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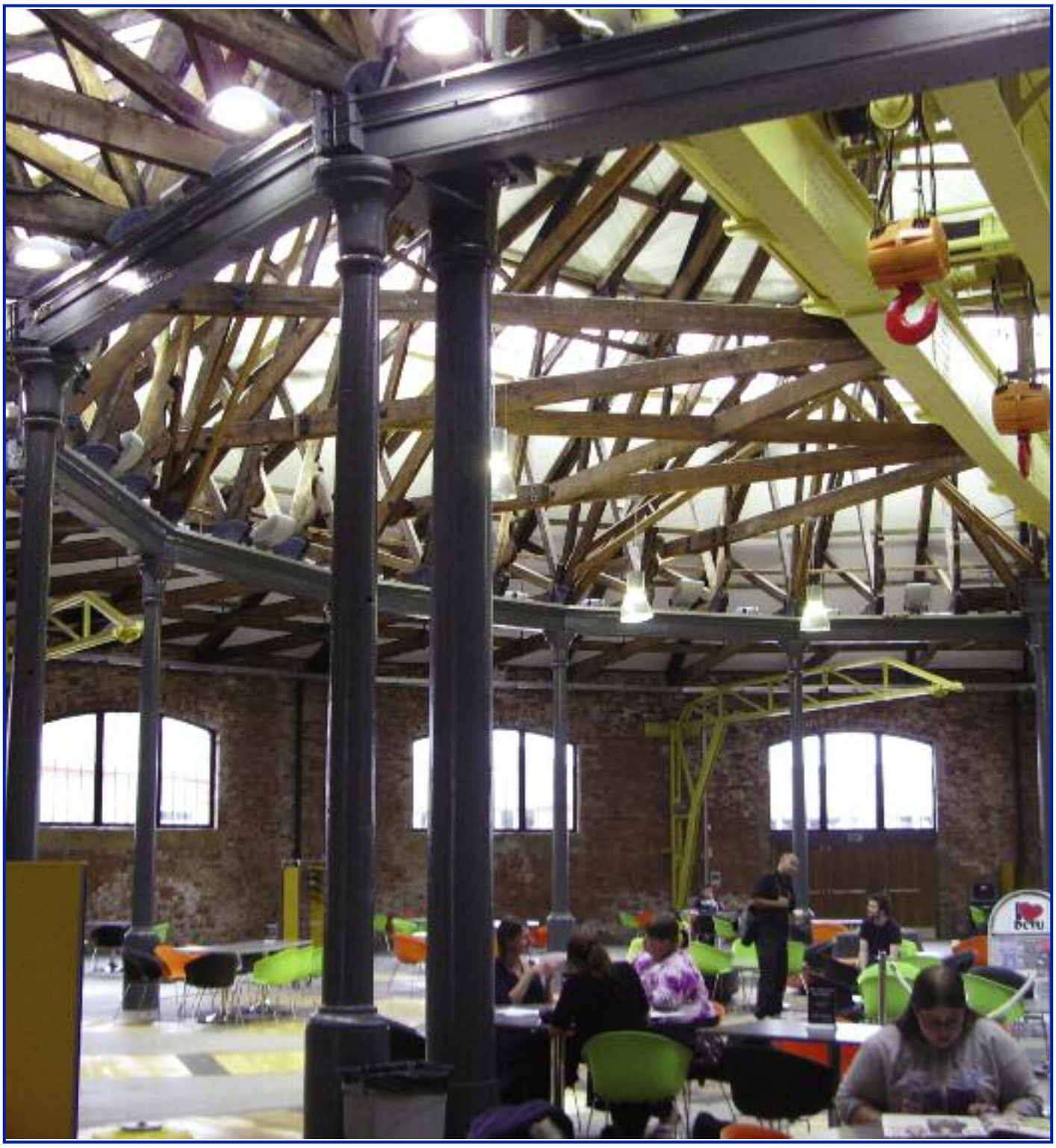

Tasmania • Peter Willans • Bridgewater Conference • Crittalls and Bata
Great Condurrow Mine • Industrial Heritage at Risk • Rural Heritage

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COVER PICTURE

The very successful conversion of the Derby Roundhouse, originally for the construction and repair of locomotives, allows students and visitors to appreciate the engineering works that once lay at the heart of the Midlands railway network. See page 17

© Marilyn Palmer

Tasmania 2011

Organised by Heritage of Industry, eleven members, friends and others visited Tasmania in November in conjunction with the 16th Engineering Heritage Australia Conference. They had a busy time.

Bill Barksfield

Tasmania, inhabited by aborigines from about 35,000 years ago, was first settled by the British in 1803 – a move designed to prevent the French from claiming the island. During its first fifty years as a colony 75,000 convicts were transported there and, together with the military, began to establish agriculture and industry.

The trip was organised by Paul Saulter of Heritage of Industry but we are also indebted to Bruce Cole, chairman of Engineering Heritage Tasmania, who gave a great deal of assistance.

Before embarking for Tasmania, the group gathered in Melbourne and was expertly led by Miles Pierce, chairman of Engineering Heritage Victoria and Owen Peake, its secretary and chairman of the National Engineering Heritage Board. Among the highlights were the impressive LaTrobe reading room in the State Library, the old shot tower now housed within a modern shopping/office complex, and a ride on a "w" class heritage tram which circles the city.

After viewing the city's bridges over the Yarra, we took the ferry - as the rain descended - to Spotswood former sewage pumping station, where we were met by Museum of Victoria curator, Matthew Churchward, who took us round, seeing mainly the Austral-Otis engines and the 1901 Hathorn Davey triple expansion pumping engine. Our day ended in Williamstown, where we inspected *H.M.A.S 'Castlemaine'* and the restored time ball tower.

On the second day, some members of the group visited the preserved 'Puffing Billy' railway, enjoying a privileged ride on the footplate, while the rest took the train to Geelong, which has a good museum and many fine buildings related to the wool trade.

The group then transferred to Hobart from where we headed for the Coal River Valley, named after the coal deposits found there but which became better known in the early years of the nineteenth century as "the granary of Australia". This trade made a bridge crossing of the river at Richmond essential and in 1823 the Royal Engineers, with convict labour, built what is now the oldest bridge still in use in Australia.

Via a convict worked sandstone quarry and more convict engineering at the famous Spiky Bridge, we made our way north along the east coast with views across Oyster Bay, in beautiful weather, to a bark mill established by the Morey family around 1885. The historic machinery reduced black wattle bark to a powder for use in tanning leather and the rest of the tree was fed as fuel to the ubiquitous Marshall portable engine. The mill which continued in operation until 1960 is Australia's only restored black wattle bark mill and may be the only one in the world.

But we had to leave the azure sea and white sand beaches behind as we turned inland and ascended Elephant Pass through thick eucalypt forest to St Marys. And here suddenly is a huge rusting water tank cast in Manchester in 1884 by Ashbury and Co, a turntable pit, a lonely semaphore signal and a few sleepers still visible amongst the grass betraying the route of the tracks into the former station.

Returning to the coast we called in at the St Helens History Room where the curator, Kym Matthews told us more about the opencast tin mining which was carried out on the escarpment near there known as the "Blue Tier". Like tin mining everywhere the fortunes of the mines were dependent on the price of the metal and these mines were last in the ascendant at the beginning of the 20th century.

Richmond Bridge built in 1823, the oldest bridge still in use in Australia *Photo: Bill Barksfield*

The approach to the tin workings at Anchor Mine *Photo: Bill Barksfield*

Tin ore stampers being reclaimed by nature *Photo: Bill Barksfield*

260m span Batman Bridge crossing the Tamar River, Tasmania. The first cable stayed bridge in Australia, built in 1966
Photo: Bill Barksfield

Our next planned excursion was to the remains of the mine itself but we thought those plans were dashed as the road to the mine had been washed away in recent storms. However, encouraged by the imminent arrival of our group, local volunteers led by Ian Matthews had devised a route via a rough dirt track and with the help of chainsaws had cut a path through the forest to make possible our approach to the mine. Ian and local historian Leon Kohl led us in a scramble over difficult terrain but it was well worth it as it soon revealed rusting machinery amongst the lush growth, the remains of a waterwheel and a bank of stampers (I.E.E. Salisbury of Launceston (Tas) 1883) all rapidly being reclaimed by nature.

From there a drive over the pass and we were meeting Mike Cooke, another of our local guides. In his 'ute', the standard means of transport, he led us down another track to the site of the Moorina hydro-electric station. Opened in 1908, the station ran for 100 years using the original AEG equipment housed in its timber framed building clad in rusting corrugated iron.

Mike also took us to view the Mount Paris dam east of Ringarooma in the Break O'Day municipality which has been added to the Tasmanian Heritage Register. Built in 1936 for the Mount Paris Mining Company it supplied water for hydraulic tin mining.

The dam is the only one of its type in Tasmania and is a good example of a reinforced concrete slab-and-buttress design. It was built almost entirely by hand. The only mechanical assistance was provided by petrol-driven concrete mixers and some tip trucks which delivered materials to the site. The dam operated until 1961 when the mine closed and it was drained in 1970.

In 1798 George Bass and Matthew Flinders circumnavigated Van Diemen's Land in the tiny sloop *Norfolk,* proving for the first time that it was an island. In George Town, at the mouth of the River Tamar we were welcomed at the Bass & Flinders Centre, heard the story and viewed a beautiful replica of the tiny ship they used. Thence to Low Head Point to see the convict built pilot station of 1835, the lighthouse and the ear-splitting fog horn, powered by a twin cylinder Gardner kerosene engine & compressor, sounded at midday on Sundays.

Our journey continued over the Batman Bridge - named after John Batman, Launceston businessman and co-founder of Melbourne. This modern bridge is of unusual design because the ground on the east bank of the Tamar River is soft clay not capable of supporting a bridge. The ground on the west side, however, is hard dolerite rock. This lead to the building, in 1966, of the first cable-stayed bridge in Australia. The main span is 260m, suspended from a 91m steel A-frame tower on the west bank which carries 78% of the weight of the main span.

Steam enthusiasts were catered for next at the Don River Railway at Devonport. The original railway had almost a century of very mixed fortunes running mostly freight and bulk ore but also passenger services up until final closure in 1963. The present volunteer operation concentrates on preservation of locomotives and

Waddamana 'A' Generator Hall with Pelton wheel *Photo: Bill Barksfield*

Nant Mill, originally a flour mill now a distillery *Photo: Bill Barksfield*

Norske Skog newsprint – 6m wide produced at 60km/hr *Photo: Bill Barksfield*

rolling stock and, after a short ride behind a steam loco built in 1951 at the Robert Stephenson works in Darlington, we had a tour of what must be the tidiest workshops of this type I've seen in a long time.

Our next stop was at Deloraine which might be characterised as a town of mills. On the way into town we stopped at the beautifully preserved Bowerbank mill of 1853 – initially water but later steam powered as being more reliable. In the town there were once five more mills and a hydro-electric station of 1905 on the Meander River which used an Otto Crossley gas engine when the water was low.

Hydro-electric was again to the fore at the three Miena dams, consecutively: concrete gravity in 1916, concrete arch and buttress in 1922 and rock filled in 1982. Each was higher than the last and the first now can only be seen in severe drought. All this water was to provide around 1100 feet of head for the Waddamana power station. Opened in 1916 to great acclaim, the "A" station had just two generating sets of 3.5MW each from Metropolitan Vickers but gained seven more of 6MW from General Electric of the US in 1922. It is open now only as a museum.

In 1944 the English Electric Co supplied four further 15MW generating sets for the "B" station. Also now decommissioned, it was opened on this occasion specially for our group to inspect.

And so to Bothwell and the Nant mill. Built in 1823 as a water-driven flour mill, its French Burr millstones answered the district's needs for flour until 1897. The buildings were then used for agricultural purposes and you can still see the marks on the wall in the barn where sheep-shearers counted each fleece as it was shorn. But in the 21st century the mill has come alive again as a grist mill and the buildings have been converted to a distillery. And what a very fine product it is too!

Almost back in Hobart, our attention turned to paper. Norske Skog were sponsors for the Engineering Heritage Conference and were pleased to welcome our group for a tour of the Boyer plant on the Derwent River North West of Hobart. Producing 40% of Australia's newsprint, the plant originally used re-growth eucalypt but has now switched to radiata pine, a change welcomed by environmentalists. The whole process is covered on the site: tree trunks arrive at one end and paper goes out at the other. There are two lines, one of which was shut down for maintenance so we were able to get up close and inspect the various rollers and the labyrinthine path through the machinery as the pulp (about 90% water) was transformed into paper with about 6% water. The second line was in full production, however, producing 6m wide paper at a rate of 60km/hr.

The group went on to join the Engineering Heritage Australia tour visiting amongst other places: the a restored windmill at Callington, the Queen Victoria Museum at Launceston, the Beaconsfield Gold and Heritage Museum, the Redwater Creek Railway, the 100m high Cethana Dam, the West Coast Wilderness Railway (a scenically fantastic trip), the West Coast Pioneer

Museum at Zeehan and the 1916 Lake Margaret hydro-electric power station. Bruce Cole and Bram Knoop gave an invaluable commentary on the many sites of interest which we passed on the way.

Three days of conference followed with a series of high quality presentations ranging from reconstruction of a pier on Norfolk Island to Heritage Apps for the iPhone. The most moving for me was a presentation by Andrew Marriott on the devastating effect of the "earthquake swarm" in the Christchurch area of New Zealand. Without forgetting the many who lost their lives, his presentation concentrated on heritage buildings. During the most severe shocks upward accelerations of 2g were measured. He said 'buildings were jumping up in the air'. He was assessing the damage on a building when another quake hit. Scaffolding around an adjacent building collapsed 'I was lucky not to be killed'. Never say that conference presentations are boring!

Dounreay

Following the article in IA News 159 on The Dounreay Sphere by Robert Carr the editor received a lengthy letter from Alan Pope. This contained so much personal experience and, perhaps, little known information, that it seemed right to include it here in full.

