WARWICKSHIRE Industrial Archaeology Society

WIAS

NUMBER 75 March 2022 **PUBLISHED QUARTERLY**

NEWSLETTER

FROM THE CHAIRMAN

MIXED EMOTIONS

It is almost exactly two years since we last met in an 'in-person' meeting and a great deal has happened in that time, not least the fact that we have lost members from within our midst. The latest in this line is Keith Rogers, a loyal WIAS supporter for many years, who died on Friday February 25th. 2022. Many of you will have known Keith, and his great knowledge and boundless enthusiasm for steam and transport heritage was regularly demonstrated over the years., usually accompanied by that infectious sense of humour. He will be missed by many, and we shall include a full tribute to Keith on our website in due course, but for the moment our condolences go out to family and friends.

Set against this and other recent losses, plus the general mood of gloom imposed first by the pandemic and then by the security situation in Ukraine, there has become an even stronger need for us to try and re-establish some of routines that gave us pleasure prior to Lockdown. Monthly meetings that were once part of our regular diary may have slipped off the schedule and I feel we would all gain by reviving that social contact.

Nor should we aim at a simple repetition of what went before. We need to embrace the new environment. Changing circumstances have necessitated a revision of way that we do things, not least in the nature of WIAS meetings, and we have embarked on our first hybrid meeting. Such a meeting is delivered in person but is also simultaneously transmitted to a invited Zoom audience. Masterminding this process is Victor Lobb, and I would wish to record publicly the Society's thanks to Victor for picking up – nay, seizing – this particular gauntlet, whilst others wavered. We hope there will be no teething troubles, but ask for understanding. I have volunteered to deliver the first hybrid talk so hopefully any difficulties can be ironed out without causing embarrassment to the speaker!

One of the impacts of Lockdown, of course, has been the emergence of a new audience and a new membership – 29 have joined during the "Zoom Era'. The website has received a surge in visits, the spread is increasingly international, with requests made to two WIAS authors for permission to access their research. Long may these contacts develop!

A timely reminder of the continuum that is the industrial archaeology movement was provided by the Spring 2022 Edition of 'IA NEWS', the Newsletter of the Association for Industrial Archaeology. This was for many years edited by our own Chris Barney, with his successor Pat Bracegirdle unfortunately having to withdraw from this new role because of ill health. The new editor will be the familiar figure of Dr. Michael Nevell, an extremely experienced and knowledgeable industrial archaeologist, who has spoken to WIAS via Zoom on the Cheshire Salt Industry.

This was the 200th. Edition of IA NEWS, and contained photographs of – and articles by – some of the grandees of the industrial archaeology movement, reflecting on the achievements made. Despite our relatively modest national profile, WIAS has an important role in this movement, with our regular monthly meetings providing the focus of activity. Prior to Lockdown – and during the two-year period itself – our meeting attendances brought many admirers, and I do hope our 'hybrid' meetings can be just as successful, both for those attending in person or online. I feel we are entering what is likely to be a new era for the Warwickshire Industrial Archaeology Society.

VISITS

Naturally enough, the Society's Programme of Visits had been completely curtailed over the past two years, and it is a relief to announce that this is about to be re-launched, under the careful stewardship of Alain Foote. At the moment, the planned visits are listed below, with more to follow.
Contact details for Alain are:
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PROGRAMME

One of the issues we will face in the future is how best to 'mix' the pattern of talks now that we have a wider Zoom audience. We must remember that we are the Warwickshire Industrial Archaeology Society, and need to address topics related to the county as a main priority. We also hope to have talks in the future that may be of a more general interest, attractive to supporters of the industrial heritage regardless of geographical location.

