WARWICKSHIRE Industrial Archaeology Society

WIAS

NEWSLETTER

Number 1 December 2000

THIS ISSUE

WELCOME

Welcome to the first quarterly newsletter from WIAS, designed to replace 'Retort'.

The original intention behind 'Retort' was to inform members about Society matters and to publish articles with an IA slant. However with the burden of its production falling upon one person it became an annual publication and thus more of a journal than the newsletter intended. Hence the monthly meeting became the primary means of communication with the membership; all well and good for members who were able to attend meetings regularly but of little value to those who could only attend occasionally and who undoubtedly felt cut off from the activities of the Society as a consequence.

Now with 'Retort' no longer being published, the resources are available to produce a regular newsletter with the intention of keeping members informed about Society matters. Provisionally, publication dates will be December, March, June and September, but previous experience suggests this may be flexible! Content will be centred around abstracts of the past quarter's meetings, together with an up-dated programme if space permits. Other features are also planned but of necessity this will remain flexible so that each issue fits within the space constraint of four A4 pages.

Short news or information items, with an IA bias, are encouraged from members. Please submit these to the Treasurer, or e-mail to WIAS@photoshot.com. Please ensure text attachments are in RTF format to prevent file incompatibility problems.

Comments about this newsletter, constructive (or otherwise!) are welcome. Please voice your opinions to a member of the committee.

SOCIETY NEWS

After the upheavals in the programme during the latter part of last season, it was to be hoped that the new season would run more smoothly. Sadly this was not the case when once again outside events intervened: in September the fuel crisis forced the cancellation of Ian Frimston's talk on local aerodromes.

Since a number of members were particularly looking forward to this meeting and Ian is an immensely knowledgeable aviation enthusiast, as well as a noted freelance photographer of the aviation scene, it is intended the meeting be rearranged to fill the vacant May 2001 date. Confirmation will follow.

Apologies are offered to anyone who did make the journey to Warwick in September. While every effort was made to contact members to warn them of the cancellation, inevitably some people were unavailable.

Summer Walks.

The summer break saw the Society's traditional venture into the great outdoors.

Early in August, Peter Chater led a walk starting in Hockley Heath and taking in a section of the Stratford upon Avon Canal, together with some ecclesiastical architecture. Naturally there were IA connections in the form of a church with its own gasworks and elsewhere the originator of Muntz metal. A leaflet was produced to accompany the walk, unfortunately now out of print.

Later in, August John Selby led a walk along the Oxford Canal's erstwhile Fenny Compton Tunnel to the 'Tunnel Brickworks', John's current research project. Unfortunately the failing light, together with a good crop of nettles, prevented an examination of the excavations carried out by John and by Alan Flint at the Brickworks. However the results of John's thorough research into the site will soon be available to members through the AIA's 'Industrial Archaeology Review'.

Mention should also be made of Peter Chater's demonstration of how to pass a boat tow rope under a bridge....something he seemed remarkably practised at for an ex-railway man!

Meeting Reports *by Arthur Astrop*

October 2000

Clive Hester: The History of the Ordnance Survey

Next to a notebook and camera, the enthusiastic industrial archaeologist's best friend must surely be a treasured collection of large-scale OS maps. It is easy to take both the maps and their unquestioned reliability for granted and few may spare a thought for just how the masses of information they contain was accumulated, and at what cost. An explanation of both those aspects came from Clive Hester, the speaker at our October meeting. Mr Hester has served (to date) 27 years with Ordnance Survey, a career length which he wryly observed is unlikely to be repeated in the future.

He traced the history of the OS from its military origins in 1791 to the present day, and from the use of glass length-rods for measurement to today's use of global positioning satellites which can pinpoint the position of a feature to within a few centimetres. (The OS, incidentally, was one of the first UK organisations to 'go metric'!) It was the threat of invasion by Napoleon Bonaparte which first revealed Britain's lack of accurate maps and provided the impetus for the Army, and specifically the Royal Engineers, to remedy that shortcoming. Unsurprisingly, with Boney just the other side of the Channel, the County of Kent was the very first to be surveyed and in 1801 the OS went into print with maps of that area at a scale of one inch to the mile. Four years later, maps of Essex followed, by which time the OS was well established and safely ensconced in the Tower of London!

Once the threat of invasion from France had passed however, the work of the OS slowed down somewhat and it was not until 1873 that the whole of England and Wales had been surveyed. Scotland had to wait a further 15 years before its OS maps appeared. Mr Hester explained how the earliest OS maps were laboriously engraved by hand on copper plates, and he also showed some splendid slides of early measuring equipment, including a massive brass and mahogany theodolite with a 36-in diameter base ring. This giant instrument must have required at least two men to lift it, and the problems of setting it up in all weathers in open country can only be imagined. Another slide showed an early theodolite mounted on the dome of St Paul's Cathedral and reached by a series of perilous ladders. Surveyors in those days were clearly a fearless bunch. The introduction by the OS of the first triangulation survey of the UK, and then the grid, were also covered in detail by the speaker.

Today, of course, in addition to GPS, the Ordnance Survey uses laser and infra-red measuring equipment, powerful computers, digitisers and aerial photography, although in dense urban environments the use of the human eye and measuring tapes seemingly still have a part to play. The OS is now a commercial organisation (with all that implies), and offers an extremely wide range of services tailored to meet specialist needs. However, as Mr Hester frankly admitted, these days the OS increasingly has its competitors, not least on the Internet. But for many, and especially enthusiastic industrial archaeologists, its superb and beautifully printed maps must surely still reign supreme.

All the w's..... Maps on the Internet

As a valuable source of landscape information in many fields of study, OS maps are an unparalleled resource. However the number of sheets required to cover the UK can often mean a specific sheet is not immediately available, especially to the private individual.

Enter www.multimap.com. With a PC and an Internet connection, a simple search procedure will display a map extract centred on the chosen location. The UK map resource is based upon OS data and is available to view at a number of scales from 1:4 000 000 to 1:10 000. At 1:50 000 the familiar OS Landranger data is presented, while at 1:10 000 individual named streets may be located in urban areas.

Rather less impressive is the time taken for the map extracts to download, an inevitable result of sending graphics data down a phone line and each scroll of the on-screen map requires a new download, so it pays to be precise about the location of interest. Also the extracts are quite small, presumably to keep download times as short as possible, whilst visited pages are not available off-line unless specifically saved, probably in the interests of copyright protection.

Nevertheless for a quick survey of a particular IA site this is a valuable service. Usual OS reproduction criteria apply, only a single screen dump of a map for personal use is permitted.

Also worth a look is www.streetmap.co.uk, essentially the same idea under a different name, and of course the OS web site at www.ordsvy.gov.uk, who also have a help line covering copyright and licensing issues. Phone: 023 80 792913. For aerial photographs try www.getmapping.com, although whole UK coverage is not yet available.

Gas Turbines and Horsehair

November 2000

Mark Barnard: The Development of the Rover Gas Turbine Car

The sight, on video, of a sleek Rover-BRM car 'whispering' its way through the Le Mans 24-hour races transported many members at the November meeting back to those heady days in the 1950s and 60s when Rover was leading the way for Britain with a gas turbine engined car. WIAS member Mark Barnard started his talk by briefly sketching Rover's initial involvement with Frank Whittle in the early 1940s, when the latter was struggling to get his ideas accepted, and he then took up the story at first-hand from the point where in 1953, as a young graduate, he himself joined the famous car company. In his career with Rover, Mark was subsequently destined to become Chief Engineer of its Turbine Department.

