques used seemed crude compared with the village brickworks that once existed in Eastern England. It was a family affair, with the man moulding, his wife preparing the clay and their children, some as young as six, carrying the moulded bricks out to the drying ground. Many lived in houses on the site, in great poverty.

Saturday: Mining & Distilling

Richard Vernon writes: The last day of the tour started with a visit to the *Flemish (Beringen) Mining Museum*, where we were welcomed by Werner Janssens, Deputy of the Antwerp Metropolitan Region and Hans Hofner, President of the Mining Club. Coal was discovered in the Limburg region in 1901 and a French Company – Société des Charbonages de Beringen began development before the First World War, but this was suspended during the war as the area was occupied by the Germans. The mine opened in 1922 and continued operations until 1989. The remaining buildings consist of some that have been interpreted for the Museum and others that have been repurposed for commercial use. The Mining Museum consists of a large number of original buildings in excellent condition and two mine shafts. Our group was split into two and led around the site by excellent guides. We started on the Colliers' Trail, which led through the miners' wages area, the changing rooms, washrooms, via the lamp room and to one of the two pithead towers. These contained five level cages inside holding 16 miners per level, giving a total of



Headstocks at the Flemish (Beringen) Mining Museum.

80 miners in each of 4 cages. Some 1,500 miners worked per shift. Following this tour, we were taken to the 'cellar' which contained informative reconstructions of the underground workings, together with audio visual interpretations. The visit provided an excellent insight to a relatively modern (by British standards) coal mine and further evidence of the importance of industrialisation in Belgium around the beginning of the last century.

Our final visit of the tour was, most appropriately, to a distillery - *the Jenever Museum* at Hasselt. Hasselt was the centre of the Jenever distilling industry and contained many jenever distilleries. Jenever, a type of a gin, is often thought of as the national Belgium spirit. The Museum contains a large collection of historic distilling equipment from different distilleries in the area, including the 19th century distillery equipment, originally from distillery H. Servais (Géromont-Malmédy) and bought by the museum in 1981. This is still in use today. The distilling process and peripheral activities are well explained in the Museum. And, of course, the mandatory steam engine! Again, we were split into two groups and each group was led round by a very knowledgeable guide. One of our VVIA hosts had worked there for several decades as a master distiller, so was on hand to provide personal insights. The visit concluded with a tasting session – much appreciated after six very intensive, informative and enjoyable days in Flanders!

VVIA - Flemish Association for Industrial Archaeology

Bill Barksfield writes: This trip would not have been possible without the help of the VVIA. Using their many contacts they set up all the visits and

members of their Council accompanied us throughout the tour helping and guiding us at all stages. We would like to thank them all for making us so welcome and in particular Patrick Gurdebeke who put in a huge amount of work to make our trip so enjoyable. We hope we may be able to similarly welcome them to the UK for a visit soon.

AIA Restoration Grants Update

Grane Mill Haslingden, Northlight Shed - Roof Rescue Project Phase 1

Anthony Pilling, Grane Engineering Museum, writes: Grane Mill was rated 'Exceptional' by the Lancashire Mills Study (defined as of National / International importance), yet has been on the Historic England Heritage at Risk Register since the unique steam plant and full height chimney were designated a scheduled monument in the early noughties. Austerity cuts to funding after 2010 put paid to the project worked up with Historic England support in 2008/9. The chimney was saved by an AIA grant in 2012 with a vital first phase of work especially at the top and to improve the lightning conductors. This project limited the effect of a recent lightning strike but more work is very urgently needed now! Apart from Covid emergency projects made possible by Historic England and Heritage Lottery grants, obtained via the Heritage Trust for the NW, all other steam plant costs have been met by open day donations and by the Volunteers who have brought the mill engine back to exhibition standards - it is now almost in steam-able condition.

In 2021 the Trust owning 80% of Grane Mill appointed the leaders of the Volunteers to take over what is now the Grane Engineering Museum charity. This followed a decade of austerity, then covid, plus

The shaft race roof at the Grane Engineering Museum before restoration. Image copyright Anthony Pilling.