10 March 2022: Martin Green
Glover, Eagle, Boon - and Glover Again: The Changing Industrial Landscape of Warwick 1880 - 1920.
14 April 2022: Eric Woodcock
Silent Servants - The Long Story of Electric Vehicles in Britain.
10 May 2022: *VISIT*
A Guided Tour of the Victorian Industrial Buildings of Oxford. Led by Liz Wooley.
12 May 2022: Allan Jennings
The Bonniksens and Leamington Aerodrome.
9 June 2022: Andrew Baxter
The Edgehill Light Railway.
10 June 2022: *VISIT*
A Guided Tour of Sandfields Pumping Station, Lichfield.
July/August *VISIT*
Visit to the W O Bentley Memorial Foundation, Wroxton, Nr Banbury.

Meeting Reports

November 2021: Dr David Gwyn
The Welsh Slate Industry

In July 2021 UNESCO recognised the Welsh slate landscape as the UK's latest World Heritage Site. The status recognised the region's 1,800-year history of slate mining, its people and culture, and its role in 'roofing the nineteenth-century world'.

Dr David Gwyn had played a major role in achieving this recognition which was the culmination of some twelve year's work. His review of the archaeology and history of the Welsh slate industry was, therefore, much anticipated and was another example of the extended reach of zoom presentations from beyond the borders of Warwickshire.

In keeping with the idea of 'roofing the world' an opening slide of New Amsterdam in the late 17th C showed a church with a light blue roof amongst surrounding clay tiles which could indicate the early exportation of Welsh slates. Unprovable but not impossible. But a hundred years later nearly half of New York was roofed with Welsh slate.

And not only New York; the global reach of Welsh slates stretched from Westminster Hall in London to the Faculty House of the University of Sydney via many cities and towns around the world.

Slate enjoys excellent weight to value properties which greatly improves its export potential. This in turn benefitted the Welsh quarries. In 1793 the UK output of roofing slates was some 45,000 tons of which 55% came from Wales. A hundred years later in 1898 output had reached 640,000 tons, 77% coming from Wales and accounting for about one third of the world demand for roofing slates. Say some 13 million terraced houses.

This output, however, did not provide huge employment. At the height of production, the workforce was only some 16,000 and today, as we well know, the industry is but a shadow of those days. It is also an ancient one, with evidence of the Roman use of slate.

Slate has many uses other than for roofing; claddings, tank linings, snooker table beds to name but a few. For over 100 years, most children in England and Wales learnt to read and write using a writing slate rather than an exercise book. An interesting conundrum lies in the well-known painting of the death of Nelson. At the bottom of the picture is a writing slate; presumably an established means of communication on board. The words are indistinct but if anyone is visiting the Walker Art Gallery in Liverpool, perhaps they can have a go at an interpretation. England expects…?

Over the years some 400 quarries have exploited three veins of slate in Wales. Cambrian deposits in the north, Ordovician in mid-Wales and Silurian in the north-east. The result has been some striking effects on the landscape; from the stepped galleries of the open quarries to the spoil heaps. Slate extraction is always wasteful with 90% left on-site.

Whilst always a relatively small industry, it has been very well recorded. A local map of 1769 holds the earliest mention of a slate quarry. A scattered group of workings which were taken over by one Richard Pennant, a landowner in England and Wales and also of a sugar plantation in Jamaica whose profits he reinvested in Welsh slate at the Penrhyn quarry. A contemporary painting shows the stepped galleries – and the working conditions for the miners. Nonetheless, Pennant did capitalise the industry to a much greater extent than hitherto.

Stepped gallery quarries were not the only type; deposits in the valley floors could be accessed but had added transport costs and costs were always the enemy of the industry. The exploitation of this natural resource had considerable social effects. What had been scattered farming communities found themselves home to increasing numbers of miners and their families in rapidly growing towns.

Whilst the open-air quarries are spectacular, it is the underground ones that provide rich pickings for the industrial archaeologist with many artefacts remaining in place – equipment, rail and tramways, rolling stock and even a simple privy set beside the wall of a tunnel. Taken together, the rail system at Ffestiniog from workface to dockside totals some 200 miles of track.

Waterpower was most important to the slate workings. Despite some reliability issues, drought and frosts especially, it was much cheaper than coal for a low margin industry. Water was also employed in water balance lifts, one of which provided a school-boy David with an unexpected introduction to industrial archaeology! Returning many years later he found little had changed.