When Mark joined Rover, the Company was being led by the Wilks brothers, Maurice and Bernard, two men with the vision and the courage to get involved with gas turbines, a project which involved pushing engineering to the very extremes of available technology. A time, moreover, when the advanced alloy steels which would subsequently make them a feasible and reliable proposition had yet to be developed. As Mark Barnard said, "In those days we had mild steel, or alternatively we could use.....mild steel!" In his talk, Mark managed vividly to recapture the excitement of those early days; the triumphs, the disappointments, and the faith which he and his colleagues had in the project.

Early versions of the engine had no heat exchanger, and fuel consumption was also horrendously high. When a heat exchanger was developed, made principally from stainless steel, it sometimes had the habit of disintegrating only to re-appear from the exhaust 'like cigarette ash'! A 'glass' material from Corning USA ultimately replaced stainless steel and represented a major advance in heat exchanger design. Successive versions of the engine saw fuel consumption gradually improved, but it was principally this factor, among others, which eventually spelled the end of the gas turbine for car propulsion. Rover finally withdrew from the field in the mid 1960s.

Horsehair and its Uses

The November meeting concluded with a short talk by WIAS member John Brace on the esoteric subject of 'Horsehair and its Uses'. As always, John managed to combine information with a delightfully wry wit. He explained that once the hair had been removed from the horse's tail (with or without its permission), it could be found in many disparate places, from builders' plaster to Judges' wigs, from violin bows to mattresses, and from bearskins to sporrans. It can also be woven into a material for making ladies handbags, and at one time was used in the manufacture of crinolines. The only limitation of this wondrous mono-filament material, it seems, is its maximum length of approximately 28 inches! But will genetic manipulation, one wonders, result in the breeding of horses with 48-inch long tails?

A Second Look

The High Street Railway Bridge
Leamington Spa
WIAS Database Record No. 146

Many members of the Society must have waited at the traffic lights under this bridge, but probably few have given the structure a second glance. Setting aside the recent inappropriate repaint in 'Great Western' colours, this bridge is a remarkable structure of asymmetrical design, perhaps best appreciated from the platforms of the nearby station. It is probably the second bridge on this site.

McDermot (History of the Great Western Railway Vol. 1) states that the construction of the Birmingham to Oxford Railway started in early 1847. Completion was delayed by financial economies and negotiations with the LNWR for a joint viaduct through Leamington and a common station in Birmingham; this following the decision to alter the intended route from a line west of Leamington to a line into the town.

By September 1852 the line was ready for inspection and there is mention of the Leamington viaduct and a bridge of 105 ft span over High Street. The line opened as mixed gauge on 1st October 1852 and the gauge was narrowed on 1st April 1896.

The 1852 1/500 OS plan indicates that the configuration of the bridge was the same as the present bridge but clearly shows columns, sited on the kerb lines of the roads under the structure, propping all the girders. There is no sign of these props now, so it is likely that at some time the bridge was rebuilt. Indeed, member Peter Chater has some slides of photographs apparently taken during this rebuilding work and the caption to a picture in the Warwickshire Image Bank resource, dated '1930s', refers to the extant bridge as the 'new bridge'.

If any member can provide further information please contact Roger Cragg.

Programme 2000 / 2001

PROGRAMME

2000

Thursday 14th September
Ian Frimston: "Three Local Aerodromes: Wellesbourne, Gaydon and Shenington."

Thursday 12th October
Clive Hester of the Ordnance Survey: "The History of the Ordnance Survey."

Thursday 9th November
Mark Barnard: "The Development of the Rover Gas Turbine Car."

Thursday 14th December
Keith Draper of the Coventry Evening Telegraph: "Aspects of Coventry's Industry."

The majority of time at these meetings is occupied by our speaker, followed by refreshments and a subsequent period for questions and follow up material. The final part of the meeting is then usually taken up with a brief contribution from one of our members, often concentrating on an aspect of the industrial archaeology of Warwickshire. We are always keen to have contributions from members or visitors ~ do not be afraid to put yourself forward for one of these presentations. Occasional additional events will also take place during the year, and members will be duly notified of these.

2001

Thursday 11th January
Maureen Bourne: "Francis Skidmore of Coventry, the Famous Nineteenth Century Metalworker."

Thursday 8th February
David Kennet of the British Brick Society: "The Development of Brickmaking in the British Isles."

Thursday 8th March
M. T. Sharman: "Warwickshire Bridges: How the County Council Looks After Our Local Bridges."

Thursday 12th April
Barrie Trinder: "The Industrial Archaeology of Two World Wars: Manufacturing Industries and their Problems."

Thursday 10th May Ian Frimston
To Be Arranged. Local photo show

Thursday 14th June
Annual General Meeting and Members' Evening.

Thursday 12th July
Members' Research Evening.

Please note this programme may be subject to changes due to circumstances beyond the control of the Society.

WIAS Meetings

Meetings of the Society are held on the second Thursday of each month in the Sixth Form Centre at Warwick School, Myton Road, Warwick, starting at 7.30pm. A map of how to find the Sixth Form Centre at Warwick School is available from the Secretary. Visitors should park in the Junior School / Sports Hall car park. The Sixth Form Centre is adjacent to the car park.

Subscriptions 2000 / 2001

£10.00 per person (or couple).

Cheques payable to Warwickshire Industrial Archaeology Society please.

An additional payment of £1.00 per person is due at each meeting to meet the cost of refreshments.

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WARWICKSHIRE Industrial Archaeology Society

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NEWSLETTER

THIS ISSUE

EDITORIAL

I write this editorial after a somewhat disorienting week, the middle of which saw a 3.00am start for a visit to the depths of Lincolnshire! The reason for this was the rare spectacle of a genuine wartime Avro Lancaster bomber, performing some tail-up runs on a wartime Bomber Command airfield for the benefit of a BBC film crew.

There is a link to local IA in this event, since the aircraft concerned was built by Austin Motors at their Longbridge plant, a further example of the diverse industrial past of Warwickshire.

This diversity is reflected in the interests of our membership, who again ably saved the day at the February meeting when the speaker was forced to withdraw at very short notice (a full report is on page 4). This diversity of interests is also something that, as a Society, we perhaps do not recognise sufficiently.

Other recent meetings have shown there is a considerable industrial knowledge base amongst the membership, on both a professional and amateur level, and yet relatively few members contribute to the meetings. If you have something to say, we would love to hear from you. Even if you do not wish to talk yourself, you may know of someone in your field of interest whom the Society could approach to speak. Toby Cave is in the process of drawing up the 2002 programme (and beyond) and urgently needs leads to potential speakers to maintain the high standard of meetings that he invariably arranges.

Please pass the details of any likely contacts to a member of the committee.

Mark W. Abbott

SOCIETY NEWS

Programme

The vacant May meeting has been filled, as hoped for, by Ian Finniston. His subject will be: *Three Local Aerodromes: Whittemere, Gaydon and Shawbury.* This is the speaker and subject originally scheduled for January 2001 and unfortunately cancelled because of the fuel crisis.

Lives and Times

The Society has again been invited to exhibit within the *Lives and Times* event at the annual Coventry Godiva Festival. This year's dates, subject to confirmation, are the ninth and tenth of June.