My wife is the Treasurer of the Dorchester branch of Industrial Archaeology. She showed me an article by Robert Carr in your winter newsletter, which initially made me feel like a new member of the living fossil brigade. Then I realised that Industrial Archaeology was not merely the study of the concrete items of the past but also embraces the innovative ideas which engendered them.

First I feel that maybe R. Carr may be a fisherman because he exaggerated the size of the sphere by about 50%, but then it reminded me that although many people know of Oppenhiem, who gave Truman the atom bomb, very few know of James Codd, who tamed the bomb.

I was interviewed by Codd in 1952 as a potential recruit for AERE Harwell, then under the aegis of the Ministry of Supply (later the UKAE Authority). In the interview he referred to my degree in mathematics and asked what I knew of reactor physics. Imagine my surprise when having admitted that I was totally ignorant on the subject his response was 'Good'. At the time I did not appreciate that the cognoscenti were firmly convinced that it was impossible to control a fast reactor because of the very short time between successive generations of the chain reaction in the process of fission.

A thermal reactor has neutrons produced in fission travelling at 6% of the speed of light, which are bounced around in a moderator until they are slowed down to thermal energies (the temperature of the moderator) at about 4,500 mph. The fuel spacing (the slowing down length) is compatible with the distance needed to allow such moderation.

Enrico Fermi had built a thermal reactor in a squash court in Los Alamos and it was recognised that the generation time was about 1 millisecond. In the case of a fast reactor, devoid of the moderator, which extended the generation time we were considering a time nearer to 100 nanoseconds, a factor of 10,000 less. The probability of a neutron creating fission is much greater at the lower energies than at the higher energies, hence Fermi could make a thermal reactor with natural uranium (of which only 0.7% is fissile) but for a fast reactor one needs to enrich the U235 component or otherwise the U238 component will mop up the neutrons before they can reduce the next generation of the fission chain reaction.

Codd believed that even 1 millisecond must need an additional control to enable mechanical reaction to be possible. He hired me to help him solve the problem, which took us two and half years. In 1954 we had identified six delayed neutron emitters and the additional temperature, which enabled the control of a fast reactor, provided the operators kept the process at a criticality below the 'prompt critical' level.

Above the prompt critical level the reactor becomes critical without the support of the delayed neutron emitters. It is important to realise that at critical the chain reaction will tick over at a constant power level but if one wishes to increase the power level it is important to allow the reactor to become just super-critical, where the power level increases at a low but exponential rate. A working reactor delivering electrical power to the grid is continually swinging gently above and below critical.

The sphere is about 135 ft in diameter, but the reactor within the sphere was about the size of an average dustbin. It is within this small volume that some 700 megawatts of heat were generated, cooled by tubes containing liquid sodium to remove the heat, which in turn was used to boil water to drive a turbine deliverig 250 megawatts of electricity to the National Grid.

After working with Codd, I worked on all the other aspects of nuclear reactors, covering the thermal and epithermal energy ranges. I spent nearly 17 years working with John Story, during which time we achieved many things.

I chronicled the UK Request List, which collected together the nuclear data requirements of all the UK's reactor physicists and I established and expanded the UK Nuclear Data Library from which the said physicists took all their data. As Carr's article mentions we led the world in the field and were not deemed to have any near rivals until 1975 when the USA devoted 40 professionals in the field and the USSR employed 35 professionals to establish their version of the UKND Library. The USSR's was the tenth such collection of data; ours was the first.

The UK strategy from the very outset was that all calculations should be based on so called 'differential data' and later correlated against 'integral data' so as to minimise the possibility of catastrophic error.

Over the last half century, we have generated about a quarter of all electrical power by means of fission reactors. I think we will need to revert to nuclear power to cut down on greenhouse gases for the foreseeable future but using the established intelligent schemes of the past in conjunction with modern capabilities we can certainly solve the problem of greenhouse gases, renewable energy sources and economic dependence on foreign energy sources by simply concentrating on the efficient methods of converting, storing, producing and waste management. I find it gratifying that attention should be focussed on archaeology, which was new to me.

[In response to the above and with the encouragement of Robert Carr I forwarded R C's article which was originally published in Links and received the following reply. Ed]

Thank you for your e-mail. That was a most interesting article on Dounreay. It spoke of the magnificent engineering feat of constructing the massive sphere, which is in itself noteworthy.

However, there were many more significant engineering feats that are not even considered. The engineers had to consider how to extract 700 Megawatts of heat, which was generated in a volume the size of a dustbin and also use it to drive a turbine, which was itself of enormous dimensions. It is true the physics of the venture was pioneering but so also was the engineering.

The article says that the construction began in 1955. This is remarkable when you realise that James Codd and I had not published the control mechanism of a fast reactor until August 1954 and the distribution of that report was very restricted. The construction engineers, the heat engineers etc. must have pulled out all stops to be able to begin work so early.

As you may know the heat exchangers had to be two stage. The primary coolant was liquid sodium, which is solid at room temperatures (i.e. when it must start) so it had first to be primed with a potassium/sodium mix. When operational temperatures were achieved liquid sodium took over. This switch was in itself an engineering problem to be solved. Only a liquid metal would have sufficient thermal capacity to achieve the necessary cooling.

The secondary coolant was water so that steam could be generated to drive a turbine. This meant that the liquid metal had to come into close contact with water. Definitely no leaks allowed, Na/H_2O is bad enough but K/H_2O is explosive.

Then there is the turbine; it was deemed necessary to drive one turbine and not complicate the issue by trying to effectively split the heat output between a number of smaller turbines. There weren't many turbines of the size required.

I believe the engineering problems that were tackled deserve a little more exposure. I am not an engineer, but I greatly admire their abilities. Science may show the way but the engineers have to navigate.

Essex Industrial Housing Estates

One of the highlights of our Essex conference will be the industrial housing created by the Crittals and by Thomas Bata. During the interwar period, these Essex industrialists, undoubtedly influenced by the ideals which drove the model village and garden city movements of the early 20th century, each decided to build modern self-contained 'workers villages' close to their manufacturing base.

Adam Garwood

The Crittall Window Manufacturing Company Ltd

Following the end of the First World War the Crittall (steel framed window) Manufacturing Company Ltd built 65 workers houses close to their works on the Clockhouse Way Estate, Braintree. Designed by Walter. F. (Pink) Crittall and C.H.B. Quennell, these innovative houses were constructed using mass production methods which employed a standardised metric system based on one metre units. They were described as 'the first houses in England which were modern as opposed to traditional in form' and are thought to be some of the earliest concrete-block flat-roofed domestic dwellings to be built in the country. The success of the business and the need to expand and re-structure led to proposals for a Clockhouse Way extension. However, the consensus, driven by Francis. H. Crittall (Pink's son and successor) who wanted to build a model village similar to those at Bourneville and Port Sunlight, was to establish a new settlement and manufacturing base.

In 1925, The Silver End Development Company was established to co-ordinate the entire development and between 1926 and 1932 a new model village comprising just under 500 houses was built on 200 acres of former agricultural land at Silver End, near Braintree. To avoid monotony in built form and landscape design, several leading architects were engaged including C. Murray Hennell, who had previously worked on Letchworth Garden City, C.H.B. Quennell and Thomas Tait, and Fredrick McManus of Burnet & Partners. The first phase of housing adopted the emerging International Modern Movement style of architecture, characterised by the use of flat roofs, linear glazing and plain rendered walls.

Despite initial criticism of the modernist architecture, the new provision was a marked improvement on available contemporary housing. F. H. Crittall insisted that every house should have, as a minimum, hot and cold running water, proper sanitation, gas or electric light and gardens to the front and rear. The rents were peppercorn and each employee was given the option to purchase his house within 20 years of service. By mid 1928 Silver End offered a village hall with library, a theatre cum cinema, restaurant, lecture room and various games and social rooms. In 1929 a hotel and a department store were completed, an existing barn was converted into an Anglican Church (by C.G.Holme) and by 1930 a congregational chapel was built. Playing fields for a multitude of sports activities were provided for the employees and two local farms were purchased to provide wholesome subsidized food, administered by the non-profit making Silver End Trading Society. The whole village was finally finished in 1932, although most of the housing had been completed by 1930.

Inevitably, the International Modern Style housing has attracted most attention from historians and architects and is one reason behind Silver End's fame. Today a selection of the modernist workers' houses along Silver Street are designated as grade II listed buildings for their group value and they form the core of the Silver End Conservation Area. The modernist housing, however, only accounts for about a third of the total houses at Silver End, the remainder adopt a more traditional Neo-Georgian style with brick walls and pitched slate roofs. As would be expected, Crittall metal framed windows were used throughout the housing and although most original windows were replaced by the local authority during the 1950s-60s and many (non-listed) council houses have subsequently been double-glazed using replica Crittall-style windows, the village still retains much of its original character, layout and design.

Crittall's first housing development at Clockhouse Way *Photo: Essex County Council*

Crittall's New Model Village at Silver End *Photo: Essex County Council*

British Bata Shoe Manufacturing Co

A slightly later (1933) but no less significant settlement to Silver End was that conceived and built by Tomas Bata, founder of the British Bata Shoe Company at East Tilbury.

Following a visit to the Ford car plant in the USA, Tomas Bata was converted to the concept of an assembly line mass production approach to manufacture. He initially set about the transformation of his own home town of Zlin in Czechoslovakia into a workers' 'utopia' of 45,000 dwellings, creating the first and only

1933 Modernist houses in Bata Avenue *Photo: Essex County Council*

Bata Manager's House *Photo: Essex County Council*

Bata Factory derelict buildings *Photo: Essex County Council*

'Constructivist' town in the world. For East Tilbury, Bata employed Czech architects, Jan Kotera, Franisek Gahura and Vladimir Karfik to design a new factory and model village following the Zlin blueprint and based on the International Modern Movement style of architecture. It was designed to provide all the housing and social needs of the workforce and over 300 houses were initially built. By 1933 the first modernist houses were built in Bata Avenue and were followed by three parallel roads (Thomas Bata, King George VI and Queen Elizabeth Avenues) of modernist houses erected before and after World War II. These later houses varied slightly according to employment status, providing different internal layouts and larger executive houses built with extended frontages and a first floor balcony. Despite this classification, all the housing as a minimum were provided with an inside bathroom, heating and electricity. Pre-war rents for small houses were 10/- (50p) per week, the larger ones were 25/- (£1.25p) per week. Post war developments along Princess Avenue and Gloucester Avenue in 1959 and 1966 moved away from the modernist style and adopted a more conventional pitched roof design typical of the housing seen in the emerging New Towns.

The new settlement as Silver End was designed to be self sufficient, providing subsidized food sourced from the company's own 300 acre farm, a post office, religious and educational facilities and amenities such as shops, a cinema, hotel, swimming pool and playing fields, all on a par or surpassing those facilities available in contemporary towns. The resident employees were encouraged to maintain the appearance of their properties and the neighbourhood in general and there was a gardening competition every summer to encourage a sense of community pride. Whilst the housing provision and the facilities were generous, it is clear that Bata was able to influence and control the actions of their employees through the threat that if you lost your job you also lost your home.

Today all the housing has now been sold either to individuals or housing trusts and the factory is now closed and the site awaiting sympathetic redevelopment. Large parts of East Tilbury are protected by a Conservation Area and many of the first built modernist houses along Bata Avenue are listed grade II. The factory complex comprises 13 industrial units built between 1933 and the late 1950s, the most characteristic using extensive day light glazing to illuminate the working floors and built to a modular six metre square plan. They still form part of the East Tilbury conservation area and remain as an important, but dilapidated reminder of the settlement's industrial past.

Peter Willans and the Willans Central Valve Engine

The recent award of the 68th Institution of Mechanical Engineers Engineering Heritage Award to the Willans Central Valve Engine, serves to remind us of the contribution that Peter Willans made to the development of steam engines for power generation.

Alain Foote B.Sc. C.Eng. F.I.Mech.E.

Willans and Robinson Works under construction in Rugby – much of this survives

Peter William Willans was born on 8 November 1851 in Leeds. He attended Leeds Grammar School from January 1862 and left in 1867 to begin an apprenticeship with Carrett and Marshall (later to become Hathorn Davey and Co). On completion of his apprenticeship in 1872 he took up a position as a draughtsman at John Penn's in Greenwich. Whilst at Penn's, in 1874, he invented his first steam engine which was covered by British patent no. 974. This engine was one of the first enclosed type steam engines to be built commercially.

As Penn's were not prepared to develop the engine further, Willans left and set up as Massey, Willans & Ward. They licensed Tangye Brothers and Holman to build the engine for land use and Hunter & English to build the engine for marine applications. This partnership was wound up in 1876 and Willans went to Hunter & English of Bow, as manager of a special department concerned with the manufacture and sale of the engine for marine work.

Peter Willans left Hunter & English in 1879 and, together with Mark Robinson, founded the firm of Willans and Robinson in 1880. In the same year, Willans took out patent no. 1572 which covered the design of three cylinder launch engines, both simple and compound, and covered features not included in the previous patent of 1874. At the beginning, manufacture and output was on a very small scale from a works in Kingston-upon-Thames. However, such was the success of these novel engines, that they moved to a works in Thames Ditton, on the south bank of the River Thames, which became known as the Ferry Works. From 1880 to 1884, Willans was primarily concerned with the development of marine engines and the construction of yachts and launches.

Another important patent (no. 4907) was taken out by Willans and Robinson in 1882 which covered the air buffer arrangement. The purpose of this was to ensure that a download was always exerted on the crankshaft and big end bearings, thus preventing the reversal of thrust normally associated with single-acting engines.