Much of the machinery required in the industry was produced locally. A good example being the largest waterwheel in the UK (the Laxey wheel on the Isle of Man is bigger, but the IoM is not in the UK) at what is now the National Slate Museum.

The industry was mechanised – but only up to a point. The basic tasks of splitting and trimming to size are a traditional and unchanged craft although circular saw tables for roughing out large blocks can be found.

The fortuitous location of the main slate veins close to the coast was instrumental in the growth of the industry. Early on pack horses and carts were used but there are few images of them. One, however, is a painting of 1832 by Thomas Letts (the eponymous diary publisher). Only one canal, the Llangollen, caried slates but the great legacy has been the narrow-gauge railways, many of which continue to operate as heritage lines. The narrow-gauge railways serving the Himalayan hill stations and tea plantations are their successors. Aerial ropeways of various types were also developed.

Quarrymen emigrated taking their skills with them. A large mural in a school in New York State shows many facets of a slate works which was known to employ Welshmen alongside other Europeans. France has a large slate industry located along the river Loire where very similar working practices can be found although there is no evidence of Welshmen working there.

Inevitably, the growth of the industry brought great social change. From early housing, similar to the rural population, often with an adjacent smallholding tended by wives and daughters, grew the rows of terraced houses found today. Interspersed are larger houses and especially the Chapels, large and small, for the various denominations characterised, perhaps unfairly, as *'the narcissism of non-conformity'*. The folk art of slate carving flourished widely.

Welsh slate is the product of a relatively small industry but one with a wide reach that has now been recognised as being of global significance by UNESCO. We had an exemplary guide to take us through its history.

December 2021: Dr David Eveleigh
Bogs, Baths and Basins

The chairman of an Old Time Music Hall would have greatly enjoyed introducing this cornucopia of closets. Dr David Eveleigh had given us the history of the kitchen range in June 2021 (Newsletter 74) and now introduced us to domestic appliances of another kind.

It may be hard to imagine but when A Christmas Carol was published in 1843 virtually no house in Great Britain possessed a bathroom. Marley was dead, and probably unwashed.

The plans for a town house in 1819 show no bathroom although there was a water closet. In these circumstances, how did people manage? Washstands in bed and dressing rooms were complemented by chamber pots. The ceramics industry enjoyed plentiful opportunities for decorations although plain, utilitarian wares probably dominated.

A plan of town houses in Bristol show courtyards, in a corner of which was a 'necessary house' or privy. The sociable 'two-seaters' (even up to six were known) are a thing of the past but such privies were in use until the 1930s. They had no water supply or drainage, simply a void or cesspit below. Dwellings alongside rivers might have a cantilevered structure discharging directly into the river and dependent on the tides for disposal.

In the slum neighbourhoods of the large cities conditions were dire, a report stated that in Bethnal Green 50 water closets served a population of 80,000 and 15 or more families had to share one facility. The inevitable result was recurrent outbreaks of cholera leading to the Chadwick report of 1842 and a revolution in water treatment and sewage disposal.

Contrary to popular opinion, Thomas Crapper did not invent the WC. The first patent was granted to Alexander Cummings in 1775 for improvements (such as the S-Bend trap) on earlier designs. Indeed, by the mid-18th C the very best houses boasted WCs. Joseph Bramah soon produced a better version, selling some 7,000 by the 1790s. Crapper, who started his own works in 1860, benefitted from their efforts.

A review of alternative designs showed up some disadvantages. The pan closet was popular but inefficient as it did not self-clean. Plumbers had the unpleasant task of periodically dismantling the mechanism for cleaning.

This, however, was only the beginning of the problem. Where did the flushed waste end up? The exit pipe often ended in a tank or cesspit outside the property. Poor sealing and leaks could easily lead to contamination of adjacent basements that were often used as kitchens. In terraced houses the night soil men who cleared the pits had to traverse the house with their loads.