Drakelow Factory

This site and the book detailing its history (reviewed elsewhere in this newsletter), were mentioned at the February meeting. Following an excellent response to the suggestion of tour of the site, an enquiry has been made to see if the Society can make a block booking for a Sunday tour.

CROSSNESS CORRECTION

The recently featured Crossness article in Retort Issue 10, contained a slight error in the omission of a single word, *rotative.*

Whilst not wishing to diminish in any way the greatness of the engines at Crossness, they are not, in the generally accepted sense, 'The largest beam engines in the world'. That accolade, in conventional beam engine terms based on cylinder dimensions, beam size and weight and pumping duty, expressed in millions of gallons per day (sorry no SI units here), must be reserved for the Kew Bridge 100 inch engine built by Harvey and Co., Hayle, Cornwall, in 1869.[1] Together with the equally fine and adjacent 90 inch engine, constructed by the Copperhouse Foundry, Hayle, the Kew engines represent the largest beam engines in preservation anywhere in the world.[2] The Crossness engines may well be the largest *rotative* beam engines in existence.

However, in absolute terms, the unique multi-beam, annular compound engine preserved at Cruquius in Holland is, definitively, the largest steam engine ever constructed; again Harvey and Co. being largely responsible for the work.[3]

REFERENCES:

1. Watkins G. *The Stationary Steam Engine.* David & Charles. 1968
2. Barton D. B. *The Cornish Beam Engine.* Barton, Cornwall. 1969
3. Willock J. F. *The Largest Steam Engine in the World.* Model Engineer, No. 3795. 1987

John Willock

Meeting Reports *by Arthur Astrop*

December 2000

Keith Draper: *Aspects of Coventry's Industry*

Being Coventry-born, having served an apprenticeship with the Standard Motor Co, and now a well-known Features writer for *The Coventry Evening Telegraph*, meant that Keith Draper was trebly qualified to speak knowledgeably on the industrial history of his native City. He brought all his accumulated experience to bear on that subject at the Society's December meeting when he took members on a 'saunter' through the years when Coventry had almost more factories than it had shops, when it was the unchallenged centre of motor car manufacture in Britain, and when the City echoed to the sound of scores of factory hooters. Not to mention the ringing of bicycle bells as literally tens of thousands of craftsmen and women pedalled daily to and from their work at benches or on machines!

Using what must surely be an unrivalled collection of slides, with some subjects dating from the 19th century, Keith's talk was a roll call of famous names covering individuals, companies, factories, and streets, few of which are still with us. Understandably, because of his early background, the vehicle makers of Coventry featured most prominently in Keith's talk, with Daimler, Maudsley, Standard, Morris, Triumph, Humber, Alvis *et al* and their various factories being lovingly described. Slides showing both the exteriors and the interiors of their plants, many from their early days, recalled the conditions under which the car makers of the 1920s and 30s worked. These factories, crowded with machines and workers, all labouring under a forest of overhead shafting and flapping leather belts, and with the absolute minimum of artificial lighting, would today be considered nothing short of a Factory Inspector's worst nightmare. Yet somehow, the pride which those men and women felt both for their work and for the Companies they served, came over.

Then there were the names of some of the men who led them. For example, Sir John Black of Standard who, immediately after the Second World War, sent his designer Walter Belgrove to make a pencil sketch of a US-built Plymouth car which Sir John knew was regularly parked outside the American Embassy in London. That day trip, with notebook and pencil, eventually became the inspiration for the famous Standard Vanguard saloon car. Keith also ranged over many other products which once made Coventry famous, including aircraft (Whitley bombers, Mosquitoes), aero engines, sidecars (with one particularly elegant wickerwork and leather upholstered model made by Montgomery), power transmission chain (Renold), high-accuracy speedometers and petrol taps (Rotherhams), gas meters (Wilson) and, of course, the naval guns, almost unbelievably large by today's standards, which were once made in Coventry's huge Ordnance Factory in Foleshill. Keith had high quality slides to show for almost every topic he covered.

He also had slides of daily life in the City itself, from the early years of the 20th century through to its battered condition immediately after the Second World War when, as a small child, he knew its streets and buildings intimately. There were those in his audience who also knew those subjects intimately and who were able to identify for Keith some landmarks of which even he was unsure.

Indeed, the evening was so successful not just because of its subject, and Keith's skill as a speaker, but because it was also a lively 'interactive event', with members contributing their own knowledge and experiences as well.

Book Review: Drakelow Unearthed

***Drakelow Unearthed*, Paul Stokes, £5.50**

One of the country's largest wartime Shadow Factories, built 150ft underground for Rover, is described in considerable detail by Paul Stokes in his book *Drakelow Unearthed*. It was not until 1993, when the entire complex was sold into private hands, that the official mantle of secrecy covering this massive underground 'town' just a few miles north of Kidderminster was lifted. Stokes was then given free rein to explore its maze of tunnels in their entirety, describe their uses and illustrate his work with a large number of excellent photographs and plans.

In its time, besides being used by Rover for war work, Drakelow also served as a secret Regional Government HQ in case of a nuclear attack and Stokes records in considerable detail its changes in fortune over the years. An astonishing number of the original facilities remain, albeit in a somewhat dilapidated state, and bear poignant witness to their various uses. In that respect, Drakelow is a 'time capsule' of a piece of 20th century industrial archaeology. The book is obtainable from Paul Stokes at 'Fairfield', The Comps, Kinver, West Midlands DY7 6HH, and it is understood that party tours of the complex can be made by special appointment.

Metalworking and Leamington's Railway

January 2001

Maureen Bourne: ***Francis Skidmore of Coventry - Famous 19th Century Metalworker***

The metalwork of Francis Skidmore was once described as 'The jeweller's art writ large' and indeed much of his output, from his early crafting of chalices to the major pieces of architectural metalwork for which he ultimately became most famous, was clearly influenced by skills he learnt while apprenticed to his jeweller father.

Maureen Bourne, who is Slide Librarian to the Department of History of Art at the University of Warwick, presented a profile of Skidmore, much of whose work stands to this day in churches, cathedrals and public buildings throughout the UK. It is wide-ranging, and covers a spectrum from small pieces of silverware to the decorative features of the Albert Memorial, and from gas lighting standards to the roof of the Oxford University Museum.

Skidmore earned the respect of, and co-operated with, many eminent Victorians. In particular he worked for Sir George Gilbert Scott, supplying almost all the decorative ironwork for the latter's buildings. Skidmore's willingness to tackle projects for which his background and training did not always fit him proved at times to be both a strength and a weakness. His genius for designing and producing elaborate decorative metalwork of the highest quality and artistry is beyond question. However, his venture into using the same materials (notably wrought iron) for load-bearing architectural structures proved to be far less successful. For example, his design for an elegant glazed roof to cover the quadrangle of the Oxford University Museum, using wrought iron for major structural members, collapsed during construction and a redesign using cast iron was needed.

Skidmore was born in Birmingham in 1818, but in 1822 his father moved the family to Coventry where he set up in business as a jeweller. In his apprenticeship, Francis learned the full range of jeweller's skills, a training which might appear inappropriate for the type of work which was later to make his name. In fact its influence can be seen even in his largest projects, which are renowned for their delicate and complex metal tracery.