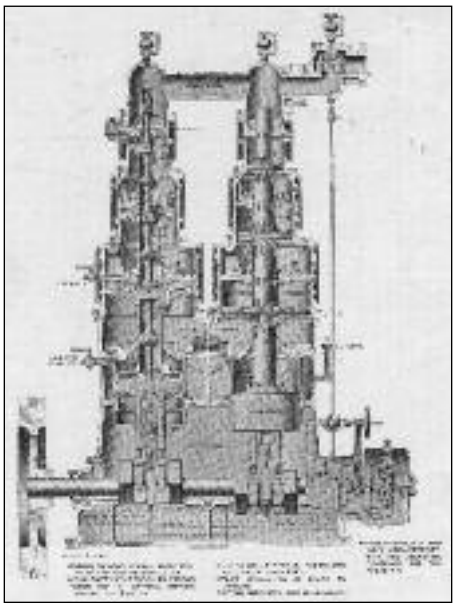
In 1883 a significant step was taken in which a compound engine was installed in a parcel van of the South Eastern Railway Company. This engine drove a generator which was used to supply electricity for lighting a train on the London Underground. This is believed to be the first Willans engine used commercially for electricity generation and was engine no. 338. The Willans Three-Cylinder Engine was undoubtedly superior to the other small high–speed engines of its day, but it was far from perfect. The high-pressure piston driving one crank formed the valve for the low-pressure piston driving another. This arrangement, ingenious and beautifully simple though it was, compelled the use of long steam passages, and what was worse, exposed some of the surfaces to wide differences of temperature, causing excessive initial condensation.

The following year, Peter Willans took out patent no. 13769 covering the Central Valve Engine, followed by patent no. 1852 in 1885, which covered the use of an eccentric mounted on the crank pin to operate the central valve. The Central Valve engine had a tubular piston rod inside which a set of piston valves operated. Steam was admitted down the interior of the tubular piston rod and both distributed to and exhausted from the cylinders through ports cut in the piston rod. The ports were opened and closed by the movement of the piston valves. The steam (and water) passed continuously downwards through the engine, securing very good drainage.

The first Central Valve Engine (No 498) was delivered late in 1885 to the Admiralty. This was a 14 horsepower simple engine driving a Crompton dynamo at 400 rpm. The engine was installed in HMS Black Prince. By 1887 a complete range of engines with LP cylinders ranging from 5" bore to 17" bore had been designed. These engines could be erected as simple or compound, with single, double or three cranks. The larger sizes could be built as triple expansion engines.

During a windy night in November 1888; fire swept through the Ferry Works, fortunately no-one was hurt, but most of the works was destroyed. The new factory was built quickly and was back in full production by the end of 1889. At this time, there was a growing demand for steam

Willans design Hunter & English Three cylinder steam engine, now in the Birmingham Museum Collection Centre



The details of a two cylinder compound Willans Central Valve Engine taken from an 1890 Willans and Robinson brochure

18 November 2011, unveiling the plaque on engine 3226 at the Alstom's Willans Works in Rugby

Photo: Martin Green

engines to drive generators to power the rapidly expanding public electricity services, particularly the electrification of tramways, not just in Britain, but throughout the world. By 1892, there was practically no competitor for the Willans Central Valve Engine and they were installed in nearly every power station in Britain. In fact, in 1892 it is said that 68% of the aggregate capacity of plant at work in British power stations consisted of Willans engines direct coupled to generators.

Tragically, on 23 May 1892, Peter Willans was killed in a road accident, when he was thrown from his pony trap. Business was, however, booming and the company had outgrown the Ferry Works. So in 1894, the company purchased 30 acres of land off Newbold Road in Rugby. Construction of the works commenced in 1894, with the first machining operation taking place in December 1896. The works, known as the Victoria Works, opened fully in 1897. The works were modelled on the rebuilt Thames Ditton factory and had a pleasing ornate architectural design to conform to other important buildings in the town, particularly Rugby School.

The period between 1898 and 1904 was the zenith of the Central Valve Engine, culminating in the award of a Gold medal to a 2400 horsepower engine which was exhibited at the Paris Exhibition of 1900. Towards the end of this period, it became clear to Willans and Robinson that the double acting steam engine was becoming a serious competitor, owing to its higher speed and lower steam consumption. The Board gave the matter much consideration, but finally decided that the steam turbine, then in its infancy, was the only possible solution for large scale power generation.

Initially, consideration was given to producing their own design of steam turbine, but eventually they decided to take out a manufacturing licence from C.A. Parsons & Co. This agreement, dated 6 February 1905, authorised Willans and Robinson Ltd. to build steam turbines in the UK only. The order for the first turbine (ST1) was actually received in 1903 and was for a 1000kW 1800rpm unit for Linwood. This was the beginning of the end for the Central Valve Engine, with the last engine (No 3838) being supplied in 1914.

Engine No 3226 from 1901 is the engine that was presented with the Engineering Heritage Award and was in use until 1957 at Maples in Tottenham Court Road. The engine is now displayed in Alstom's Willans Works in Rugby, which is still involved with the design and manufacture of steam turbines.

Industrial Heritage at Risk Revealed

Many members will have seen in the media references and excerpts from English Heritage's research into 'Industrial Heritage at Risk' published in October. Here are the main conclusions to this, the largest ever research project into the condition of England's industrial heritage.

Listed industrial buildings are more at risk than almost any other kind of heritage. Almost 11% of grade I and II* industrial buildings are at risk, an extraordinarily high number compared to the 3% of the total of grade I and II* buildings which are at risk in England.

Only 40% of listed industrial buildings at risk could be put to sustainable and economic new uses meaning that for the remaining 60%, although greatly loved and of immense cultural value, opportunities for adaptive reuse are limited. These sites typically involve buildings that contain historic machinery, are redundant engineering structures or mining remains. Their future will be dependant largely on voluntary effort, private philanthropy and increasingly scarce public funding. Although not easy, there are countless examples that have been saved by committed local groups as conserved sites in the landscape, often with public access or as visitor attractions.

Lead, tin, copper and coal mines are the industrial sites most at risk on the Register. Textile mills also make up a large proportion and these buildings are often concentrated in a single place - Lancashire, Greater Manchester and West Yorkshire. The remains of 20th century industries are poorly understood, under-appreciated and very much at risk

Most industrial heritage sites at risk in the North East are things which are not capable of being converted for new uses, indeed 54% are connected to various forms of mining. Most industrial heritage sites at risk in the East of England are wind and watermills and most in the South East are maritime structures.

A poll of public attitudes to industrial heritage which English Heritage also published today shows that:

- Almost half the population (43%) do not know when the industrial revolution took place.
- However, 86% agree that it is important we value and appreciate industrial heritage.
- 80% think it is just as important as our castles and country houses.
- 71% think industrial heritage sites should be reused for modern day purposes as long as their character is preserved.
- Only 9% considered them depressing or an eyesore.

Simon Thurley, Chief Executive of English Heritage, said, 'Britain led the way in global industrialisation and as a result we are custodians of the world's most important industrial heritage. It is, however, one of the elements of our heritage most at risk.

'Forty per cent of these buildings could be reused to house new advanced manufacturing, the sorts of technology, green engineering and creative and inventive businesses on which the country's economic future now depends.

'However, 60% of our industrial heritage won't ever attract developers and businesses. Its future could be bleak but, as our poll shows, people are passionate about our industrial past and since the 1960s there has been a strong tradition of local groups taking on the preservation of their local industrial heritage.'

Responding to the need to save buildings such as mills, factories and warehouses, English Heritage is offering:

Help for developers

A new section for developers on the English Heritage website will offer advice relevant to re-using industrial buildings and each English Heritage local office will, for the first time, publish a list of 10 'at risk' priority sites, many of which will be industrial. Developers interested in taking these on will get additional help from English Heritage to guide them through the process.

Help for owners

A new guide to keeping buildings safe from decay or in temporary use until better economic times *'Vacant Historic Buildings: An Owner's Guide to Temporary Uses, Maintenance and Mothballing'* is available from the English Heritage website. This advice will be backed up by grants, already averaging £2 million a year, for urgent repairs.

Help for heritage rescue groups

Responding to the need for support and recognition for groups looking after industrial structures such as the pit head winding gear at collieries, redundant bridges or kilns, furnaces and other ruins in the countryside or industrial buildings with no future use and where commercial reuse is an unlikely option, English Heritage, together with the Pilgrim Trust and the J Paul Getty Junior Foundation, is putting £180,000 into a three-year industrial 'cold spot' grant scheme to kick start rescue projects in places where few are going on.

The scheme will be run by the Architectural Heritage Fund, who, together with English Heritage are putting £400,000 into part-funding three people to match-make voluntary heritage groups with industrial buildings needing rescue.

English Heritage is to part-fund an Industrial Heritage Support Officer to set up a network of support and advice for trusts and voluntary groups.

Looking forward, English Heritage will be doing at least 25 projects over the next few years that will result in the better understanding and protection of our industrial heritage, such as one on the lead mines of Derbyshire, a water mills project in partnership with the Society for Protection of Ancient Buildings, and a project on buildings for the motor car.

The English Heritage research found that the main risks to industrial heritage are:

- Developers do not consider industrial heritage part of the mainstream property market and can be put off by a site's scale, possible contamination, conversion costs or, if the building is listed, an exaggerated notion of the restrictions this could impose.
- Current low property values in some parts of the country make redundant industrial buildings unlikely to attract tenants and mean that there is little incentive to repair them.
- Developers are finding it hard to raise finance and there is far less public subsidy available. This leads to more industrial buildings remaining derelict and for longer.
- Owners, particularly in the current economic climate, find themselves struggling to maintain a large historic building on top of the challenges of running the business itself.
- It can be hard to find funding to maintain sites which can only be preserved as ruins.

George Ferguson, architect and entrepreneur, who has a track record of rescuing industrial heritage sites, said: 'Old industrial buildings can present a great opportunity for inspiring and sustainable conversions to a variety of uses. The best examples balance the need for creative re-use and revitalisation with the revelation of the history and character that undoubtedly brings added value to such conversions.'

A guided tour of the industrial culture of northern Spain, September, 2012

Too much sunshine, not enough coal, or insufficient work ethic – whatever the cause, only three regions in southern Europe responded to the industrialisation that took off in Britain. A guided tour through northern Spain in September, 2012 sets out to discover two of them. Subtitled *"A Country of Belated Marvels,"* it starts from Gijón (Asturias), takes in Santander (Cantabria) and then a coastal train ride into Bilbao (Basque Country). The itinerary includes major mining and railway museums, ironworks and other attractions, the seaside palaces commissioned by wealthy entrepreneurs from Gaudí and other Catalan architects, as well as a fiesta in a mining village.

Then, following an evening in Logroño (La Rioja) devoted to understanding the industrial base of its wine industry and getting to know its unrivalled tapas bars, we'll head east on the new high-speed AVE train to Barcelona, Eduardo Mendoza's 'City of Marvels'.

Barcelona is one of only a hand-full of industrial cities that were also powerful centres of medieval production, and retains important sites like the 14th century Drassanes shipyards. After steam power was smuggled here from Britain in 1833, industrialisation followed a unique path based on water power. The final days of the tour will investigate some of the hundred or so industrial settlements that were the backbone of the industrial economy, including the 'Scottish colony' built by Coats of Glasgow.

From Barcelona you can fly home to numerous British and European airports, or we can suggest where you might go next to explore Spain or southern France.

So tick the boxes: railways, mines, foundries and steelworks, textile colonies, industrial architecture in stone and iron, the houses of the Midases and of the masses, autumn sunshine and superb food and wine. Your guides on this inimitable field tour are all Barcelona-based: Jim Douet is ex-English Heritage and editor of TICCIH; Trevor ApSimon is director of FollowTheBaldie.com, a cultural tour business and the organiser of this trip; Silvana Criado is a textile artist.

The price of £955 per person (£1165 single occupancy) for eight nights includes all transport; accommodation in selected (period) 3-/4-star or equivalent hotels; all breakfasts, three lunches and welcome and farewell dinners; all guiding services, entry fees, taxes and tips; and, last but not least, a specially published bedtime reader containing freshly translated excerpts from contemporary novels, diaries, industry journals and reports

Full and definitive tour and booking details can be found on FollowTheBaldie.com, shortcut http://goo.gl/9ByRd.

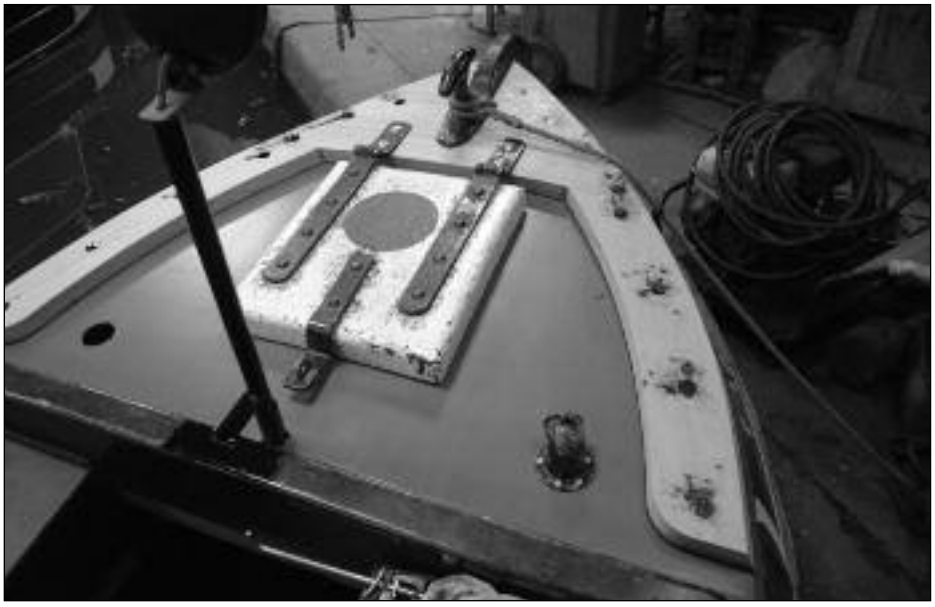
The Colonia Sedó is one of the biggest of the Catalan river factories *© Pepe Cornet.*

Ironbridge Weekend, 21-22 April 2012

Industrial Heritage at Risk

The Association is holding an 'Ironbridge Weekend' on 21 and 22 April 2012 on the subject of Industrial Heritage at Risk. Among our speakers are Shane Gould who is leading on the project for English Heritage, and Inspector of Historic Buildings, John Yates who will be giving us a briefing on the building at the top of the 'at Risk' list – Ditherington Flax Mill. There'll be the presentation of the AIA Annual Awards and the launch of the new Industrial Archaeology Handbook. After lunch we'll take a coach to Shrewsbury to visit Ditherington in hard hats and hi-vis jackets. This is a must-see site. There'll be a social event with dinner on Saturday evening and, on the morning of Sunday 22nd, we will visit another site on the 'At Risk' list, Carpenters Row in Coalbrookdale, followed by a look at the £12m development at Blists Hill Victorian Town. For further details and a booking form see the flyer enclosed or go to www.industrial-archaeology.org or contact David de Haan on 01952 435934.