Restoration work underway on the shaft race roof. Image copyright Anthony Pilling.

other issues, so a major reorganisation was necessary in the first year. The objectives of the Charity were expanded to include education, research, building and engineering preservation related to steam, textile and transport heritage within its community and regional context. Public access has been increased, looms and auxiliary mill engines run once more on open days. Although still a 'work in progress', international colleagues have already visited to collaborate with the team (from the Netherlands Weaverij Museum in Geldrop). Meeting the Trust's objectives while rescuing and restoring important surviving machines in a Mill building at risk, means its roofs need to be more secure, weather and pigeon tight! So, a first emergency phase of Northlight Shed roof rescue is the focus of the current project which has only been made possible by the current £25,000 AIA grant. Off site manufacture of the first Northlight six pane conservation glazing modules is well in hand. A private donation has increased the number of glazing modules from 3 to 7. These modules incorporate sustainable low maintenance, vandal resistant details used at Grade I Queen St Mill with double glazing that has stood the test of 2 decades at Grade II Higherford Mill and Primet Foundry. They will eliminate serious leaks and risk where failures are evident above the visitor refreshment and steam shed demonstration areas.

Preparatory work has been completed to commence the emergency roofing of 45 metre length of collapsed and collapsing shaft race roof. This will make the space usable again, eliminate pigeons, rot and vermin, permit recovery of the mill air raid

shelter and allow an extensive length of the shed wall to dry out at last. The Grane Mill Volunteer team has removed four decades of detritus from the shaft race and mill yards in preparation as well as rearranging many tons of historic steam engine exhibits under restoration to permit full access to the

work area. The Trust hopes to have this work completed over the next few months to allow more rare weaving looms, steam engines and transport of the era to be rescued, conserved, then exhibited to the public and utilised by visitors, schools, colleges and aspiring engineers.

Book News

Books with a cigar smell as art - The history of the company photo book

Jur Kingma writes: Outside the world of industrial heritage and industrial history, company photobooks were regarded as uninteresting graphic products intended solely as self-glorification of capitalists. A quarter of a century ago, photo books were discovered by art historians as a fully-fledged art form. In 2004, Martin Parr and Gerry Badger published the first part of *The Photobook, a history*.

In 2023, the Dutch photographer and art teacher Bart Sorgedragger (1959) showed that corporate photo books should often also be considered photo art. To gain inspiration for his work as a documentary photographer, he collected photo albums for inspiration. It soon became apparent that these books taught a lot about the history of photography. Manufacturers invited the best photographers and designers to create photo books. They were given the opportunity to experiment with the latest technical possibilities.

Initially the company book was published to commemorate an anniversary or a change of generations in the company management. It was traditional in design: the founders, then the production site and the production process and finally the workforce of the company. Catalogs often reproduced part of this story. News was the introduction of company visits during which a souvenir booklet was handed out. One of the earliest examples is from 1907 at the Le Creusot steelworks in France. Photography played an important role in those souvenir booklets.

In 2023, the collection of more than 1,100 company photo books of Bart Sorgedragger was purchased by the Rijksmuseum Amsterdam, the most important museum in the Netherlands. This means that the company photo book has been canonized. On the occasion of that transfer, a book was published about the history of the company photo book. The book shows 220 photo books from the collection. And there are chapters on the different aspects of the company photo book. The chapter "Factory Photobooks: unbound curiosities" is about history. There are chapters about the German photographer and innovator of company photo books Willi Roerts from Hannover and the Draeger Bros. printing

house in Paris. Also a company that introduced many innovations such as the spiral binding. Mattie Boom, curator of photography at the Rijksmuseum Amsterdam, discusses the discovery of the company photo book by art historians. This was seen as advertising and a commercial product. Art was by definition unbound art. Other causes of the unfamiliarity were that these books were often not on the market and that the name of the photographer was often unknown. Photography historians viewed the business book photographer as an instrument of business management. An entire chapter is devoted to the influence of modern art movements such as De Stijl and Bauhaus on the development of the Dutch company photo book. These photo books are now considered representatives of these art movements.

A separate chapter is devoted to souvenir booklets that were available after company visits.

Bart Sorgedragger (ed) *Factory Photobooks, The Self-Representation of the Factory in Photographic Publications 1890-1987*.

€ 69,95 nai010 Publisher Rotterdam 504 pages



The 7th East-West Workshop on Industrial Archaeology: Weaving the Industrial Period

Zixin Liu and Zhaoyu Wei (University of Science and Technology Beijing) write: The 7th East-West Workshop on Industrial Archaeology was successfully held online on November 23, 2024. The event brought together more than 90 participants from all over the world, including researchers, professionals, students, volunteers and other friends interested in the industrial past from several universities, the Association for Industrial Archaeology (Britain), the Society for Industrial Archaeology (USA) and The International Committee for the Conservation of the Industrial Heritage (TICCIH), among other institutions. This edition of the workshops discussed the historical, cultural, and technological dimensions of the global textile industry, its archaeology, heritage and conservation challenges.