The local water wells, were also often contaminated leading to cholera and Dr Snow's findings which spurred the search for a solution to replace the discharge onto street or into river. Punch cartoons of the time show a very angry Father Thames introducing his three children Diphtheria, Scrofula and Cholera to the City of London.

The solution was one of Victorian England's great civic achievements. Following the 1st Public Health Act of 1848; a comprehensive sewage system sought to link every WC to a safe disposal point. London exemplified this with the work of Sir Joseph Bazalgette in creating the city's sewage system. Much of this remains to this day and we can enjoy those great pumping stations such as Crossness as his monuments.

This move towards a water-borne sewage system was an achievement, but how far down the social scale did it reach? Plans for typical artisan houses in Bristol show a sewer in the road and a scullery and water closet in the yard. The latter would not have housed an expensive Bramah or Crapper device but most likely a hopper closet flushed by a pipe from the scullery sink waste. Not a very efficient flush. An example in Bristol, albeit with a cistern added, was in use until the early 2000s by an elderly lady until her death.

Other alternatives included a trough system of dubious efficiency and variations on the dry conservancy priciple that used earth, difficult to source in the inner city, or the more plentiful ash from grates. In the late 1800s we find a simple pail system, colloquially the 'bucket and chuck it' was collected regularly by the local authority.

So much for domestic provision. What about public convenience? An early example is found in the Crystal Palace that housed the Great Exhibition in 1851. George Jennings, a sanitary engineer won a sub-contract to provide 'refreshment rooms' or toilets in the Palace. Jennings made a lot of money from the contract, perhaps originating 'spending a penny'. He also pioneered the provision of public urinals, initially the products of two Glasgow ironfounders, and an improvement of the hopper closet that became known as the wash out closet from its use of two water traps. An intricate potting challenge for the ceramics industry with all channels incorporated into a single pedestal. It also led to some very extravagant Victorian decoration and flamboyant sculpting.

Around 1880 a 'hygiene movement' arose that emphasized cleanliness and thus the development of sanitary ware that embodied clean uncluttered forms without nooks and crannies to harbour dirt. Two-gallon cisterns mounted high above the pedestals ensured a powerful flush.

A pervading thread through this history has been that the 'lower' classes were unable to master technology and things had to be made simple for them. Hence the simplicity of some of the devices described above. This led to the tipper closets found in many northern cities. The overflow from the scullery fed into a hopper that when filled tipped to flush the system – surprising an unsuspecting user!

The simple cottage closet that developed from the one piece wash out concept became the dominant design, winning out over the complicated mechanical devices of Bramah et al. No moving parts and hygienic efficiency triumphed. The late Victorians enjoyed a riot of decorative designs but from Edwardian times white was best.

Baths and basins completed the evening. From the portable tub filled by jug that could be adapted to incorporate a shower system we advanced to coal and gas heated baths and the wall mounted gas geyser that discharged into the bath below. The kitchen range was adapted to provide hot water circulating around the house and the fixed bath became more elaborate, especially when incorporating a shower. The introduction of the coloured suite from the US in the 1930s brought this fascinating journey to an end.

January 2022: Anthony Coulls
Brass, Steel and Fire

Anthony Coulls needs no introduction. Over the years he has introduced members to many aspects of railway history but Brass, Steel and Fire or a century of model trains was the freedom of the sweet shop for many.

An exhibition celebrating the model locomotive was planned for the National Railway Museum at York with a transfer to the Science Museum in London. The century was to run from 1810, when the first model locomotives were built by individuals, and 1910 after which came the commercial manufacturer.

The exhibition was to explore the what, why, where, when and not least, the who behind these early models. It was also felt important that it should not be just a collection of models but should connect the general visitor to an exhibition that would be the first of its kind.

The first model builders were not usually producing a miniature version of a real machine (few of which existed at the time); rather they were developing a concept that might or might not be realized in practice. Alternatively, they were using craft skills for their own satisfaction and pleasure in an age that was expanding its mechanical knowledge at a great rate. Soon these models were being used for selling ideas and demonstrating potential products in markets around the world.