Ditherington Mill *Photo: Amber Patrick*



Narrow Boat Tarporley Foredeck as rebuilt

Narrowboat Tarporley

The Camden Canals & Narrowboat Association (CCNA) has announced that work on the Tarporley, assisted by an AIA Restoration Grant of £3500, is now complete.

Built by W J Yarwood & Sons, Northwich, Cheshire in 1937, as part of a major order from Grand Union Canal Carriers, the Tarporley continued to carry cargo after WW2, from Birmingham to Paddington or Limehouse in London. Leased by the newly formed nationalised British Waterways (BW) in 1957 to Willow Wren Transport Services and then sold by BW in 1970, still as a working boat, to Malcolm Braine (boat builder). In 1972 he sold the boat to the London Borough of Camden (LBC) who had it converted to passenger use with 12 berths for residential and day trips, particularly for the young and for older people. They successfully carried out this well-acknowledged community service for 20 years using professional skippers. By 1992 LBC wanted to transfer the community initiative and, indeed, the boat to the voluntary sector. The predecessor of the CCNA, the CNA, was set up in 1992 by volunteers, led by LBC councilors connected with the Leisure Services Committee, to take over the operation and ultimately in 2002 the full ownership of the boat. In June 2006, Tarporley was listed on the UK National Register of Historic Vessels, certificate no. 2008.

The fore-end of the boat was in a poor condition. The timbers were decayed and the steelwork corroded. The cants (timber gunwales) were riddled with decay around the bolt holes and the steel deck was punctured with rust. Our volunteers spent a lot of time patching up the cavities and holes but the deck was no longer serviceable or presentable. Our 4-yearly condition survey in November 2010 confirmed that the cants were split, the steel below and to aft was significantly corroded and the riveted flange connection between hull and deck was in poor condition.

Restoration work involved removing the rotten cants and the foredeck, which was retained as a template for the new one. New oak cants were prepared and they and the new foredeck fitted. The original hatch cover, which had been removed and retained, was re-fitted.

AIA Publication Awards and Dissertation Awards 2011

It was not possible to present most of these at the Annual Conference in Cork, but the awards will be made at the Spring Weekend in Ironbridge 21 – 22 April 2012, details of which can be found elsewhere in this issue.

Best Occasional Publication: Jim Lewis, *Industry and Innovation; the technological revolution in the Lea Valley.* AIA members may remember Jim as a previous winner of the Dorothea Linford Award for restoration.

Runners-up: Mick Drury, *The Hutment Communities,* Cannock Chase Mining Historical Society. Pete Joseph, *Hard Graft; Botallack Mine in the Twentieth Century,* Trevithick Society, 2010. Leicestershire Industrial History Society e-publication, *The Leicester to Swannington Update 2010:* Compendium: recent research, recording and illustration of this historic railway system.

Best Journal: *Sussex Industrial History, 41, 2011.* The judges said this was very well presented and packed with articles on canals, millers, a canal pumping station, airbus building, and turnpike roads.

Runners-up: *Journal of the Norfolk IA Society, Vol. 8, No. 5, 2010. Hampshire Industrial Archaeology Society Journal No. 18, 2010.*

Best Newsletter: *Focus on Industrial Archaeology, Hampshire IA Society No. 75, Dec 2010.* A previous entrant; the judges felt that the Society had made considerable efforts to improve the appearance of their Newsletter which was always very informative.

Runners-up: *Sussex Mills Group Newsletter, No.150, April 2011. Sussex Industrial Archaeology Society Newsletter, No.150, April 2011.*

Dissertation Award: all the entrants were in the postgraduate award category. The winner was Edel Barry of the University of Cork, *'The Archaeology of Narrow Gauge Railways in Munster.* Delegates to the annual conference in Cork heard Edel talk about her project.

Runners-up: Laura de Boer of the University of Sheffield on the re-use of redundant textile mills and Kate Gillespie of the University of York on the heritage value of Saltaire.

AIA Council has decided that the AIA Awards need some reconsideration as they have now been offered for several years with no change. The two dissertation awards for undergraduates and postgraduates have not changed and details have been sent to all universities, with some encouraging responses. The revised AIA Awards will be publicised in a future edition of IA News as well as on the AIA website.

The Peter Neaverson Award winners for 2011 were publicised in the last issue of IA News and these will also be presented at Ironbridge in April 2012.

Marilyn Palmer

Devon IA Group

A Devon IA group is being established under the auspices of the Devonshire Association from early 2012.

Dr Mick Atkinson is the Chairman designate and Brendan Hurley the Secretary designate. The group is keen to hear from people who are interested in becoming members or would like to have more details.

Email: brendanhurley@fastmail.co.uk
Write: DAIA, c/o 34 Argyll Road, Exeter EX4 4RY
Tel: 01392 439378

Regional Support Officers appointed to tackle Buildings at Risk

The Architectural Heritage Fund (AHF) has appointed a new Development Manager, Gavin Richards, who was formerly one of the AHF's Projects and Development Officers and, jointly with English Heritage, three new Regional Support Officers. These are Jo Hill, based in Leeds, who will cover the North of England and Yorkshire; Lucie Thacker, based in Leicester/Birmingham, for the Midlands; and Josephine Brown, based in Totnes, covering the South West. The Regional Support Officers start work in January and are looking to encourage community groups to tackle buildings at risk in their areas. Further information is available from Gavin Richards or Ian Lush at the AHF: gavin@ahfund.org.uk and ian.lush@ahfund.org.uk

Heritage of Industry Programme of tours for 2012

For more details on the trips visit the website http://www.heritageofindustry.co.uk

19 – 22 April Shoemaking in Northampton

Shoemaking in Northampton was recorded as early as 1200 and grew into a major industry. Until the nineteenth century shoe making was carried out in small workshops by hand but the introduction of machinery led to larger scale production. Sue Constable will help us explore the landscape of the shoe industry looking at current and former factories, the development of the town, and ancillary industries such as tanning and engineering.

10 – 13 May Mainz & Wiesbaden

Mainz is a fortress and garrison town with a medieval centre but a nineteenth century industrial aspect at Mombach where Waggonfabrik Gebrüder Gastell was making railway carriages from 1845 and Wiesbaden with the flamboyant neo-baroque railway station, which once welcomed Kaiser Wilhelm II at his own platform, make a fascinating grouping.

28 May – 6 June AIA Spring Tour to the USA – Mid West

At the end of May the AIA Spring tour is to the mid-West of the United States to join members of the Society for Industrial Archaeology at their annual conference in Cincinnati and explore some of the industrial history of the region. Before the conference we will be undertaking site visits in Indiana. During the conference we will take part in the SIA tours in and around Cincinnati and afterwards make our way north, through Ohio, to the once mighty industrial city of Detroit.

21 – 24 June The Fylde peninsula

Peter Forsyth will lead us in an exploration of Fleetwood, the first planned community of the Victorian era. Designed to be both a port and a bespoke seaside resort, which could cater to the trade and leisure needs of Lancashire's rapidly developing industrial towns, it became much better known as a deep-sea fishing port. After an examination of the rise and fall of the fishing industry we will take the tram to Blackpool to see how that town developed its tourist capabilities much more successfully than Fleetwood.

10 – 15 September Roam Round the Ruhr

The home of North Germany's iron and steel industry, with Sue Constable. Based on local coal, the whole valley from Duisberg to Dortmund became a continuum of coal mines, coking plants, blast furnaces and steel works. To support this there was an extensive transport network including railways and canals and our trip will include aspects of all these features. On the list are the Zollverein Colliery (a World Heritage Site), the boat lifts at Henrichenburg on the old Dortmund-Ems-Kanal, the Hendrichs forge, with its 33 drop-hammers, which once produced millions of scissors, knives and weapons and the Villa Hügel, the former residence of the Krupp family.

You are IA, have you recorded it?

The industrial history of the twentieth century is, I believe, under recorded. As members of the Association we should be doing something about this. Most of the membership have worked in a wide range of industries, or know people who have, and over a considerable period during which there will have been significant changes both in production and management techniques as well as product developments. It is for us to record these things for the benefit of future historians.

I therefore suggest that all of us should over the next few months record our experiences in our own industry noting details of the processes we have been involved with and observed at first hand. In addition I would suggest that we seek out relevant photographs, trade literature, in-house magazines etc. that illustrate these matters.

I should be pleased to hear from any member willing to partake in such a project. If there is a good response then a collection of such records will form an important archive of late twentieth century industry.

John McGuinness
Email johnmcguinness@btinternet.com Tel 01628 621791
29 Altwood Road, Maidenhead, Berkshire SL6 4PB

Flight Shed at Longbridge

For information the Flight Shed at Longbridge is now being demolished. The roof, which was the significant part of the building, fell in and lay concave instead of convex as they started demolition from the north westerly end.

Anthony Osborne BSc

Tony previously supplied the following information:

The Flight Shed at Longbridge was constructed in about 1936 as part of the Austin Aero shadow factory. The adjacent East Works was also part of the shadow factory.

Aircraft components were made in the East Works and sub-assemblies were assembled. The 550 (or thereabouts) Short Stirlings and 330 Lancaster bombers (including all the Mk7 Lancasters built) were constructed here and then shipped to Elmdon (now Birmingham International Airport) for assembly at the Austin Flight Sheds. They were then test flown and delivered from this site.

The Fairy Battles and later Hurricanes were finally assembled in the Longbridge Flight Shed. There was a lift at the back of the Flight Shed to lift these smaller aircraft up to the Flying Ground, which was redeveloped during the 1950s with the construction of the various office blocks and the Car Assembly Buildings.

The Flight Shed was in poor condition and full of asbestos. It was heated by radiant plaque heaters supplied with medium pressure hot water. There were no controls on the heating and each of the panels had asbestos behind them. The building was thermally inefficient and we had thought about insulating during a reroofing session in the late 1980s. However, whilst the structure would have supported the insulation, or any snow that landed on it, it would not support the insulation and snow. In practice the snow melted because the heat from the building escaped through the roof preventing it getting too thick (I don't know what would have happened if the boiler packed up when there was a lot of snow about!). It would have cost a lot of money to make it safe.

For more information on Longbridge including pages on aircraft production and a six minute film showing building Hurricanes visit www.austinmemories.com

Longbridge Flight Shed

Longbridge Flight Shed roof

Watt Engine in France

If possible, I would like to find out more information about a twin beam James Watt steam engine/compressor situated in the former steelworks at Fumel in Lot-et-Garonne, south west France.

Hope someone can help.

Tony Parkes

Old Warden Swiss Garden

I am currently researching the history of the structures and buildings in the Swiss Garden, Old Warden, Bedfordshire. The research is intended to inform conservation works and repairs that will be proposed in an HLF stage 2 application.

Within the garden are a number of interesting metalwork structures, and I am writing to you in the hope that your association may be able to shed some light on the foundries responsible.

Cato & Sons London

A pair of cast iron rose arches and a bridge within the garden are marked 'Cato and Sons London'. I am trying to establish the date of manufacture (so am keen to know if there is a terminus post or ante quem for this 'mark'). I am also keen to know whether any catalogues survive for this company - as it is possible that other structures within the garden (eg an additional bridge, railings, screen) which are unmarked, may also have come from this manufactory. It is also possible that the ironwork started life in another location, so any surviving account books for the company would also be of interest.

Both the rose bower and the marked bridge are Listed - I attach a link to their images on Images of England.

www.imagesofengland.org.uk/QuickResults/Default.aspx?qs=cato

Barwell Haggers Eagle Foundry, Northamptonshire

This firm were responsible for the cast iron conservatory that sits above a cruciform grotto in the garden. In this case we have been able to establish a definite date of c1830-1833 for the mark. However, it is again possible that this company (either slightly earlier or subsequently) were responsible for other structures within the garden. We do know that they had a long association with nearby Wrest Park. Any catalogue or account books from this period – up

to around 1880 – for the Eagle Foundry would therefore be of great interest to me.
www.imagesofengland.org.uk/Details/Default.aspx?id=414691&mode=quick

Clayton & Shuttleworth, Lincoln
This firm were responsible for at least one bridge within the garden, dating from c1870, when the Estate was actually purchased by Shuttleworth. As before, catalogue or account books would be of interest from this date.

Any help or pointers you can give me would be very welcome.

Victoria Hunns
terre.du.rocher@gmail.com

Another 20th century industry dies; has it been recorded?

Over the Christmas holiday I saw a news report recording the release of the last battery hens, since this system of farming is now regarded as cruel. Those of us, who went to the Festival of Britain in 1951, may remember seeing a battery hen setup, which was clearly being exhibited as the latest development in egg production. Has anyone recorded this 20th century factory farming system? If not then this is an urgent need. Should such a setup be preserved? Perhaps one could be relocated into one of our open-air museums, such as the Chiltern one. Should the AIA be proactive in suggesting that it would give a grant to such a proposal? I believe it should!

The agrarian revolution preceded the industrial one but, like industry in the UK, has seen major changes and developments in the 20th century many of which have or are being superseded by further developments. The rate of change in the past 60 years makes the recording and preservation of industrial processes and installations much more urgent than that of earlier industries.

I am horrified that the editor of our review can suggest that industrial archaeology ended with the 1914-18 war. Industry in the UK has developed possibly to a greater extent since 1945 than in the previous 200 years. We must of course celebrate the achievements of the early inventors, engineers and factory masters. However the time has come to move on. What is lost from the pre-first war era is lost; what must now be recorded is what has been done since.