Skidmore eventually had a series of workshops in Coventry, the sites of which Maureen Bourne showed on early maps of the City. Although this man of relatively humble origins was an associate of many famous Victorians, and although his work remains a permanent memorial to his genius, he died in poverty, for like many another outstanding artist he was sadly in fact not at all a successful business man.

Leamington's Railway Bridge and Station.

The January meeting concluded with a short presentation by Peter Chater of various stages in the history of Leamington's railway station and its associated bridge over the High St/Clemens St junction. Peter traced the history of the station from the original fully covered design through the subsequent re-developments which led ultimately to the 1930s design we know today. He then turned to the associated rail bridge and covered the various versions which have been used over the years, none of which it must be admitted has ever done much to add to the elegance of the town. Peter's intimate knowledge of railway history and practice, and a splendid selection of slides, ensured that his talk was as rich in detail as it was comprehensive in presentation.

A Second Look - Update

The High Street Railway Bridge.

The following notes on the reconstruction of this notable Leamington landmark were provided by Peter Chater.

The original bridge of 1852 that spanned High Street was constructed with plated girders of wrought iron, supported at either end on brick and stone piers and 10 supporting cast iron columns throughout its length. It originally carried a double track of mixed gauge. This bridge remained *in situ* until replaced in 1906.

The present bridge is built with arched truss girders (five in number) supported at each end on brick and stone piers, one central column and one blue brick pier at one side. The removal of the columns of the old bridge facilitated the movement of road traffic beneath.

The two sides of the new bridge were constructed separately so that rail traffic would not be disrupted. The upside was completed first with all rail traffic passing over the downside of the bridge, tracks being interlaced (this avoids any moving points). When finished, tracks were diverted to the upside so that the downside could be built.

This information was obtained from the Great Western Magazine of 1906. To quote: The manufacture of the steelwork, 330 tons in weight, was undertaken by Messrs. Eastwood and Swingler of Derby. The erection was supervised by Divisional Engineer L. R. Wood, Wolverhampton.

City Planning, Bricks and Vintage Aircraft

February 2001
Members to the Rescue

Only three hours before this meeting was due to open, news was received that the scheduled speaker was unfortunately indisposed and therefore unable to attend. Nevertheless, by 7.30pm enough of our members had been mustered to fill the evening with contributions of their own, and to present a variety of topics and slides of impressive quality and interest.

Martin Green took us on a splendid pictorial tour of Birmingham City Centre, concentrating on some of the difficult choices faced by planners in its redevelopment, and especially where the 'old' must soon perforce give way to the 'new'. The Rotunda, one of the buildings to be retained, served as vantage point from which he took a series of panoramic 'aerial' views to illustrate both the beginnings of the redevelopment and some of the cherished landmarks which may soon disappear. Interspersed were external and internal shots of such historic areas as the Jewellery Quarter, the Law Courts, the Midland Art School, Moor St station, and the Birmingham Gun Barrel Proof House. Other subjects covered by Martin included canal-side buildings, and the Typhoo Tips Tea and Bird's Custard factories. The fact that Martin was on the 'home ground' of his childhood meant he could bring some of his personal memories to bear with great effect.

Roger Cragg was the next speaker with slides he had taken on tours of industrial sites within and without Warwickshire. When the roof of the Retort House for the original gas works in Gas St, Birmingham, was being restored Roger was in fact consulted by the contractors, and he had a fascinating tale to tell of the unique cast-iron trusses which had to be preserved. These trusses needed to be assessed for strength in relation to the new covering they were destined to support, and this work was carried out by a colleague of Roger's from Coventry University. Other topics covered by Roger included Wigan Pier, the Adam Bridge on the Liverpool & Bury Railway (for which early pre-stressed concrete beams were used); the Albert Dock in Liverpool; and finally some aspects of bridges, aqueducts and inclined planes on canals in the West Country.

Since the scheduled speaker was to have given a talk on brickmaking it was fortuitous that both Peter Chater and Richard Storey were able, at such short notice, to make contributions on that very same subject. Peter had had the foresight to photograph the Cherry Orchard Brickworks, Kenilworth, at a time when it had already stopped production but before it was razed to the ground. His slides showed both general views of the site and internal views of the buildings where some of the original brickmaking machinery was still installed, albeit long since abandoned.

Richard Storey spoke next on the patented Caleb Hitch Brick, an interlocking design which had some success in the years *circa* 1820-1840 but which ultimately lost favour, possibly because of its complexity, the need for so many variations on the basic design to accommodate corners and ends, and consequently the difficulty and relatively high cost of production compared with a standard brick.

Mark Abbott rounded-off the meeting with a brief profile of the Shuttleworth Collection and showed slides of vintage triplanes, biplanes and monoplanes, many of them airborne, and a roll call of historic names that included Bleriot, Sopwith, Blackburn, Bristol, Avro, Supermarine and Hawker.

The meeting was a splendid example of the knowledge which resides within members of the Society itself, and it is hoped should encourage others to come forward from time to time with short contributions.

Any member wishing to make a contribution to a meeting (short or otherwise!), should contact a member of the committee.

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NEWSLETTER

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EDITORIAL

Conservation and preservation; terms often used in a discussion of IA. Terms, also, that are frequently used as if interchangeable, which implies they have a similar meaning. However, is this implication of common meaning correct and if not how exactly may the terms be defined?

This train of thought was caused by the recent reading of a book about museum restoration policy and practice (much more accessible than it sounds!), which was obviously careful to make correct use of the relevant terminology. It also contained the following definitions:[1]

CONSERVATION: As the technology of preservation, conservation is the scientific investigation of materials, the environment, and those things responsible for the deterioration of cultural resources. Its purpose is to limit the decay process and to prolong the existence of objects.

PRESERVATION: The act of sustaining and maintaining cultural and natural resources that have been identified as significant and/or threatened and that warrant protection.

Therefore, an industrial archaeologist might seek to preserve a particular site or object for future generations to study. To do this might require the application of conservation techniques, for example to halt corrosion.

This plainly demonstrates that conservation and preservation are not similar in definition, but rather means to a common end. Preservation may require the use of conservation and both have the aim of long term protection for a site or object. Perhaps it is this common aim that causes the confusion whereby the terms are used incorrectly?

REFERENCES:

1. Mikesh Robert *Restoring Museum Aircraft.* Airlife Publishing Ltd. 1997

Mark W. Abbott

SOCIETY NEWS

PROGRAMME

Looking forward to September 2001 and the new season of meetings, the following speakers are confirmed:

13th September

Roger Cragg. *The History of Railway Signalling.*

11th October

Brian Redman, former City Engineer of Coventry. *Thoughts on the Planning of Coventry from a Historical Point of View.*

8th November

Nigel Crowe of British Waterways. Subject to be confirmed.

All the w's.....IA on the Internet

Members who are on line are strongly recommended to visit the Web Site www.britishengineerium.com for a splendid display, in photographs, drawings and text of the Goldstone Pumping Station. Built on the South Downs in 1866 to deliver water to Brighton, Hove and Preston, this magnificent building is now a working museum and a 'temple' to Victorian engineering excellence. Its director, Dr. Jonathan Minns describes it as a point "where Art and Science meet" and as a memorial to the Victorian era and a time when "the battle of styles between the Classic and the Gothic was fought as fiercely in the nation's iron foundries and workshops as it was in architectural competitions". At Goldstone, he adds, the Classical Style won hands down!