Juan M. Cano Sanchiz welcomed the participants on behalf of the organisers: the Institute for Cultural Heritage and History of Science & Technology (University of Science and Technology Beijing) and the Association for Industrial Archaeology. He expressed gratitude to the speakers and supporting institutions that facilitated this series of workshops, as well as to its many regular attendees, who make this activity particularly rewarding. He emphasised the workshops' aim to bring together people interested in the materiality of the industrial past from the East, the West and beyond to exchange ideas and experiences.

Associate Professor Dong Yiping (Xi'an Jiaotong-Liverpool University) delivered the presentation "*Complexity of the Conservation of Textile Heritage in China*". She explored the challenges of conserving textile heritage in China, emphasising its historical, cultural, and technological significance. Using the Yangtze Delta Area as a case study, she traced the evolution of the textile industry from traditional handicrafts to modern manufacturing. Her presentation scrutinised the international exchanges and technology transfers that influenced the early textile factories of China, highlighting the integration of local architecture with imported technologies and offering generalisations about the main construction features of the textile mills of China from the late 19th century and early 20th century. After that, she critically addressed adaptive reuse practices, questioning their respect for historical and cultural values, and discussed the role of technology transfer in modernisation, drawing comparisons with global cases such as Manchester's textile mills and

the Japanese silk industry. Ultimately, she stressed the need to balance heritage conservation with urban renewal to preserve industrial sites as key elements of urban and cultural history.

In his talk "*Salford Twist Mill: Uncovering an Iconic Textile Factory*", Ian Miller (The University of Salford, Britain) examined the pioneering design and construction of this textile mill in Salford, England with a focus on its technological advancements and architectural significance. The mill is recognised as an early example of industrial innovation, being one of the first to utilise an iron frame structure, steam heating and permanent gas lighting, marking a significant milestone in the development of textile manufacturing in England and beyond. Miller traced the mill's transformation from its origins as a water-powered factory to its conversion into a steam-powered facility. Through archaeological excavations and research, key structural elements of the mill, including cast iron columns, were documented, which provided valuable insights into the mill's design and construction process. These findings challenged previous historical interpretations and emphasised the importance of integrating documentary evidence with archaeological discoveries to enhance our understanding of industrial architecture. Miller highlighted the value of industrial archaeology in revealing the material legacy of the industrial era, demonstrating how physical evidence can enrich historical analysis.

Finally, Mark Watson (Historic Environment Scotland, Britain) talked about "*Global Textile Industries and their Built Heritage*". Departing from his work for TICCIH's thematic study and publication *The Heritage of the Textile Industry* (with Heike Oevermann and Bartosz Walczak), Watson provided a comprehensive examination of the global textile industry's impact on urban development, its heritage, and the challenges of preserving and reusing industrial sites. He highlighted the textile industry's global reach and the adaptability of textile mills, categorised textile heritage, and discussed international connections. Watson also considered the fate of company towns tied to the industry and the representation of textile-related sites in the UNESCO World Heritage List. In this last regard, he introduced the criteria developed by the TICCIH Textile Section and explained with examples concepts such as "flagship", "giant", and "time capsule". In his talk, Watson also aligned textile heritage with the need for sustainable development by talking about the potential benefits of adaptive reuse. Finally, he called for further research and the cooperation of the workshop's attendees to introduce new cases that can foster more comparative studies and a better understanding of



British machinery used in the former Dasheng Cotton Mill, today on display in Nantong Textile Museum, China (photo: Juan Sanchiz).

the textile industry's global heritage. After the talks, speakers and participants interacted in a lively discussion section in which they exchanged insights on a wide array of aspects, such as the role of public interpretation and the tensions between preservation and adaptive reuse. Some key challenges were defined, for example, identifying technological transfers and how to handle industrial artefacts from archaeological excavations. Other discussed topics were UNESCO World Heritage criteria, the complexities of safeguarding industrial heritage globally, the interconnectedness of global textile industries, the need for comparative studies, and the influence of architectural styles in overseas factory designs, as well as other related topics such as the preservation of brickworks and the brick industry. Altogether, the discussion reflected diverse international interests and the multifaceted nature of industrial heritage and its management around the globe.