Mike Nevell in his editorial makes the point that academics do not understand and cannot recognise the features of industrial sites. If this is true of the period up to 1918, how much more is this the case for post war sites. The understanding of post war industry requires so much more technical knowledge than that of the 19th century. It follows that there is a probability that academics, even those as experienced and knowledgeable as Mike Nevell, may fail to understand their significance.

After a tremendous effort by the leaders of this association, a guide has been prepared for professionals in the heritage business, for which we, in the association must give full credit and be very grateful. However, it is probably now, for those of us who have worked in industry in the second half of the 20th century, to make a similar contribution so that those responsible for managing our industrial heritage will understand what has happened in the past 60 years.

I would again encourage all members to record their industrial experiences and the developments that took place in their industry during their career.

John McGuinness

The first English Heritage Angel Award

The Friends of Pleasley Pit have won an English Heritage Angel Award for the best rescue of an industrial site, presented to them by Michael Winner.

On deciding to give the award to The Friends of Pleasley Pit, the judges said "Pleasley found passionate local people, many who were former miners, to rescue it. What was achieved at Pleasley is remarkable; the group stood against the Coal Board who wanted to knock the colliery down and then rescued the site which had stood utterly derelict for years, vandalised and collapsing. It took a great deal of imagination and vision to even attempt to save Pleasley, followed by 14 years of perseverance; the result, with its engines working again, is a window on a lost world."

The group were up against some stiff competition and the judges were impressed with all the entries. They were: the Stroud Preservation Trust for the Brunel Goods Shed, Gloucestershire; The Bestwood Volunteer Group for their rescue of Bestwood Colliery, Gedling, Nottinghamshire; and The Friends of North Leverton Windmill for their repair of the North Leverton Windmill, Retford, Nottinghamshire.

The winners of the first English Heritage Angel Awards, founded earlier this year by Andrew Lloyd Webber to celebrate the efforts of local people in saving their heritage, were announced at a gala ceremony in London's West End on 31 October 2011). The award scheme is run by English Heritage and based on its *Heritage at Risk Register.*

The ceremony, held at The Palace Theatre, was hosted by TV presenter Clare Balding, with Graham Norton, Michael Winner and Danielle Hope helping to present the awards.

Andrew Lloyd Webber chaired the judging panel which comprised Simon Thurley, Chief Executive of English Heritage, author and broadcaster Melvyn Bragg, Charles Moore of the Telegraph, historian Bettany Hughes and the Bishop of London, the Right Revd Richard Chartres. Andrew Lloyd Webber said: "All shortlisted groups were exceptional and the judges had a hard time deciding between them, but in the end the winners stood out for their passion, perseverance and imagination, for the scale of the challenges they had taken on and for the legacy they leave – a secure future".

Pleasley pit 'Angels' by Jackie Currell

After Award Ceremony Presentation

Closure of the Colliery came in 1983 after over a hundred years of production and by 1986 only the headgears, chimney, engine houses and engines remained and the demolition contractor had removed most of the roof coverings; at the last moment the Local Authority listed the remains and, despite many reasons being put forward by the NCB that the demolition should continue, Listed Grade 2 it stayed. A fence was thrown around the site and it was left to the predations of metal thieves, vandals and nature.

As the years went by everybody thought it should be saved but it was not until 1996 that Friends of Pleasley Pit was formed to actually do something about preserving the increasingly derelict site. The initial meeting was very well supported by the Local Authorities, English Heritage and local people and we immediately made arrangements for safe inspection. What a mess! Floor plates missing, engine parts missing, trees growing through parts of the engines, the remaining part of the roof on the verge of collapse, everything covered in rust and pigeon guano. Some thought we had taken on too much, some thought us deranged but after fourteen years of very hard work we have completely dismantled and restored to working order (by electricity at present) one of the steam winders and are well underway with the other. The owners of the site, the Regional Develop-mental Agency and now the Land Trust, have spent substantial amounts of money on the buildings and structures, providing new roofs and structural repairs to the chimney in the past and more recently to the iconic headgears and engine houses. Their future is now assured and a whole generation who will never know how it used to be will, at least, be able to marvel at these survivors of the Great Age of Steam and at the men of vision who ensured Pleasley Colliery after a hundred years of working is still with us.

The efforts of the Volunteers have, over the years, been unstinting and at times back-breaking; they deserve every accolade. This is very much a community based effort and, although some of the volunteers worked in the mining industry, there are people from almost every walk of life and of all age groups. They all know how important Pleasley Colliery is.

News from the Waterways

Reorganisation proceeds apace. Below is information on the development of Waterways Partnerships and a report on the All Party Parliamentary Group meeting with the Waterways Minister.

In April 2012 British Waterways' canals and rivers in England and Wales will be transferred to the care of a new waterways charity called the Canal & River Trust (CRT). In preparation for this a Council is being formed to protect the values and responsibilities of the new trust.

The Council will comprise 35 members with a wide range of interests and expertise and will include boaters, volunteers, local government representatives and other canal users. Together they will provide the experience and perspective of the constituency they represent and a voice for their interests.

The Council will have the power to appoint or dismiss the Trustees. While Trustees are responsible for determining policy and strategy, Council will have an important role in helping to shape policy, raising and debating issues, providing guidance, perspective and a sounding board for Trustees. The government is placing these waterways in trust for the nation, and that means that it is important for the people who use them to have a greater say in how they are run. One of the ways that this will happen is through the Waterways Partnerships.

There will be thirteen of these partnerships – eleven representing administrative waterways regions, one for the charity's waterways museums and attractions, and one for Welsh issues. They will be made up of a range of people representing different waterways interests - such as boaters, walkers, cyclists and anglers – and people with relevant expertise in areas like volunteering, fundraising, environment, heritage and community engagement. By the time of publication of *IA News 160* it is expected that chairs will have been appointed to all the partnerships and recruiting of members will be in hand.

Roger Hanbury, Chief Executive of The Waterways Trust, due to merge with the Canal and River Trust when it is formed in April, says: "Waterways Partnerships will shape the strategies for each waterway, guide decisions about spending, and help develop external funding and volunteering. They will champion the interests of the waterways and develop local engagement."

The All Party Parliamentary Waterways Group had a hearing on 8 December to give the Waterways Minister, Richard Benyon MP, the opportunity to inform the Group of progress on the CRT.

He was unable to say what the government funding was going to be for the CRT since negotiations had not yet finished but he expected to be able to make announcements in the New Year.

The Inland Waterways Association had raised concerns about the proposed amendments to the system for classifying waterways in the Transport Act 1968 because it was concerned that the CRT would seek to reclassify "cruising" waterways to "remainder" waterways. He gave an assurance that any application from the CRT to reclassify a waterway would be subject to a full cost benefit analysis and wide consultation with those likely to be affected, as required by the Transport Act.

He did not want or expect to see closure of any waterways. That would not be constructive. The Government wanted to ensure that in the medium term there was scope for a reduction in the percentage of assets that were in poor and very poor condition. He added that the Government wanted the existing network to be both maintained and enhanced.

On finance, Tony Hales, Chairman of the transition Trustees, said that commercial activity would be the most significant contributor, outweighing the government contribution by some margin, and that the Trustees were comfortable about the future prospects for this commercial activity. The Trustees were also confident about the forecasts for the contribution for voluntary income and donations, which were expected to reach £6-8m after 10 years. There were also contributions to be made by other government departments, local government and bodies such as Transport for London and the Olympic Delivery Authority. It was a

question of determining the benefits they receive from the network so that they recognised that a contribution was justified. However, he reiterated the view of the Trustees that the £39m per annum offered by central government was not enough. The finance package overall needed to be enough to secure the network's assets in the long term and ensure that day to day maintenance was carried out together with network dredging; and to ensure that pensions were safeguarded.

Rural Heritage: Delivering Public Goods

A report on the Heritage Alliance's Rural Advocacy Group (RAG) meeting held at Blenheim Palace in September 2011.

This meeting turned out to be far more relevant to industrial archaeology than its title might suggest; even coal mines, power stations and airports generally have farmland adjoining. There were some really excellent speakers and we had superb presentations from Steve Trow, English Heritage, Peter Hughes, Land Agent for the Madresfield Estate, and Corinna Woodall, North Wessex Downs Leader Programme Manager. The pity was, there were few people present to hear these excellent speakers, recent cuts having reduced the number of paid staff and funds available for travel.

Steve Trow emphasised the English love of the countryside, tracing this back in part to the evocative Second World War propaganda posters 'Your Britain, Fight for it Now' by Frank Newbould. These familiar posters helped steer public opinion in favour of the 1947 Town and Country Planning Act, now widely regarded by many in the countryside as a jewel in the crown of Clement Attlee's postwar legislation. The effect of this Act was dramatically illustrated by two aerial photographs of Padbury, Bucks from 1953 and 2003: intensive farming had altered farmland beyond recognition but the buildings remained the same.

In 2004 ninety-percent of England was classified as rural, with twenty percent of the population living there. With our high population-density England is fast becoming 'ex urbia' with little real countryside left. The issue of 'right to roam' was raised with the conflict that excessive numbers of visitors wear out the grass and cause soil erosion. The Naseby battlefield site was discussed: enthusiasts wish to restore a 17th century landscape to give an idea of how it looked in June 1645.

Peter Hughes from Madresfield gave a humorous and entertaining account of the trials and tribulations of managing a stately home and country estate. As well as this being highly educational, he evoked considerable sympathy regarding the horrendous difficulty one has coping with awkward aspects of current planning legislation and it is not just bats, newts and archaeologists which cause problems. Madresfield court itself is listed grade 1 and there are several listed buildings on the estate. Dutch barns are ubiquitous in the East Midlands and elsewhere and will be familiar to most of you; as an example of his work in Worcestershire, Peter Hughes described restoration work on an example 105 years old.

Presently, there are nearly 100,000 listed farm buildings, and throughout England numerous examples which might be adaptively reused and saved from structural collapse are being left to rot irrevocably because planning laws prevent sensible adaptation. In nearly all cases farmers prefer large new sheds suitable for mechanised handling and traditional farm buildings are being left unused with no funds for their maintenance.

Finally Corinna Woodall introduced the crucial subject of how to obtain money for preservation projects. Contrary to popular prejudice, the EU is providing funding for the rural economy to the tune of £130 million, to be spent over a six year period. She introduced a LEADER case study: Local Action Groups (LAGs) consisting of interested volunteers from the public, private and voluntary sectors use local knowledge to promote 'an integrated, bottom up, community-led delivery' of RDPE funding, see rdpenetwork.defra.gov.uk/funding-sources/local-action-groups. Taking match funding into account, LAGs receive about £160 million each – again to be spent over a six year period. A decision is made in 6 – 8 weeks, see the RDPE network website. LEADER or Leader stands for links between rural development actions, from the French - liaison entre actions de développement de l'économie rurale, and RDPE - Rural Development Programme for England.

Funds can be obtained to assist rural craft businesses and Corrina outlined the example of a rural blacksmith who received money to buy a power hammer and rolling mill and thereby improve the viability of his business - Peppitt Welding & Fabrication, Hollington Forge, Newbury. This firm is engaged in work repairing and replacing wrought-iron gates for prestigious listed buildings where historically authentic ironwork is mandatory. The West Berkshire Brewery, Yattendon Berks, received funds to make a reedbed for managing brewery effluent and to buy a new gas boiler.

The EU provides funding at the level of regional government and the recent abolition of the English Regions has made things difficult for fund raisers: we are the only large European country without Regions. One of those present at Blenheim was ex AIA Council member, Pam Moore, now Secretary General of ECOVAST, the European Council for the Village and Small Town. Set up in 1984, this organisation furthers the well-being of rural communities and safeguards rural heritage. With over 500 members in 20 countries ECOVAST promotes innovative renewal which safeguards natural landscapes and sites of architectural and historic interest. See www.ecovast.org.

After lunch discussion groups further amplified the issues raised by the morning's speakers and outlined individual experience of conservation and funding problems. There were two main themes; identifying threats to rural heritage and local and community action on rural heritage protection. The day was rounded off by questions and answers, with a panel consisting of the morning's speakers and John Snell & Jonathan Thompson. The Blenheim conference was an opportunity to learn some new terminology such as 'Twitter hashtag', eg #ruralheritage. An outcome of the meeting was that LEADER is seen as the way forward and there are considerable expectations of funding from this source.

Robert Carr

Industrial Gifts

The Association of Independent Museums (AIM) says. "Include industrial heritage in the new scheme".

The Government's proposed new scheme to stimulate lifetime gifts of pre-eminent objects to the nation should incorporate industrial and technical heritage in its title, AIM suggests: 'Gifts of Pre-Eminent Heritage Objects to the Nation' is preferred to its current title, 'Gifts of Pre-eminent Objects & Works of Art to the Nation'.

In its submission to HM Treasury's consultation on the new scheme AIM welcomes the recognition of industrial and technical heritage in the current Inheritance Tax Acceptance in Lieu (IHT AIL) scheme but notes that the wording indicates a strong predisposition towards art, manuscripts and furniture and lacks any reference to natural history collections,

"Widening the scope of the scheme could unlock new areas — historic machinery, transport and maritime and defence-related material, says AIM's executive director; Sam Hunt. "We would emphasise the need for the document to reflect a more balanced view towards heritage pre-eminence . . . that reflects the full scope of our cultural history. This would not only help to engage a wider section of the population in philanthropy but would help to preserve aspects of our heritage that people value most."

AIM also welcomes the proposed widening of the scheme from only individual donors to include corporate bodies, as many hold significant heritage assets. The scheme should continue to operate on a first come, first served basis, taking account of the appropriateness of a host organisation to offer a 'safe pair of hands' coupled with meaningful public access.

AIM feels the current recipient 'institutions' remain appropriate and is happy with the current AIL process. Conditions attached to the loan of objects should be a matter of individual negotiation taking into account the circumstances of the host organisation.

Finally, AIM feels that to be successful the scheme must be made a "tempting alternative" to

outright sale or the freezing of assets through institutional loans.