The Web Site sets out the history of Goldstone and allows you to explore on-screen the Pumping Station, the Main Hall, the Boiler Room, and the Beam Engine. An important part of the aims of the project is an attempt to show the young the functions (and the sheer beauty) of moving mechanical components, many of them on a truly giant scale. Fifty years ago, Dr. Minns says, every schoolboy knew how levers, gear trains, pulleys, cranks, pistons and cylinders worked. Today their counterparts know only sealed grey boxes containing unmoving components with functions of which they are largely ignorant and, sadly, all too often uncaring.

Meeting Reports *by Arthur Astrop*

March 2001 Mike Sharman:
Warwickshire Bridges: How the County Council Looks After our Bridges

Until his retirement a few years ago, Mike Sharman had a major responsibility in our County for the care and maintenance of its road and foot bridges, old and new, and his talk illustrated vividly the scale, variety and complexity of that task. It covered methods of bridge construction from very early stonework through timber, brick, cast iron, wrought iron and steel up to the latest reinforced concrete spans which cross our motorways. His responsibilities also involved balancing the views of those who insist on total preservation of any original structure, seemingly regardless of cost, with those who want the most modern and most economic solutions, sometimes with little regard to aesthetics. And paramount over all, of course, is the question of the safety of the public.

The bridge was one of the first efforts of Man in the field of civil engineering for, as Mike pointed out, almost every bridge exists principally either to 'avoid a natural hazard' or to make it easier, or quicker, to get from A to B. A plank thrown over a small stream fits that definition as much as does a multi-million pound suspension bridge soaring over an estuary. In the history of bridge design, Mike suggested that the development of the arch was probably the single most important step. Capable of supporting loads even when it is in a sorry state of deterioration, the arch appears in a multitude of different forms, many of which were shown on his slides. Arches of different shapes even appear in the same bridge, as that at Bidford where legend has it that responsibility for the design of each arch was allocated to a different monk!

With over 50 slides to illustrate his talk, Mike was able to give technical details of a very wide range of different designs and types of construction materials. He offered insights into the histories and details of many local bridges which we pass by, or use, every day, including one in Warwick with lateral cavities in which demolition explosives were secretly packed during the Second World War. A bridge over the Birmingham Rd, Warwick, has an interesting feature which is easily missed by the uninitiated, namely the fact that the brickwork above the string course is laid in a very shallow curve, to follow the shape of the roadway, whereas that beneath the string course is truly horizontal.

Other local bridges with features of special interest included: the Lucy Mill Bridge at Stratford, where a disused railway bridge was refurbished as a road bridge, increasing its width by cantilevering the footways; the footbridge over the Leam which is the nearest the County has to a suspension bridge; and the Adelaide Bridge in Leamington, where the use of an early (and brittle) grade of mild steel led to all sorts of problems as time passed. A major project, dealt with in some detail by Mike in his talk, was the new bridge which carries the A423 over the Leam at Marton and the simultaneous preservation and restoration of the nearby medieval stone bridge which has stood for over five centuries. First constructed in 1414, that bridge has seen many repairs and alterations in its time, and will continue to serve as a footbridge. Mike distributed an excellent brochure* on the Marton Bridge project, which represents the very best practice for combining the sympathetic design of a new bridge with the careful preservation and continued use of its venerable neighbour, an important piece of our heritage.

* Published by the Highways Agency, 5 Broadway, Broad St, Birmingham B15 1BL (Tel: 0121 678 8210).

Cherry Orchard Brickworks: an addendum by Peter Chater

Further to his short talk at the February meeting on the Cherry Orchard Brickworks, Kenilworth, (see Newsletter No 1 page 4), Peter added some details of the incline in the quarry and the means used to move the clay tubs up and down it. The incline was 348 ft in length with a gradient of between 1in 4 and 1in 5. A winding house at the head of the incline housed an electric motor which drove a 4ft 9inch diameter cast-iron sprocket, with another similar sprocket at the foot of the incline. A heavy-duty continuous chain with 2-inch links joined the two. The tubs moved on a 15-inch gauge track and each had a projecting vee-shaped horn at one end, with which any link in the chain could be engaged. A total of 16 tubs were in continuous circulation up and down the incline.

Marton Bridge Leaflet

A very limited quantity of the Highways Agency leaflet, describing the Marton Bridge project, remain in the Society's stock of publications. Any member who did not secure a copy at the meeting, please speak to the Treasurer. Allocation will be on a first come, first served, basis.

The Legacy of Two World Wars

April 2001 Barrie Trinder: *The Industrial Archaeology of Two World Wars*

The two world wars of the 20th century left their mark on the landscape of Britain in many ways. Not least, both conflicts triggered an unprecedented increase in the nation's industrial output and the need for the buildings and equipment to achieve it. It was the residual evidence of both which remain to this day that Dr. Trinder dealt with in his excellent presentation at our April meeting.

In World War One the first rude awakening came in 1915, when it was realised that Britain's production of munitions, and especially of artillery shells, was totally inadequate to the task ahead* and a massive expansion of output was ordered. Many new factories were built, especially for the machining and filling of shells, some of them on greenfield sites and on a scale which seems astonishing today. At Gretna Green, for example, a shell making facility which spread over 7 to 8 miles east-to-west, and employed 15,000 workers, was built and literally transformed what was hitherto little more than a 'village' into a substantial town. That factory was demolished in 1924, but some of the infrastructure which supported it, including housing for the workers, is still to be seen.

Dr Trinder dealt with a number of other similar projects of World War One origin, including the Austin Village (built 1915/16); shell filling factories at Hereford and Banbury; major sites in Slough and Perivale; the airship hangars at Cardington; and the National Machine Gun Factory near Burton-on Trent (a private initiative), which curiously was built in 1919! Another major facility, the 1910 Abbey Works of Express Lifts, Northampton, was expanded in 1914 to cope with World War One and in 1940 for World War Two. Wartime factories having established precedents at Slough and Perivale (Park Royal), both have since become major industrial sites with some of the World War One buildings still in use, albeit substantially modified. Some of the World War One munitions plants, especially the Royal Ordnance Factories, continued to operate in the inter-war years, and were ready for the rearmament programme of the 1930s and thus for the Second World War.

That programme also saw the construction of numerous 'shadow factories', also a further expansion in the number of ROFs, of which between 30 and 40 were in use during WW2. Running alongside factory construction was the need to build accommodation for the huge numbers of workers employed therein, many of whom were 'incomers' from other areas. There was also the major Anglo/US project code-named Operation Bolero, which was aimed at providing the means to accommodate and support the huge influx of US Forces arriving in Britain for the build-up to D-day. Some buildings constructed during Operation Bolero can still be seen.

With the end of World War Two, the housing needs of the civilian population then became urgent and a number of different variants of 'prefabs' appeared, many of them designed and made by aircraft companies whose skills in sheet metal and wood were turned over to produce prefabricated building components. Examples of many of these buildings, (including some originally expected to stand for only 10 years or so), are with us still and Dr Trinder's talk showed us just where to look for them.

* As an indication of the scale on which shells were required in World War One, it is recorded that in one action alone (at Aubers Ridge in 1915), a total of 1.5 million shells were fired in a barrage which lasted for 72 hours.