In short, the 7th East-West Workshop on Industrial Archaeology was very successful and once again facilitated global debates on the archaeology and heritage of the industrial past. The workshops will continue in 2025, with new editions in May and

November. Don't miss them!

Peter Neaverson Award for Outstanding Scholarship 2024

Ian West writes: The 2024 Peter Neaverson Award for Outstanding Scholarship in Industrial Archaeology is being given to James Douet, for his book *The Architecture of Steam – Waterworks and the Victorian Sanitary Crisis*. Whilst the main focus of this work is the pumping stations that provided London's water and disposed of its effluent in the 19th century, it also provides a valuable account of earlier developments in this field, not just in the UK but around the world. Studies of the archaeology of utility industries are relatively rare, so the judges felt this book makes a valuable contribution to our understanding of the process of industrialisation. A review of this book appears in issue 45.2 of *Industrial Archaeology Review* and James attended the AIA's annual conference in October to talk about his work and receive his award. Liverpool University Press are kindly offering a discount of 30% to

members of AIA who purchase the book through their web site (www.liverpooluniversitypress.co.uk) using the discount code AIALUP.

Booking Open for AIA Barcelona Spring Tour, 2025

The 2025 Association for Industrial Archaeology Spring tour is to Catalunya in Spain, from the 12th to the 18th May, and booking is now open. Since the growth of Catalan autonomy from 1979, its industrial heritage has been valued as a distinguishing feature from most of the rest of Spain since the 19th century. The tour is based in Barcelona with 6 nights' accommodation and 5 days of visits. This will include sites representing shipbuilding, railways, water pumping, textile production, coal mining, cement making, and much more. To book go to the AIA website page here: <https://industrial-archaeology.org/conferences/service005/>

8th East-West Workshop on Industrial Archaeology: *Heavy Metal* - 10th May 2025

The 8th E-W Workshop on Industrial Archaeology (online) will be on the 10th May, 10:00-12:00. It will bring together technology historians and archaeologists from the West and the East to examine metal production in the industrial period, its multiple contexts (technological, economic, social), and its heritage. More information on the programme and registration (free, as usual) will be announced later in the spring on the AIA's communication channels. Stay tuned!

Industrial Archaeology Review

Ian Miller, Amber Patrick & Ian West write: The editors of the journal, *Industrial Archaeology Review*, wish to apologise to members for the late appearance of the second issue for 2024 (46.2). In common with a lot of academic journals, we are currently experiencing a dramatic slowdown in the submission of material suitable for publication. No-one is sure of the reason for this – one theory is that it is a hangover from the disruption caused by lockdown in 2020-21. Some of the articles, book reviews and other items destined for this issue are already accessible to members on line, and we hope to have the remaining articles finalised by around the end of February, which means that the print edition should be available around April. The good news is that there are many exciting articles in

the pipeline, and we hope to catch up with the normal publishing schedule early in 2026. However, we would love to have more material to choose from, so if you, or someone you know, has an idea for an article that might interest our readers please contact the Editorial Team and we'll be happy to discuss it. Our email address is review@industrial-archaeology.org.

Newsletters and Bulletins (paper and e-format)

- Cumbria Industrial History Society e-Bulletin. No. 119 August 2024.
- Greater London Industrial Archaeology Society Newsletter 333, June 2024.
- Greater London Industrial Archaeology Society Newsletter 334, August 2024.
- Greater London Industrial Archaeology Society Newsletter 335, December 2024.
- Hampshire Industrial Archaeology Society: Focus on Industrial Archaeology e-newsletter. No. 102 December 2024.
- Manchester Region Industrial Archaeology Society Newsletter 174, Autumn 2024.
- Manchester Region Industrial Archaeology Society Newsletter 175, Winter 2024.
- Merseyside Industrial Heritage Society e-Newsletter, Number 435, Sept/Oct 2024.
- Merseyside Industrial Heritage Society e-Newsletter, Number 436, Nov/Dec 2024.
- Midland Wind & Water Mills Group Newsletter 139, April 2024.
- Midland Wind & Water Mills Group Newsletter 140, December 2024.
- Northamptonshire Industrial Archaeology Group Newsletter 172, October 2024.
- Saltcote. The e-newsletter of Ecosal-UK and the UK Salt Network. No.12 December 2024.
- Scottish Industrial Heritage Society e-Bulletin No. 85 November 2024.
- Society for Industrial Archaeology Newsletter vol 54 Number 3 Summer 2024.
- Society for Industrial Archaeology Newsletter vol 54 Number 4 Fall 2024.
- Somerset Industrial Archaeological Society Bulletin No. 156, August 2024.
- Somerset Industrial Archaeological Society Bulletin No. 157, December 2024.
- South West Wales Industrial Archaeology Society e-Bulletin No. 147, January 2024.
- South West Wales Industrial Archaeology Society e-Bulletin No. 148, September 2024.
- Suffolk Industrial Archaeology Society e-Newsletter No. 166, August 2024.
- Suffolk Industrial Archaeology Society e-Newsletter No. 167, November 2024.
- Sussex Industrial Archaeology Society Newsletter, Number 204, October 2024.
- Sussex Mills Group newsletter 204, 2024.