The first model illustrated was once described as a representation of Hackworth's *Sans Pareil* of Rainhill Trials fame. It clearly is not that, and exhaustive research traced it to being the handiwork of a North-Eastern clockmaker in 1808/10 as a concept twin cylinder steam vehicle for William Hedley.

The range of people producing these early models was considerable and encompassed a Nottingham lace weaver, coal miners, youngsters and established engineers. Not all the models were successful, but ideas were developed, such as the compressed air powered locomotive, which was never adopted in England but later found an application in US mines.

The exhibition also examined the places where these models were made, bearing in mind that this was before the time when drawings and castings were available. Every part had to be fabricated by the builder who did not always have access to extensive workshop equipment. One edition of *The Young Engineer* from 1905 even suggested that a model workshop could be installed in the parlour *'provided care was taken not to get oil on the tablecloth and thus incur the vexation of the maid'*. The exhibition also included examples of hand tools and a lathe used by these early modelers.

Sometimes these modelers went on to produce full size examples as the industry developed and elsewhere scientific instrument makers such as Chadburn Brothers in Sheffield and Negretti and Zambra in London added working locomotive models to their ranges.

Assembling the exhibits needed visits to, and negotiations with, public and private collections around the world together with specialist dealers and agents. Valuable lessons were learned in handling international negotiations, dealing with customs and excise and insurance issues.

The collection in Istanbul housed in the The Rahmi M. Koc Museum, was amassed by the founder of the domestic appliance group, BEKO. An avid transport enthusiast, he reputedly bids for anything interesting that comes up for sale. A Ransomes & Sims 'garden' locomotive was one item borrowed for the exhibition.

Nearer to home was the Robert Guinness steam museum collection housed in a former chapel in Dublin. The chapel was previously attached to the brewery but was taken down and rebuilt in Guinness's own grounds. The collection had been offered to the Science Museum but as only a few items were of interest the offer was turned down.

Hard choices had sometimes to be made with the selection of exhibits. If several examples of the same locomotive were made by different makers, the choice could come down to personalities. The Stirling Single selected bore the maker's plate of H J Wood, who happened to be Sir Henry (Promenade Concert) Wood's father.

The smaller size machines were designed for play and enjoyment in a domestic setting. This can cause some problems – raising steam using methylated spirits as fuel is smelly, messy and fiery. One solution was the hot bar locomotive, where a metal bar was heated in the fire and when nearly red hot inserted into the boiler where it produced steam for a limited period. These small machines could run on rails or had adjustable wheels for free running around if a large enough space was available. Chesterman of Sheffield produced such locomotives.

The early models were not based on working locomotives but as these evolved true copies began to be made. At the same time, there arose an increasing range of generic models produced for the pleasure of enthusiasts young and old, but in those early days, certainly ones with deep pockets.

Soon the interest spread, hastened by the growth of the railways and a good example was the County Durham community of model makers (with links to the temperance movement) which has lasted to the present day with the annual Shildon Show drawing some 12,000 visitors a day.

At the other extreme, in 1890 a Bank of England officer commissioned £10,000 model railway with exquisitely detailed rolling stock. The search for potential exhibits revealed that domestic collections today are equally impressive. The ultimate lounge display was long on content but short on soft furnishings.

Anthony concluded his presentation with a detailed review of the two exhibitions and their content. The careful selection of models in display cases was balanced with more accessible material on benches with seating if appropriate to allow a much more intimate experience. After all, an objective of the exhibition was to foster a sense of participation for the visitor.

The exhibits ranged from the oldest working model steam engine in the world through to the ultimate apprentice piece via experimental models made to test concepts such as rack and pinion designs. The literature serving the model engineering world has always been there but is still developing today and enjoyed its place in the display.

Putting together this unique exhibition had clearly been both a challenge and a most satisfying experience. It was a privilege to share in it.