TEE Publishing

Not all members may be aware of TEE Publishing, which has premises just out of Leamington, on the Fosse Way. This company specialises in publications on a very wide variety of technical subjects, and along with its own titles it has an extensive collection of rare and second-hand books, also on technical subjects and many now out of print. It is well worth a visit, and browsers are welcome! To reach TEE Publishing, leave Leamington on the Radford Semele Road and at the island on the Fosse Way turn left. The entrance to TEE Publications is a few hundred yards along, on the right.

Newsletter Contributions

Thank you to all members who have contributed material to the newsletter and please do not be dismayed if your work has not yet appeared in print. With the meeting reports occupying the majority of the newsletter, space is extremely limited for other material. All submitted items will eventually appear so please continue to pass new material to the editor. Short pieces of around 50-100 words are particularly welcome.

Local Aviation History and Gunpowder Engines

May 2001 Ian Frimston:
Some Historic Warwickshire Aerodromes

In practical terms, and discounting the mythical exploits of Icarus and the sketches of Leonardo da Vinci, the history of aviation proper can be said to have started with the Wright brothers. Consequently, nothing is much more than 100 years old. Nevertheless, some of the slides of early flying machines that Ian Frimston showed at the start of his talk seemed as far removed from those of today as do Newcomen's atmospheric engines from the modern power turbine.

Ian used shots of early planes from the Shuttleworth Collection to illustrate the astounding progress which aviation has made in the last century before moving on to discuss the parts played, both in wartime and in peace time, by the historic aerodromes of Warwickshire. These fields rapidly gathered importance in the inter-war years and then assumed national significance in World War Two, both as training and as operational aerodromes.

Picked out by Ian for special and detailed description were the aerodromes at Baginton, Church Lawford, Snitterfield, Warwick, Wellesbourne, Stratford, Gaydon, Long Marston, Southam and Edgehill. The Warwick aerodrome was used mainly for repairs to aircraft, and the skeleton of a hangar remains on that site today, while Snitterfield was a bomber base for the US Air Force. The aerodrome at Stratford was a satellite of Gaydon but the latter was eventually destined to grow both in stature and importance and, from 1954, to become a home for Britain's formidable V-bomber force.

In the Second World War, Long Marston was a base for Coventry-built Whitley bombers and Edgehill had a special claim to fame as it was the field from which, after its initial trials at Cranwell, Britain's first Whittle-jet-engined airplane went into serious operation. At one time, the aerodrome at Wellsbourne held the distinction of being the largest training unit for flyers, with many thousands of airmen gaining their wings high above the green fields of Warwickshire. Today, Wellesbourne aerodrome is a centre for light aircraft.

Ian's talk was in many ways a 'trip down memory lane' for those who recall with affection such classic aircraft as the the Sopwith Pup, the Tiger Moth, the Lysander and, of course, the mighty bombers of World War Two.

Gunpowder Engines: John Brace

The May meeting concluded with a short talk by John Brace. For many, John suggested, the history of the internal combustion engine is assumed to have started with Otto. Not so, for in fact many attempts to derive useful power from such a device occurred in what is termed 'the Middle Ages of the IC engine', roughly from 1794 to 1886. Acknowledging the writing of Horst O. Hardenberg* on that subject, John entertained members with some of the more bizarre ideas for IC engines, which used a variety of fuels, including gunpowder. In one such attempt, a military mortar was set to fire a cannon ball vertically upwards. An overhead mechanical device was then employed to catch the ball in flight! Once it had been captured, the same device was then used to control the descent of the ball, slowly, under gravity, and in the process to do some 'work'. A more technologically advanced version of the same idea had the cannon ball being 'captured' by an overhead arrangement of springs, which were thus compressed and their stored energy used to do some work. Curiously, none of the devices described by John appears to have been commercially successful, but each one was an amazing example of the ingenuity, and optimism of inventors in the 18th and 19th centuries.

* *The Middle Ages of the Internal Combustion Engine - 1794-1886*, Horst O. Hardenburg, Society of Automotive Engineers Inc, 400 Commonwealth Drive, Warrendale PA 15096-0001, USA

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WARWICKSHIRE Industrial Archaeology Society

WIAS NEWSLETTER

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THIS ISSUE

EDITORIAL

What does Industrial Archaeology mean to you? Not in the literal sense, but at the personal level. We all presumably have an interest in the subject, but I am sure that the role it plays in each of our lives differs.

During a recent holiday in North Wales, I inevitably found myself on several occasions, driving up the narrow road through Deiniolen and Dinorwig, to the 'bus turn round' at the foot of the immense Garret side tips of Dinorwic Quarry. Each visit, I found myself reflecting upon why I am drawn to this area.

It is not the most attractive of locations, although it is undeniably atmospheric, especially with cloud low over Elidir Fawr and the mewing of the resident pair of buzzards echoing off the tips. There is much of interest in the landscape and every visit yields another detail to explain and fit into the bigger picture. Photographing what I discover, in a way that captures the spirit of the place, is a continuing challenge too and one reason why I return time after time. I know I can always do better.

All of which I think gives a clue to what Industrial Archaeology means to me. Put simply, it is a walk with a purpose! So much more satisfying than walking for the sake of it, with the added benefits of exercising the mind as well as the body, while keeping everyday pressures at a distance for a few hours.

Which raises in turn the question why, as a Society, we do not venture into the outdoors more often? True, there has been the tradition of an annual walk led by Peter Chater, who invariably devises a route of great interest, but requiring little physical effort. As a consequence these have been well supported. However, other such events have met with mixed success. A trip to the Welshpool and Llanfair Railway, organised some years ago by Roger Cragg, was not well supported by members I thought. On the other hand, John Selby's tour of the Oxford canal at Fenny Compton last summer, did attract a good following.

So what makes a good excursion and how might the Society ensure good support from members? If you do have any thoughts on the matter, let me know. John Haslam, who has considerable experience of organising coach trips, is keen to arrange an outing for the Society, possibly to Blaenavon. To take advantage of such skills and enthusiasm in the membership, can surely only benefit us as a Society.

Mark W. Abbott

SOCIETY NEWS

SUBSCRIPTIONS

Members are reminded that following the agreement of the AGM to retain subscriptions at their 2000 / 2001 levels, these are now due. The amount is £10.00 per person inclusive of partner. A further £1.00 per person is payable at each meeting to help meet the cost of refreshments. Please make cheques payable to Warwickshire Industrial Archaeology Society. To save on postage costs, any payments received by post will be acknowledged by receipt at the subsequent meeting.

PROGRAMME

A full programme for the forthcoming season is set out on the back page of this newsletter. Once again this represents the solid work of the Chairman, Toby Cave, to whom our thanks are due. One meeting awaits confirmation of a speaker and members will of course be advised of developments.

SUMMER WALK

This summer was the first for many years in which Peter Chater did not lead the now traditional evening walk, in a local area with industrial connections. This was because of the national outbreak of Foot and Mouth disease, which caused severe restrictions on footpath access throughout Warwickshire, as elsewhere in the Country. All being well, one or more walks will be arranged for next summer. Suggestions for possible routes, of about two miles in length, are welcome.

Meeting Reports *by Arthur Astrop*

June 2001 Jo Bell: *The Working Boats Project*

Boats are floating listed buildings! It was thus that Jo Bell started her talk on the 'Working Boats Project' currently being tackled by British Waterways with support from the Heritage Lottery Fund. Many areas of preservation and conservation of long-lost waterway life are covered by the 3-year project but the centre piece must be that part of the programme aimed at restoring ten specific working boats. These boats have been carefully chosen to illustrate different aspects of the time when our canals were serious 'work places' rather than, as today, merely pleasure grounds.