- The Trow. Cotswold Canal Trust newsletter No. 205, Autumn 2024.
- Wandle Industrial Museum e-Bulletin Issue 123, Summer 2024.
- Wandle Industrial Museum e-Bulletin Issue 124, Autumn 2024.

Journals

- Irish Railway Record Society Journal, No. 215, September 2024.

Please send future Journals, Newsletters, and Bulletins to Dr M Nevell, 3, Baxter Road, Sale Cheshire M33 3AJ, or electronic copies to ianews@industrial-archaeology.org. Paper copies are held in the AIA archive at IGMT.

A Warm Welcome to the Following New Members

Anthony Anakin-Smith, Denhall Lodge, Manorial Road, Parkgate, Neston, CH64 6QW

George Demidowicz, 212 West Malvern Road, Malvern, Worcestershire, WR14 4BA

Alan Wand, 9B Deanscroft, Knebworth, Hertfordshire, SG3 6BD

We were saddened to hear of the death of Adrian Wills.

David de Haan Retires as AIA Secretary

At the AIA AGM in September 2024 the Association's Secretary, David de Haan, retired. Our Chair, Zoe Arthurs is captured here presenting David with a long service award for his many years of dedication to the Association. He is succeeded by Dr Ian West.



Industrial Archaeology News

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Email: ianews@industrial-archaeology.org

Published by the Association for Industrial Archaeology, contributions, news and press releases should be sent to Dr Michael Nevell, 3, Baxter Road, Sale, Cheshire M33 3AJ. Tel 01952 435 970.

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

Final Copy dates are:

1 January, for February mailing

1 April, for May mailing

1 July, for August mailing

1 October, for November mailing.

The AIA was established in 1973 to promote the study of Industrial Archaeology and to encourage improved standards of recording, research, conservation and publication. It aims to assist and support regional and specialist groups and bodies involved in the preservation of industrial monuments, to represent the interests of Industrial Archaeology at national level, to hold conferences and seminars and to publish the results of research. The AIA publishes a twice yearly Review and quarterly Newsletter.

Notes for Contributors

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

Items for inclusion should be emailed as attached **Word** documents. The number of words will naturally depend on the nature of the report. Typically, a short news item could be up to 250 words. A large report could be up to 1,500 words. If necessary a report will be edited to fit the space available. If an author feels that editing may detract from the substance of the report, please include a note to this effect.

Photographs accompanying a report should be sent as separate **jpg** files (for best quality printing). Please do not embed them in the text. Short captions should be provided. For copyright reasons the origin of all reports must be credited and, where appropriate, the author's name and position included. Photographs, too, should indicate to whom credit should be given.

Find the AIA Online & on Social Media

Website:

www.industrial-archaeology.org

Facebook:

www.facebook.com/groups/wearetheaia

X/Twitter:

twitter.com/industrialarch

Bidston Horse Gin Excavations, 2024



A photogrammetry view of the excavations by the Bidston Community Archaeology Group at Bidston Hill in 2024, showing the site of the 18th/19th century horse gin (circular structure). Image copyright Roy Forshaw.

Roy Forshaw writes: Once a year I do photogrammetry for the Bidston Community Archaeology Group's community dig on Bidston Hill on the Wirral. It is to assist in their end of season recording work where they are excavating a farm complex including a horse gin site at Tam O'Shanter Urban Farm. The photogrammetry image above shows the line of the drive shaft as a surviving brick

channel running from the centre of a circular building (to the right), the site of the horse gin.

Editor: The group was formed following a community dig on Bidston Hill in 2010. More details can be found on their website here: <https://sites.google.com/view/bidstoncommarchaeology/about-us>.