The scheme, which offers donors a reduction in their tax liability based on a percentage of the value of the object they are donating, proposes gifts should be made to the nation, rather than a specific institution, with the object then being allocated for loan to an appropriate establishment. The IHT AIL will operate in parallel to the new scheme, with both sharing the annual limit available for the existing scheme, £20 million a year. The new scheme will apply only to objects, not to land and buildings.

National Railway Heritage Awards

The National Railway Heritage Awards are funded by a number of sponsors to reward conservation and restoration on both public and private railways in Britain and Ireland. The 2011 awards were announced by Steven Brindle of English Heritage and presented by The Rt. Hon. The Lord Mayor of London, Alderman David Wotton, in Merchant Taylor's Hall on 7 December 2011. The Lord Mayor confessed that he was a railway buff himself!

The **Ian Allan Publishing Heritage Railway of the Year Award** went to the **Gloucestershire Warwickshire Steam Railway plc.** in recognition of the railway's success in re-opening the section of the line to Laverton and its battle to overcome the challenge of two serious embankment failures.

The **Modern Railways Restoration Award** for the most meritorious entry in the commercial sector went to **Jenny and Colin Rogers** for their project to convert the closed Old Tavistock railway station into private and holiday accommodation. Runners-up were Horsebridge station on the long-gone Romsey-Andover line, now a tea-room, and Dent station snow huts on the Settle-Carlisle line, now holiday cottages.

The **National Railway Heritage Awards Signalling Award** for the best restored signal box or signalling installation was won jointly by **Network Rail and Construction Marine** in the Structures section for their restoration of Kirkham Abbey signal box on the Scarborough line and by the **Swanage Railway Trust** in the Signalling section for the preserved line's signal box and associated work at Corfe Castle in Dorset. Runners-up for Signalling were boxes at Alton on the Watercress Line and Bodmin General on the Bodmin and Wenford Railway. Runners-up for Structures were boxes at Kirton Lime Sidings, North Lincolnshire, and Wroxham in East Anglia.

The **London Underground Accessibility Improvement Award** went to the **East Lancashire Railway** for the work undertaken at Bury for the conversion of the Grade 2 listed Castlecroft goods shed into the Bury Transport Museum with its careful planning for disabled access. Runners-up were Purley station, Southern Railway, and Southfield station on the London Underground The **Railway Heritage Trust Conservation Award** for the best restored listed structure in which the Trust had been involved was awarded to **Chiltern Railways** for its work at Leamington Spa. Runners-up were Halifax station and footbridge and Sheffield Park station up platform buildings on the Bluebell Railway.

The **FirstGroup Craft Skills Award**, recognising the best use of traditional craft skills in the restoration of a building or structure, was awarded to the **East Coast Main Line** for the work undertaken at both Darlington and Newcastle Central stations in providing heritage-style fencing at these important mainline stations. Runners-up were The Watercress Line for their restoration of the traditional advertising signs for Strong's Brewery (You are in the Strong Country!) and for Southern Electric, and Malvern Town Council for the repair and replacement of traditional cast-iron lamp standards at Great Malvern station.

The **National Railway Heritage Awards Volunteer Award** was made to the **Gwill Railway Company** in Wales for the replacement of inappropriate crossing gates at Bronwydd Arms with a GWR-style one of traditional materials. The runner-up was the Great Central Railway for its restoration of both the old goods office building, Lovatt House in Loughborough, into their main offices and the lamp hut from Whetstone on Rothley station.

First Trans Pennine Express received the **Network Rail Partnership Award** for its work on refurbishing and expanding passenger facilities at Middlesbrough station. Runners-up were Borth Station Museum and Whaley Bridge station.

The HS1 Station Environment Award was won by **Liverpool Vision** to mark the dramatic improvement resulting from the Liverpool Lime Street Gateway Project. Runners-up were Ramsbottom station canopy (East Lancashire Railway) and Victoria Station roof in London.

Finally, the **Ian Allan Publishing Award,** given to the best overall entry in this year's competition, went to **Derby College and maber architects** for the multi-million pound scheme to restore and re-use the Derby Roundhouse and associated buildings as a college campus.

Information about next year's awards can be obtained from the NRHA Public Relations Officer, Peter Waller, at peter.waller@btinternet com or call him on 07818 033331. As the retiring Chairman of the judges, Robin Leleux, has said, the judging is done by an ever-expanding team of judges who have travelled many miles and braved rampant bullocks in the course of duty! Marilyn Palmer sits on the Panel of Adjudicators and can also provide information on the awards, which do a very good job in maintaining the heritage value of our railway network.

Marilyn Palmer

Report from Yorkshire And Humberside

Sheffield

Shepherd Wheel, the historic water powered cutlery grinding wheel in the Porter Valley, has now been fully restored to working order. The building dates from c1800 and the site from the sixteenth century. The work was funded by £500,000 from English Heritage and £500,000 raised by the Friends of the Porter Valley. Events were held on Saturdays 22 October and 17 December to mark the restoration, and a grand reopening is planned during 2012. It will be run by Sheffield Industrial Museums Trust, which is responsible for Kelham Island Museum and Abbeydale Industrial Hamlet. At Abbeydale, the Heritage Lottery Fund has given a grant of £47,200 to develop a project to restore the waterwheels and build a new Learning Centre. The former Abbeydale Works, on the river Sheaf, used water and steam power to make scythes and other agricultural tools, and includes the most complete surviving example of a crucible shop, where high quality tool steel was made in small batches by a method developed in Sheffield in the mid-eighteenth century. Just down the Sheaf the surviving stone buildings of Millhouses corn mill, on a medieval site but rebuilt and converted to steam in the nineteenth century, are being restored for community use. The grade II* listed Leah's Yard, behind a firmly closed gateway right in the city centre, has been added to the Buildings at Risk Register. It is a long narrow stone paved courtyard, dating in its present form from the 1870s, surrounded by the workshops of cutlers, silversmiths and other trades. When the South Yorkshire Industrial History Society visited it in 1987 they were shown round by Mr Leah who was still coming in occasionally to stamp trays and other large items on the compressed air (ex steam) hammers for silver plating. It has long been empty and there is no immediate prospect for restoration, as it is on the edge of a £600m retail redevelopment scheme which is on hold because of the recession.

Rotherham

South Yorkshire's latest landmark is Steel Henge, a 30 metre circle of plinths and crossbeams made of 60 tons of cast iron ingots found on the site, which was Templeborough Steel Works and is now a flood alleviation scheme and nature reserve. The proposed new line of the Chesterfield Canal past the collapsed Norwood summit tunnel will be a large engineering project, locking up to a higher level at the west (Killamarsh) entrance, using a farm underpass below the M1 and locking down into a surviving stretch of tunnel at the eastern (Kiveton Park) end.

Barnsley

Rockley iron furnace of c1700, and the adjoining 1813 Newcomen engine house to drain an iron mine, have had a condition survey, and the surrounding area an archaeological study which has thrown up interesting new information, thanks to a grant by EPIP (the East Peak Innovation Partnership), jointly funded by the EC Leader programme and English Heritage. EPIP's Leader funds are also being used, with the AIA grant of 2009, for roof repairs and interpretation at the nailmakers' forge in Hoylandswaine – more of that in a future issue. Both sites are owned by the South Yorkshire Industrial History Society. The 1795 Newcomen engine at Elsecar, the only one to survive in its engine house, has been added to the Buildings at Risk Register.

Rockley Furnace *Photo: SYIHS*

Wakefield

The Heritage Lottery Fund's *Collecting Cultures* scheme is supporting a new project, 'Seeing the Whole Picture', at the National Coal Mining Museum (England). Over four years it will help the Museum to add new art and photographic works to its collections, and work with former and present coalfield communities to discover more about the heritage of coal mining.

Kirklees

The 200th anniversary in 2011 of the opening of the Huddersfield Narrow Canal to through navigation between Huddersfield and Ashton under Lyne, with the completion of Standedge tunnel, was marked by special events and a souvenir edition of the Huddersfield Canal Society's magazine *Pennine Link.* The initial construction cost has been estimated at £40m in today's prices, and the cost of restoration at £45m. The bicentenary of the Luddites is being celebrated by Huddersfield University in 2012, with a website www.ludditelink.org.uk (Isn't a Luddite website a contradiction?)

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Please support your Regional Correspondent by sending relevant material which may be of interest to our readers.

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Calderdale

The Calderdale Industrial Museum Association has been set up to take over and reopen the Museum in Halifax, which was mothballed about ten years ago. The 1849 railway warehouse used by the Eureka children's museum in Halifax has been listed Grade II, with a reference to its group value with the railway station, viaduct and goods shed. The foundations of Todmorden's first textile mill, started in 1782, are being excavated by West Yorkshire Archaeology Service before new flood defences are built over them. The mill was originally for woollens but switched to cotton in 1787, and used water, steam and electricity successively for power. It closed in 1961 and the site was cleared in the 1980s.

Leeds

The remains of the White Cloth Hall, Hunslet Mills, and Marshall's Egyptian style mill complex, all mentioned in previous years, have been added to the Buildings at Risk Register. Tetley's Brewery closed in June, ending a history which began in 1822 when Joshua Tetley leased a brewery in Salem Place, Hunslet, and drew to a close after it was bought by Carlsberg in the 1990s.

Bradford

British Waterways have teamed up with a Bradford charity, Joint Activities and Motor Education Service (JAMES), to adopt two miles of the Leeds and Liverpool Canal between Bingley and Shipley, including the well known (and Grade I listed) Five Rise Locks at Bingley and the canal through the World Heritage Site of Saltaire. The Transport Trust has given the Locks a Red Wheel plaque as a major site of transport history, the first of its kind in Yorkshire (among many other candidates, I might add). Low Mills, Keighley, a late eighteenth century cotton mill, has been added to the Heritage at Risk Register. A scheme for conversion to residential use has been approved but there has been little progress yet.

York

The 1770 Holgate windmill, mentioned last year, is to have its five sails restored and return to working order. It opens on two weekends a month in the summer, and intends to produce flour. The Gothic Revival Howsham watermill of c1755 on the Derwent north-east of York and attributed to the architect John Carr of York, is appealing for funding to complete its restoration for electricity generation, community use and visitors.

North Yorkshire

A renovation project at High Corn Mill on the Eller Beck, Skipton, was completed at the end of 2010 with the installation of a water turbine that powers up to twenty local premises. The site dates back to the twelfth century and the buildings mainly to the eighteenth century. It houses businesses, shops, a tearoom and an educational area by the new turbine. The nineteenth century Dale End Mills at Lothersdale near Skipton have been added to the Heritage at Risk Register. Their internal waterwheel of 1861 is the largest in England, but is disused and in poor condition.

The lead mining sites at Grassington Moor, Wharfedale, and Keld Heads, Wensleydale, both in the Yorkshire Dales National Park, have also been added to the Register, and work has been carried out at Grassington. Gayle Mill outside Hawes, built as a cotton mill in 1784 and converted to a turbine powered sawmill in 1879, is open for guided tours at set times during the summer, daily except Sundays. It also offers longer Demonstration Tours on certain Sundays, Hands-On Experience Events, and courses run by the Heritage Craft Alliance. For more information see www.gaylemill.org.uk . In Arkengarthdale near Richmond, the former Punchard Gill tollhouse on the steep road from Reeth to Tan Hill is now used as a farm store. The Yorkshire Dales National Park Authority, Natural England and the owner have undertaken major repair work. An archaeological survey has recently taken place at the Yorkshire Wildlife Trust's Burton Leonard Lime Quarries Nature Reserve between Harrogate and Ripon. There are the remains of six lime kilns which worked between 1838 and 1941. Funds are needed for more work including stabilising the kilns.

Scarborough Council approved Network Rail's proposal to remove the grade II listed signal gantry at Falsgrove, Scarborough, as part of a programme of improvements to the entry to Scarborough station. It was thought to be the last cross track semaphore signal gantry in use on a main line, and will be re-erected at Grosmont on the North Yorkshire Moors Railway. English Heritage has offered £190,000 towards repairing the Excursion Station at Scarborough and converting it to a managed workspace for artists. 2011 saw the 150th anniversary of the Rosedale Railway, a branch of the North Eastern Railway that climbed up to the North Yorkshire Moors by a long cable incline and served ironstone quarries on both sides of Rosedale. It closed in 1928, but there are many remains and memories, and many local organisations joined to mark the anniversary.

Derek Bayliss and David Cant

East of England Report 2011

EERIAC 2011 visited Fakenham in Norfolk, and while the only English preserved coal gasworks was obviously the main centre of attention, there were also lectures on the Norfolk gas industry in general, including estate gas works, and on the effects of the opening of the M & GN Railway on industry and employment in the town. As well as visiting the gasworks, there was a guided walk round industrial sites within the town. As usual there were delegates from all the four eastern counties. Because of the Diamond Jubilee celebrations, EERIAC in 2012 will be held on 16 June , a week later than usual.

Cambridgeshire

The future of Fosters steam mill and silo by Cambridge station is still very uncertain, though it has had a reprieve from demolition. It is no longer likely to be a new home for Cambridge archives: flats look more probable, surprise, surprise. Barrington Cement Works remains mothballed, though the substantial reserves of chalk on the site mean that hope is not lost for a reopening when demand increases.

Cambridge Station will, at last, lose its distinction of being the only main line station using a single platform for up and down services, once quite a common feature of railways, especially in East Anglia. A new island platform is being constructed to cope with increased passenger numbers, and there may be a new station built at Milton on the north side of the city. The guided bus route, mentioned before, is at last open and apparently popular. Rather unexpected is that St Ives has benefited, especially on market days, from bus passengers coming out from Cambridge.

At the Cambridge Museum of Technology there have been boiler tube problems, and although these have now been resolved, there was not time for the necessary inspections before the usual New Year steaming. The existing tubes go back to when Cheddars Lane was still a working pumping station, and the boiler needs a complete overhaul costing at least six figures. The museum has been working on its twentieth century material, much of it relating to the scientific instruments of the Cambridge Instrument Co. and Pye. These formed the basis for a display on the Cambridge Phenomenon – the development of advanced computing skills and products in Silicon Fen. A volunteer group under Dr Peter Long is helping identify the exact use and function of items in the museum's collection – rather necessary as in 2012 the museum will need to reapply for accreditation.