Atlas, for example, is a boat built in 1930 for the Grand Union Canal Carrying Co. and is being restored complete with its butty, the Leo. Saggita and Carina, both built in 1936, have been converted into floating classrooms designed so that children can learn at first hand what it meant to work and live in a narrow boat and to earn enough money to support the family it carried. Also built in 1936, the Scorpio was a gravel carrier, and is complete with its butty the Malus. At the height of the canal-carrying trade, there were 10,000 or more 'joey' boats on the waterways. Long, cargo-carrying day boats they had neither cabin nor motor and because they were not highly rated few remain today. Most were simply 'sunk', as an easy way of disposing of them, but the project has one which is being carefully refurbished.

Another particularly interesting item is a piling rig, built in the 1950s, which will be used to demonstrate the method by which the banks of canals were once reinforced. Working boats plied the canals all the year round, even in the depths of the harshest winters, and work is in hand restoring the Nansen, a powerful icebreaker. It was an appropriate touch, when it was first launched, to name this boat after the Norwegian Arctic explorer. Finally, mention must be made of the Birmingham, built in 1912 and most unusually along traditional shipbuilding lines. Below the waterline, its hull has all the curvatures associated with offshore boats and it draws no less than 3ft 9in. It is moored at Tardebigge and, needless to say, with that draught it doesn't move far on the canals of today!

Other aspects of life on working boats covered by the project include a wide variety of artefacts, also the traditional painting skills, especially the regional variations on the classic 'roses and castles' designs which adorned the boats themselves and some of their equipment. In a conservation project of this scope and magnitude, Jo Bell conceded it is inevitable that some compromises must be made. For example, replacement parts cannot always be made out of the type of wood originally used. Nonetheless every effort is being made by the project to adhere to four basic guidelines, namely to 'make it truthful, relevant, local and alive'.

Canal folk, Jo pointed out, had a uniquely 'linear' view of life. They knew people hundreds of miles in each direction up and down the waterways, but had little or no contact with anyone either side of the banks. Many of those working the boats were, by today's standards, illiterate. As a result, their social culture existed in oral rather than written form. Consequently much of it is lost, and as the years go by even more will disappear. The work of the project therefore includes attempts to record as much of 'social and family culture of the cut' as possible, before it is too late.

Further Afield: Parys Mountain

Parys Mountain is situated in the north east of Anglesey, 2 km south of the small town of Amlwch. Its particular significance is that, in the latter part of the 18th Century, it was the site of largest copper mine in the world and it has proven history of copper extraction dating back to the Bronze Age. Associated with the site were other chemical industries, based on mining by-products. These produced ochre pigments, sulphur, vitriol and alum, and an ochre works was in production on the mountain until the 1960s.

Recognition of the unique nature of this landscape led to the establishment, in 1997, of the Amlwch Industrial Heritage Trust. It has charitable status and its aims are to conserve the natural and industrial landscapes of Parys Mountain and Amlwch Port; to promote scientific and historical research and a fuller understanding of these two sites; and to present them for the appreciation of the public. This has resulted in the establishment of an excellent way marked trail on the mountain and a museum in Amlwch Port. In addition, access has been regained to the underground workings that remain above the water table and the intention is to reopen blocked drainage levels, so that exploration can continue deeper into the workings.

A visit provides a fascinating day out, although the trail on the mountain does require a reasonable degree of stamina and a strong pair of boots. The project also serves as an excellent demonstration of what can be done to promote industrial archaeology in a positive and accessible manner. Recommended!

The AGM and Members' Evening

July 2001

The Society's AGM and Members' Evening

Members attending the 12th Annual General Meeting of WIAS heard an encouraging report from Chairman Toby Cave, who was able to announce a marked improvement in the Society's finances, and increases in both its membership and the attendance at its monthly meetings. Opinion indicated wide appreciation of the Committee's choice of speakers in the year under review, and in fact the attendance of 51 members at the April meeting (addressed by Barrie Trinder), constituted a record. Toby also confirmed that, while he was willing to serve as Chairman for one more year, thereafter he wished to retire. It was pointed out that, if Martin Green were to be chosen to succeed him then the post of Secretary to the Society would become vacant, and all members were urged to address themselves to that problem.

In his report as the Society's Treasurer, Mark Abbott presented the detailed accounts, explaining how the improvement in finances resulted from, among other reasons, a combination of last year's increases in annual membership and meeting attendance fees, together with an unanticipated reduction in the charges for hire of Warwick School facilities. Opportunity was taken at that point to express the Society's appreciation of the generous support of its activities which is made by the School, in a variety of different ways. In view of the Society's improved financial position, Mark wondered if members felt the meeting attendance fee should revert to 50p. It was the unanimous decision, however, that it should remain at £1.00, both as a 'cushion' for the future and to give the Society more ability to 'pay its way' whenever possible. Following re-election of the Committee en bloc, and a vote of thanks to its members, the 2001 AGM was closed.

The evening then heard two talks by WIAS members. First, Martin Green presented a series of slides taken during a recent visit to Belfast, giving a fascinating insight both into the past industrial history of the Province and a pictorial representation of some of the results of its last 40 years of anguish. Shots of the mute and abandoned factories of its traditional industries were mixed with those of civic buildings erected when it was a prosperous city, and then further intermingled with views of some of the murals and crude graffiti which today bear witness to the tribal conflicts still raging in its streets. Martin's talk was a poignant reminder of a once proud and thriving city whose industrial archaeology is either crumbling away or is the 'blackboard' on which the lurid slogans of its sectarian strife are sprayed.

The evening concluded with a talk by John Brace in which he traced the early efforts of Stratford upon Avon to provide its citizens with an adequate supply of clean water and efficient sewage disposal. He tackled the period from about 1840 to the first few years of the 20th century, during which those efforts were beset both with obstacles and, at times, with incompetence. Stratford, then, was little more than a large village and sources of water within its own bailiwick were few. Snitterfield Brook, for instance, was outwith its reach but was later to become accessible, although it was prone to 'dry up' for fairly long periods. Flowers Brewery had its own artesian wells, and for a period supplied water to the town, but even when water and sewage pipes had been laid it was discovered that somehow their actual connection to its houses had been unaccountably overlooked. Today's Stratford citizens would be astonished to know how their grandparents overcame such difficulties!

Review: Industrial Gwynedd

***Industrial Gwynedd*, Volumes 1-4, Plateway Press 1996, 1997, 1998 and 1999**

The industrial history of the modern county of Gwynedd is dominated by mining and quarrying, especially the extraction of slate. This is reflected in the content of this occasional journal from Plateway Press.

Overall production quality is excellent. Photographs are well reproduced, good clear maps and drawings are appended where appropriate, and the writing style is accessible to the general reader. The occasional article is in Welsh, but an English abstract is always provided.

The most recent edition, Volume 4, 1999, is dedicated to Dinorwic Quarry. Articles include a description of the Dinorwic Quarry Railway's Crampton locomotive, *Fire Queen* and an account of the recording, and restoration to working order, of the Vivian Quarry V2 engine. However, not all the content is slate industry oriented. Previous volumes, for example, have covered the Parys Mountain Copper Mine (Volume 1, 1996) and Broad Gauge at Holyhead (Volume 2, 1997).