In the Fens the sad news is that the pumping station with its engines and pumps at Marshland Smeeth, visited on the Cambridge Conference and apparently being preserved, was sold earlier in the year and its fate is unknown. Another pumping station complete with pumps at South Brink, Wisbech, is currently for sale with planning permission for conversion to a four bedroom house. Stretham Old Engine has been aided by a group of scouts from Ely giving it a Spring Clean and doing an excellent job. It is still seeking funding for the restoration in part at least of the fen lighter mentioned last year.

Essex

Increasingly councils are looking to shift cultural services such as museums to local charitable bodies and trusts, an example being Harlow where the council is seeking to handover responsibility for the art gallery, theatre and museum. The problem is, of course, what happens if there is no body willing or able to take over. Harlow museum has a nationally important collection of Victorian and Edwardian cycles (the

new town was the first British town designed for the cyclist with cycle paths and car free areas), and also the reference collection of 15th and 16th century Metropolitan Pottery which was made in Old Harlow. While there is some protection in that ownership of the collections will be retained by the council and loaned to the new operator, it remains possible that the collections might be rationalised through disposal.

The excellent industrial surveys led by the County Council conservation department have continued this year: their overall future is not yet known. Work has continued on the railway structure surveys, using volunteer assistance, and some lines are completed. A study of all standing gas works remains was completed with the help of a graduate student who gave her time. A similar assessment of windmills, funded by the Essex Heritage Trust and the Essex CC Windmills team, has been completed. This lists all known and possible windmill sites in Essex, and provides a context to enable the value of the surviving mills to be understood. In particular, an enthusiastic volunteer team examined the archaeological remains of lost mills, particularly post mill mounds.

In 2009/10 Essex CC gave £1m to the Life Raft Trust, available to arts and heritage organisations to help offset the economic downturn. The Museum of Power at Langford, the Warner Archive at Braintree and the Colne Valley Railway all benefitted from grants which helped improve their organisation and business plans and financed relatively minor projects to improve their visitor services and help income generation. The grants have now, of course, ceased but the foresight of the County Council is appreciated.

A new maritime attraction is the LV18 *St Gowan,* the last Trinity House light vessel to be manned. One of the last five light vessels to be built (in 1956), it was decommissioned in 1994; today all light vessels are automated and radio telemetry controlled. In 1999 the Pharos Trust acquired her and have put her back into original working condition. With the help of a grant from the East of England Development Agency, a mooring has been prepared for her by the Ha'penny Pier, the nineteenth century ferry pier in Harwich, and she is now open to the public. She is on the conference itinerary.

A very twentieth century industrial monument has gone with the demolition of the turbine hall at Bradwell nuclear power station in August, the first such site to be totally decommissioned. The station was started in 1957 and functioned from 1962 – 2002. Only the two nuclear reactors remain, wrapped in a casing and left to cool until 2067.

Southend Pier had some major maintenance in 2011, with a number of beams replaced under the railway lines and the lower timber decking at the pier head replaced, both demanding significant engineering skills. Interestingly, the firms involved were most impressed by the quality and accuracy of the Victorian engineering, undertaken with none of the modern surveying and laser levelling equipment.

Suffolk

A detailed business case is being prepared for the creation of a new trust to take over all heritage activities: museums, record offices and archaeological services. A budget of £1.8 million has been suggested, but it is not clear where this will come from and for how long it will be maintained

The Stour lighter *John Constable,* mentioned last year, is currently under restoration by the Pioneer Sailing Trust in Brightlingsea, Essex, and delegates to the Essex conference will have the opportunity to see the work in progress, or if completed by then, the lighter on the river at Sudbury. The River Stour Trust is also at present working on the restoration of Stratford St Mary lock to extend the navigable length of the lower Stour by a further three miles upstream. On the Gipping Navigation the River Gipping Trust have made good progress on the reconstruction of Baylham Lock and bridge, and it is hoped that all will be completed by the summer of 2012. As with their other restorations, no gates will be fitted for the time being, but all the engineering work will be done – and if their AIA conservation award winning lock at Bosmere is anything to go by, done very well.

The two Lowestoft based fishing vessels have both been on show to the public over the summer and had a good season – helped perhaps by the less than perfect weather. The steam drifter, *Lydia Eva,* has acquired a Small Commercial Vessel certificate, enabling her to take passengers to sea, and her companion in preservation, the Sidewinder fishing vessel *Mincarlo,* had in September a major survey to ascertain the work needed to restore her to as good condition as the *Lydia Eva.*

Turning to mills, Woodbridge Tide Mill is having major works done with the help of HLF funding. There have been repairs to the exterior, piling to protect the river side, and a new wooden water wheel made at the International Boatbuilding Training College in Lowestoft and fitted in November. At Pakenham Watermill the 140 buckets on the nineteenth century wheel have been replaced using corten steel. However, this work revealed that the brick breast was collapsing, and this too is being restored. Despite this work, the mill ground over eight tons of flour for sale over the season. The Suffolk Mills Group has been busy as usual, providing working parties. The Drinkstone windmills have had some essential maintenance, but need more; Wicken windmill works about five days every month and the flour sales have helped fund a range of remedial work. Repairs have been undertaken at Holton and Thelnetham mills, in part with County Council funding.

Aldeburgh brickworks, the last in Suffolk closed at the end of May. Its owners, Reades, were taken over by a Lowestoft firm which decided that it could no longer subsidise this loss making activity. It had the last working and probably the last constructed (in the 1960s) Scotch kilns, which were oil fired.

Two major industrial sites are being redeveloped: Cranes Fluid Systems site in Nacton, Ipswich, is to house an out-of town John Lewis, and Brunton's propellers site in Sudbury has been cleared, and redeveloped for housing. From being a major engineering centre thirty years ago, Ipswich now has almost no engineering based industries. However, in Stowmarket lawn mower manufacture continues. Originally started by Suffolk Ironfounders in 1913, after passing through several hands the firm is now owned by Bosch.

Felixstowe's pier has been identified by the National Piers Society as one of the ten most likely to collapse or be demolished: attempts to revive it have failed for lack of finance. However, it has been decided to preserve rather than convert a Victorian 'Jubilee' shelter in the town. The Suffolk IAS has undertaken a survey of WW2 buildings due to be demolished on Great Ashfield airfield. A US base in the war, the main building was a gymnasium cum chapel; the design seems to have been very standard.

Norfolk

Everyone is waiting anxiously to see what the County Council finally decides about the financing of the Norfolk Mills Trust. It looks quite possible that all funding will be withdrawn, which could lead to serious problems.

At Gunton Sawmill, although some rot in the sawframe has been repaired, rethatching is becoming increasingly necessary, especially as there were some flaws with the original work, allowing water in. However, in sound Norfolk tradition, problems the team can deal with are solved by looking for the simplest way. A cast iron pulley in the belt drive was prone to shed the belt because it was flat, not crowned. Several layers of Duck tape have solved the problem. Not traditional, but effective, and that was all that bothered Norfolk millwrights. At least the latest Health and Safety officer inspecting the site proved much more reasonable and required no changes.

Most of the museums tick over happily enough, though the Bridewell revamp has been postponed and one must wonder if it will reopen this year. In Norfolk too consideration is being given to creating a trust to run the museums. There are still problems with museum curators knowing much social history but little industrial; it was decided to dispose of a piece of farm machinery from the Famers' Foundry because it had no connection with Norfolk. The foundry was in fact only some ten miles from the museum and could hardly be more in the middle of the county.

One piece of good news that might make other societies envious is that what had been a static or declining membership is now increasing. In part this is because an outgoing policy offers public talks, talks to societies, puts on displays and pushes for spreads in the local papers. The slack economy has meant relatively little redevelopment, and while the Crane Freuhauf site in North Walsham has been cleared for housing, there has been little demolition.

As always, I should like to acknowledge the help I have received from a number of people, among them Ken Alger, Laura Belton, Alan Denny, Barre Funnel, Keith Hinde, Phillip Tolley, Stuart Warburton and Steven Worsley.

David Alderton

Conference to Celebrate the 250th Anniversary of the Opening of the Bridgewater Canal.

On the 21 October 2011 the 250th Anniversary of the opening of the Bridgewater Canal, was celebrated by a conference in the very appropriate setting of the Court House next to the canal at Worsley. It was organised by the Manchester Regional Industrial Archaeology Society (MRIAS) and the CBA North West Industrial Archaeology Panel and supported by English Heritage, The University of Salford Centre for Applied Archaeology and Manchester Metropolitan University.

The switch to coal as an energy source set Britain apart from her Continental neighbours as early as the seventeenth century and while the volume of coal was small, traditional transport sufficed; for example, coal was transported by packhorse from the Staffordshire coalfields to the Cheshire salt pans. As the scale of production rose in the eighteenth century the prospective profit from water transport justified the large initial outlay needed to dig a canal. Flinn in his book on the British Coal Industry states that the cost per ton-mile by water was one twentieth of that by packhorse. Francis Egerton, the 23year old Third Duke of Bridgewater, had the money and entrepreneurial flair to build what we now acknowledge to be the world's first industrial canal.

The six papers presented at the conference gave a comprehensive review of the history and archaeology of the canal, the Dukes mines and the village of Worsley. John Aldred, author of the newly published *The Duke of Bridgewater – His Canal* spoke on the canal and its construction highlighting the role of John Gilbert, which is often underrated. Glen Atkinson, who has written extensively on the underground mines and is one of the few people to have explored them, described the development of the mines northwards from Worsley to Dixon Green. The underground canals were on several levels and the total system including many side tunnels was an astounding 45 miles long. The main level was about four miles long and the upper level about two miles long, they were joined by an inclined plane in two underground tunnels, part of which still survives. Norman Redhead, Greater Manchester County Archaeologist, spoke on the archaeology of the canal at Worsley and the basin at Castlefield. The modern development of Manchester has funded archaeological studies of the area and lead to a better understanding of what was a complex inland port and transhipment point. Mike Nevell then developed this theme speaking on the archaeology of the canal.

Today Worsley is regarded as one of the more desirable places to live close to the centre of Manchester. David George described how in the last quarter of the eighteenth century this may not have been the case as a small village grew into an industrial area with boat yards, lime kilns nailworks and iron works. Industry started to move away in the first half of the twentieth century, the chimney base on Worsley Green still stands as a monument to the area's working past. After lunch Glen Atkinson returned to describe the history of the Barton Aqueduct from the original three arched stone built aqueduct over the river Irwell built by Brindley and Gilbert to the swing aqueduct over the Manchester Ship Canal, designed by Sir Edward Leader Williams which replaced it in 1893.

Following these excellent papers we had an interesting guided walk of Worsley. A modern suburb, it is proud of its industrial history and there are plans to revitalise the Delft and the entrance to the underground tunnels. We were privileged to go into the boatyard which although it is the oldest on the canal system is still working in much of its original style. We also visited the packet house steps, the embarkation point for a swift passenger boat to the city centre; Manchester's first rapid transit system?

Francis Egerton, The Canal Duke, is not much remembered in statues and monuments but perhaps his finest monument is the waterway itself, still actively used today although more for pleasure than profit. This conference was a very fitting contribution to his memory and achievement.

Peter Bone
Project Officer MRIAS

Cleveland Street Workhouse

The workhouse was granted Grade II listed status by the Secretary of State in March 2011 (see IA News 157). However, once again it is under threat.

University College London NHS Foundation Trust recently decided to evict the current guardians of the site, leaving the building exposed to possible further decay and speeding up its demise. With the recent spate of squatting in the area, it is possible that squatters may take over the building and damage it, further exacerbating the situation.

The Cleveland Street Workhouse has served as short term accommodation for young professionals for more than 3 years. The inhabitants have been placed within the building through a Protection by Occupation scheme, which forbids squatters from occupying the premises and helps prevent decay. Without constant monitoring and heating during the winter months, the elements will take their toll.

The Cleveland Street Workhouse Group is seeking support in countering this new development. For more information, please visit their website www.clevelandstreetworkhouse.org

Great Condurrow Mine – Camborne

Great Condurrow was a tin and copper mine, near Troon, south of Camborne. It adjoins South Condurrow mine, which became in 1901 the King Edward Mine, used as a training facility for the Camborne School of Mines. King Edward became flooded as a result of the closure of the adjoining Wheal Grenville, which led to the underground activities at KEM being transferred to a small part of the much larger sett of Great Condurrow centred on Vivian's Shaft. In 2008 the Carn Brea Mining Society acquired Condurrow through its 'operating arm' the Botallack Trust and volunteers have been working there since, to conserve and repair the buildings and underground levels. I should stress that there is no public access to Great Condurrow.

Worsley Delph – the entrance to the underground canals *Photo: Tony Wright*

Worsley Monument – the base of the ironworks chimney *Photo: Tony Wright*

In 1937 the School of Mines erected a small steel headframe on Vivian's Shaft, Condurrow. It was designed by Head, Wrightson, manufactured locally by Holman Brothers and erected by staff and students from the School. Last July the Carn Brea Mining Society was notified by English Heritage that the frame had been listed Grade II, the reasons given being that it was the oldest intact example, of eight remaining in Cornwall, and was a rare survival of such small headframes, which were once very common. In Cornwall only the wooden headframe at Wethered's Shaft, Geevor (1909) is nominally older but that was rebuilt after a collapse in 2002.

It transpired that EH had recommended listing in 2005, when they reviewed all surviving headframe examples in Cornwall. When this went out for consultation in 2007 the School of Mines opposed listing on grounds of poor condition and substantial alteration, (but gave no details). In fact the condition of the frame was by no means as bad as CSM implied and a study of Head Wrightson's surviving drawings shows the frame to be largely in original condition. The School of Mines was at that time withdrawing from King Edward and Condurrow and thus unlikely to welcome any listing activity.

The listing describes the headframe as *'a particularly complete and unusually small example of a steel girder headframe . . . uniquely constructed for training purposes. The headframe takes the form of a steel girder tower set directly over the winding shaft and is braced by a pair of extended legs called boomstays. The entire frame is braced and triangulated for strength and set upon elongated bearers which are bolted down to a levelled platform surrounding the shaft opening'.*

The listed headframe, rusting badly, now required remedial work. Carn Brea Mining Society had received an anonymous donation of £6,000 and decided to use this for the purpose. No other outside funding being identified, the work was undertaken by Bob Le Marchant, a member of the Friends of King Edward Mine, with help where possible from the volunteers. Early Rise of Troon supplied scaffolding and the Friends of King Edward met other costs.

Great Condurrow Mine, 4th August 2011. Huw Rowe and Bob le Marchant inspecting the sheave wheel on top of the headframe after it had been scaffolded

Bob Le Marchant describes himself as an Engineer for the Heritage Industry. A graduate of Camborne School of Mines, he knows Condurrow well. Among the projects in which he has been involved are the new Moelwyn Tunnel on the Ffestiniog Railway's Deviation and the opening up of the George and Charlotte Mine at Morwellham. Now self-employed, Bob will tackle *'anything that is interesting or what I consider worthwhile, hence the refurbishment of Great Condurrow headframe'.*

The first job was to remove rotten wood supporting the boomstays; a solid piece of hardwood sourced from Falmouth Docks was inserted. Work then began from the top with removal of the skip. The frame was shot blasted and then painted with 'International's Interzinc', a grey, two-part epoxy paint with a zinc base. Some items of steelwork were replaced. The work was substantially complete by November 2011; the skip still requires remedial work. According to Bob the project, *'involved the hire of professional blast gear and two and a half tons of grit – graded blast furnace slag. Three weeks later, I still left a black tidemark in the bath'.*

Thus a happy combination of sympathetic ownership, private generosity, skilled management and committed volunteers has ensured the restoration and survival of this important piece of mining heritage.

Thanks to Sid Geake and Tony Brooks of the KEM Friends for information.

Graham Thorne

Middlesborough Transporter Bridge Centenary

The centenary of the grade II listed Transporter Bridge in October 2011 was celebrated in fine style with a lighting display, fireworks, a street carnival, lanterns, puppets, a grand dinner in Middlesbrough Town Hall, concerts - and 100 people suitably attached by their ankles jumping off the top of the bridge. Depending on the state of the tide, the top or main span of the bridge is 160 - 177 feet above the Tees. The main span is fixed so it needed to be high - early twentieth century sailing ships were big. For example, the four-masted steel barque Moshulu, built in 1904 and now a floating restaurant, was 212 ft from keel to main masthead and her draught about 24 feet. Some hardy souls used to carry their bicycles up the 210 steps, over the main span and back down the steps on the other side to avoid paying a fare but most people cross the river as passengers riding in a gondola suspended by cables from the main span. The upper ends of the cables are attached to a trolley or 'upper platform' running on rails along the top of the bridge and the trolley is cable hauled; an electric motor in an engine house on the south side of the river provides the power. At high tide the deck of the gondola is barely a comfortable distance above the water; the height of the deck being essentially determined by height of the river banks. An electric tramway used to run to the bridge from the centre of Middlesbrough and the original design allowed for the gondola to carry a tramcar but the tramway system was never extended to the Port Clarence side; a tramcar crossing the river would have been quite a sight.

Robert Carr

Oxford rail swing bridge to be restored

The *Oxford Journal* reported in November 2011 that a £90,000 grant is to be made to allow the restoration of the swing bridge which used to cross the Oxford Canal just north of Oxford (Rewley Road) London & North Western Railway Station. The not-for-profit WREN fund is providing support. Although the main building of Rewley Road Station has now been moved to the Buckinghamshire Railway Centre at Quainton Road, the bridge (now permanently open) has survived beside the Sheepwash Channel, which links the Oxford Canal to the navigable Thames. Originally constructed in 1850 (under the guidance of Robert Stephenson?), this is the last significant hand-operated main-line railway swing bridge in existence in Britain. The cash will fund repairs to restore the fabric of the swing bridge to its 1941 condition. Support will also come from local volunteers and residential groups.

Henry Gunston

The Sobriety Project, Goole – Winter Open Day 9 December 2011

Two members of AIA Council attended this eye-opening meeting in December.

Covering the broad canals of Yorkshire which converge on the Humber, the Yorkshire Waterways Museum in Goole deserves to be better known than it is. The Museum plays a role somewhat similar to that of the canal museums in Gloucester and Ellesmere Port.

The founding of the Yorkshire Waterways Museum goes back to the Sobriety project which started about 1973 when the Humber Keel *Sobriety,* built in 1910, was converted for canal holiday cruising by Goole grammar school. This was a success and the venture became a charity about 1980. Other boats were acquired during the 1980s and an excellent museum building opened. The whole project reached a peak about the year 2000 but since then there has been a

Goole Tom Pudding Hoist *Photo: R Carr*

decline and things have had to be painfully built back up. The museum is currently in financial difficulties and the staff have agreed to a voluntary salary reduction of ten percent.

Whereas most of us have come across museums with associated charitable work, the Yorkshire Waterways Museum reverses the situation: the Sobriety project is a charity with a museum attached. Its chief purpose is to tackle the problems of socially excluded young people. Until about 1976 'the Aire and Calder Navigation owned the town of Goole' and nearly the whole population worked directly or indirectly for inland navigation, the port or shipping. That almost automatic universal employment having come to an end, younger people are in a particularly difficult situation.

For the Open Day, held on Friday 9 December, we had a series of excellent lectures and presentations in the morning covering training, business management and the present difficulties of fund raising. These were held in 'room 58', a converted barge. The description NEET is an acronym for younger people who are 'not in education, employment or training' – the Sobriety project is principally concerned with children in their early teens who run the risk of exclusion from school, the likelihood of imprisonment and a downward spiralling existence leading to an early death. Spotting future NEETs is a matter of concern.

Small groups of young people are taken on boats such as *Sobriety* where, in an environment unlike school, basic social skills are acquired without the children really being aware that they are being taught. Over the years considerable success has been achieved and, following the morning session in 'room 58', we were guided round the project by several young people who, having been rehabilitated, have returned to the project as volunteers and now play an important role in the work of the Charity.

In the early afternoon we had a tour round Goole docks on the tug *Wheldale* built in 1960 to pull compartment boats on the Aire and Calder Navigation. Only five of these once ubiquitous 'Tom Puddings' are now in existence with four of them in Goole. *Wheldale* pushed a 'jebus' or cutwater, a kind of false bow, used when pulling compartment boats to direct the flow of the tug's propeller beneath the leading boats in the train. The last surviving hydraulic hoist for raising the Puddings and tipping their contents into ships, 'number five' built in 1912, is listed grade II*. These hoists raised the Tom Puddings 35 feet before discharging their contents. The Puddings each held about 40 tons of coal and were usually towed to Goole in trains of about 20. Coal for export also arrived at Goole by rail and there were four hydraulic lifts for emptying coal trucks into ships and one of these wagon hoists survives. It was built in 1906 by Tannet Walker and was in use up to 1976 .

This was a day out of the ordinary for us and we are grateful to the Sobriety Project for enlightening us. Their sterling work with disadvantaged young people is an exemplar and our knowledge of the Port of Goole and its history has been augmented.

Mark Sissons and Bob Carr

PUBLICATIONS

Local Society and other periodicals received

Abstracts will appear in *Industrial Archaeology Review.*

Brewery History, 143, Autumn 2011

Brewery History Society Newsletter, 55, Christmas 2011

Hampshire Mills Group Newsletter, 95, Winter 2011

Histelec News: Newsletter of the South Western Electricity Historical Society, 49, December 2011

Leicestershire Industrial History Society Newsletter, 2/3, Autumn 2011

Manchester Region Industrial Archaeology Society Newsletter, 137, September 2011; 138, November 2011

Merseyside Industrial Heritage Society Newsletter, 312, December 2011

Piers: the Journal of the National Piers Society, 101, Autumn 2011

Scottish Business and Industrial History, 26/2, July 2011

Somerset Industrial Archaeological Society Bulletin, 118, December 2011

Suffolk Industrial Archaeology Society Newsletter, 115, November 2011

Surrey Industrial History Group Newsletter, 183, September 2011; 184, November 2011

Sussex Industrial Archaeology Society Newsletter, 152, October 2011

Sussex Mills Group Newsletter, 152, October 2011

Trevithick Society Newsletter, 152, July 2011; 153, October 2011

War Memorials Trust Bulletin, 51, November 2011

Yorkshire Archaeological Society Industrial History Section Newsletter, 83, Autumn 2011

Books

The Toll Houses of Cambridgeshire, Patrick Taylor, Polystar Press, 2011. 80pp, fully illustrated. ISBN 978-0-907154-06-5. £7.95.

The latest in a series which has already covered East Anglia and Devon. Following a summary of the development of the turnpikes in Cambridgeshire this book has a page to describe and illustrate each toll house including a few which regulated traffic on waterway banks. In addition, there are notes on those tollhouses which have gone and a section on 'imposters'; buildings which might be thought to be tollhouses but are not. A carefully researched and well produced book which enthusiasts could well use as a basis for exploring the county.

How to Read Industrial Britain, Tim Cooper, Ebury Press, 2011. 198pp, 16 b&w illus. ISBN 978-0-09-192998-5. £12.99

A survey of Britain's industries from about 1750 up to the present, divided into five main sections; power, materials, manufacture with production and distribution, transport and industrial communities. This is a surprisingly comprehensive account considering the space available and almost any criticism of omission could be countered with 'how much more can you expect in 164 A5 pages'. Lastly, there is a thought provoking section entitled 'What now for industrial Britain ?' which discusses the developing appreciation of industrial heritage, the rise of industrial tourism, regeneration and the consequences of de-industrialisation. There is also a list of places to visit.

Perhaps many members would not learn much that they did not know, or think they know but may have forgotten, but this is an excellent summary of the subjects that interest us and it would make a good present to give to anyone who asked 'just what do you find so fascinating about industrial archaeology?'

20 – 21 APRIL 2012
ARCHIVES, ARTEFACTS, AMATEURS AND ACADEMICS

Workshop at the Derby Conference Centre. Contact Dr Roy Edwards, Faculty of Business & Law, Building 2, University of Southampton, Highfield Southampton, SO17 1BJ for details.

21 APRIL 2012
INDUSTRIAL HERITAGE AT RISK

At Ironbridge. Speakers include Shane Gould who is leading the English Heritage programme to identify industrial heritage at risk. Visits include Ditherington Flax Mill, Mill Meece Pumping Station and Blists Hill. AIA Awards and their cheques will also be presented on the Saturday. See booking form enclosed

21 APRIL 2012
SWWRIAC

Kings of Wessex School in Cheddar, hosted by Somerset IA Society.
Details are available on SIAS website www.sias.me.uk . Booking forms can be obtained from SWWRIAC 2012, 77 Tintagel Road, YEOVIL, BA21 3RE, or siasbooksales@aol.com or 01935 420812

22-28 APRIL 2012
THE SIA 2012 STUDY TOUR

Malta : Looking at how the island has experienced the high technology that comes with being a military base and meeting place of many cultures. Full details: www.sia-web.org

28 APRIL 2012
SERIAC 2012

St Bartholomew's School, Newbury. Wide ranging programme of talks covering military sites, steam ploughing, Allens of Oxford etc. followed by range of visits. Details and Booking Form from Graham Smith 114 Shaw Road Newbury RG14 1HR graham.smith@virgin.net

11 MAY 2012
THE MCMANUS: DUNDEE'S ART GALLERY AND MUSEUM

STICK knowledge sharing event on Steam Engines in Scotland
stickssn.blogspot.com/2011/12/steam-engines-in-scotland-knowledge

19 MAY 2012
EMIAC 83

Hosted by the Railway and Canal Historical in Long Eaton, Derbyshire "Trent 150: Trent Station 1862-1968". Talks and site visits about the railways and waterways around Trent Lock and the Trent Triangle. details at http://www.northants-iag.org.uk/emiac.html or from Paul Hudson, 64 Millers Way, Milford, Belper DE56 0RZ

28 MAY - 6 JUNE 2012
AIA OVERSEAS VISIT TO THE USA

joining the Society of Industrial Archaeology at their conference in Cincinnati and exploring some of the industrial history of the mid-West. See enclosed flier for details

7 - 12 JUNE 2012
FIFTH INTERNATIONAL EARLY RAILWAYS CONFERENCE

Caernarfon. For further information see www.erc5.org.uk

10 – 16 AUGUST 2012
AIA ESSEX CONFERENCE

Chelmsford Essex See conference papers enclosed with this issue

10 – 15 SEPTEMBER 2012
AIA OVERSEAS VISIT

to The Ruhr to explore coal mines, coking plants, blast furnaces and steel works. See page xxx

4-11 NOVEMBER 2012
XV TICCIH INTERNATIONAL CONFERENCE: POST-COLONIALISM & INDUSTRIALISATION – THE INDUSTRIAL HERITAGE OF OTHERS TAIPEI TAIWAN

The meeting will examine the close connections between historical, political, racial, environmental, economical, technical, and social questions of industrial heritage. Info and draft timetable: www.ticcih.org Contact: Dr. Hsiao-Wei Lin: linhw23@cycu.edu.tw

8- 10 NOVEMBER 2012
IRON 2012, INTERNATIONAL CONFERENCE, IRONBRIDGE

Following on from the successful Fe09 conference, Iron 2012 will bring together metallurgy, heritage, landscape and archaeological experts from home and abroad to present and discuss recent, current and future strategies of research, including the management and future of historic iron-related industrial landscapes. Further details and a call for papers will be announced in late 2011/early 2012. Ironbridge Gorge Museum Trust.

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

Water Tank at St Mary's, Tasmania, cast in Manchester 1884 by Ashbury & Co *Photo: Bill Barksfield*

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

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