Back copies are available from the publishers: Plateway Press, Tavernor House, Harding Road, East Harling, Norwich, NR16 2QR. Price varies from £5.00 to £7.50.

Programme 2001 / 2002

2001

Thursday 13th September
Roger Cragg: *The History of Railway Signalling.*

Thursday 11th October
Brian Rednap, former City Engineer of Coventry: *Thoughts on the Planning of Coventry from a Historical Point of View.*

Thursday 8th November
Nigel Crowe of British Waterways: *Recent Work at British Waterways.*

Thursday 13th December
Jo Bell: *Exploring Telford's Welsh Road.*

The majority of time at these meetings is occupied by our speaker, followed by refreshments and a subsequent period for questions and follow up material. The final part of the meeting is then usually taken up with a brief contribution from one of our members, often concentrating on an aspect of the industrial archaeology of Warwickshire. We are always keen to have contributions from members or visitors ~ do not be afraid to put yourself forward for one of these presentations. Occasional additional events will also take place during the year, and members will be duly notified of these.

2002

Thursday 10th January
To be arranged.

Thursday 14th February
J. M. Carrington: *The Motorway Archive and the Preservation of Documents Telling the Story of the Construction of British Motorways.*

Thursday 14th March
Anthony Coulls: *Power in Manchester; the Energy Collection of the Museum of Science and Industry.*

Thursday 11th April
Brian Stokes: *How Automotive Products Became Leamington Spa's Largest Manufacturing Company.*

Thursday 9th May
Geoffrey Starmer: *Changes in IA in Northamptonshire During the Past 35 Years.*

Thursday 13th June
Peter Lee: *Railways in the Warwickshire Coalfield.*

Thursday 11th July
Annual General Meeting, followed by Lyndon F. Cave: *How to Make Cement and Concrete; the Warwickshire Cement Industry.*

Please note that this programme may be subject to change without notice.

WIAS Meetings

Meetings of the Society are held on the second Thursday of each month in the Sixth Form Centre at Warwick School, Myton Road, Warwick, starting at 7.30pm. A map of how to find the Sixth Form Centre at Warwick School is available from the Secretary. Visitors should park in the Junior School / Sports Hall car park. The Sixth Form Centre is next to the car park.

Subscriptions 2000 / 2001

£10.00 per person (or couple).

Cheques payable to Warwickshire Industrial Archaeology Society please.

An additional payment of £2.00 per person is due at each meeting to meet the cost of refreshments.

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WARWICKSHIRE Industrial Archaeology Society

NEWSLETTER

NUMBER 5 DECEMBER 2001 PUBLISHED QUARTERLY

THIS ISSUE

EDITORIAL

Do you have a favourite piece of industrial archaeology? Mine is undoubtedly the area of slate quarrying between Talysarn and Nantlle in Gwynedd, which also happened to be my introduction to industrial archaeology in the field.

I have a vague recollection of a wrong turn taken on a family holiday sometime in the mid 1970s, which led to what I thought a desolate wasteland of slate rubble and grey villages.

Ten or more years later, acting upon information gleaned from Boyd's *Narrow Gauge Railways of North Caernarvonshire*, I went in search of the remains of the Nantlle Railway and found myself in the same place, but with a fresh eye. A sharp left turn in Nantlle village, along the old valley road, led through towering tips of slate rubble and dry stone bridge abutments, to a derelict gate. Here more abutments marked the course of the Nantlle Railway on the edge of the foul, rubbish choked, Twll Ballast pit of Pen y Bryn quarry.

This less than promising start proved to be illusory. A little exploration on foot revealed a maze of flooded pits, tramways and dereliction. To the West, along a deep cutting, lay the vast flooded excavation of Dorothea Quarry with its apparently forgotten and derelict Cornish pumping engine still *in situ*. To the East the railway could be followed, curving above the rooftops of Nantlle village, to Pen yr Orsedd Quarry. This was on the brink of closure (it closed in that winter of 1984) and was full of relics. The workshops and stores lay as they had been abandoned in the 1970s; a wooden locker contained the last newspaper brought to work by its owner and the details of his last fitting job were chalked on the door. On the upper level stood several intact Blondin cableways, their machinery and electrical control gear rusting in the winch cabins. Ladders lashed to the sides of one pit marked the route the quarrymen had taken to work. Only the tramways were missing, torn up in favour of antiquated dump trucks.

I returned numerous times to explore, until in 1994, I found Dorothea Quarry full of travellers and Pen yr Orsedd stripped of any likely firewood and altered by reworking on the upper level. I have not been back, the magic tarnished by so much vandalism. However, in my memory at least the area remains a favourite and as an illustration of quarrying ingenuity in a confined space, there are probably few better examples.

A development of this theme I would like to pursue is to compile a short list of members favourite IA sites. These need not be restricted to Warwickshire, as the intention is to publish the list in time for next summer, so that those who travel elsewhere in the UK may have some recommended IA to visit. To work, this needs contibutions from the membership, so please pass these to the editor.

Mark W. Abbott

SOCIETY NEWS

Programme

The vacant January meeting has been filled by Peter Coulls. His subject will be *Looking at Trees*.

Subscriptions

A further reminder to members that subscriptions for the 2001/2002 season are now due. The unavoidable absence of the Treasurer from the last two meetings has meant that collection of subscriptions is a little behind schedule and prompt payment would be appreciated. The amount due is £10.00 per person inclusive of partner and cheques should be made payable to Warwickshire Industrial Archaeology Society please.

Newsletter

Retained contributions for the Newsletter are now minimal. It would preferable if the contents reflected more than just the meetings and the editors personal interests, so this is a call for contributions from members. These should have an IA bias and ideally be 150-200 words long. Hand written copy is acceptable if access to a typewriter or computer is not possible.

Meeting Reports *by Arthur Astrop and Roger Cragg*

September 2001 Roger Cragg: *The History of Railway Signalling*

This talk covered the development of railway signalling and train control systems from the earliest days of railways until the present time. It was explained that most of the improvements in signalling and train control had come about because of accidents having highlighted deficiencies in the systems.

Starting in the 1830s the only method of train control in use at that time was the 'time interval' system under which a train was allowed to leave a station after the specified time had elapsed after the departure of the preceding train. Flag or lamp signals were shown to passing trains by the 'policeman' who was stationed by the side of the line. When trains were relatively slow and infrequent this was just about adequate but as trains became faster, heavier and more frequent it was the cause of many rear end collisions. The Railway Inspectorate urged the adoption of three measures which would increase rail safety – the adoption of the Absolute Block system of working; the interlocking of points and signals and the positioning of all levers in one place under the control of one man; and the fitting of continuous, automatic brakes to all passenger trains.

The Absolute Block system, in which the trains are separated in space rather than in time was dependent on two developments – a system of communication between signal boxes, provided by the introduction of the electric telegraph, and a system of communication between the signalman and the engine driver, provided by the introduction of semaphore signals. Block instruments were used together with signalling bells to indicate 'line blocked', 'line clear' or 'train on line' for each block section. The various types of semaphore signals were described including home and starter signals, distant signals to give advance warning and special signals used at junctions and for shunting. The method by which point and signal levers were interlocked was demonstrated by the use of a model locking frame, the object being to prevent conflicting signals being given.

All train working messages and other significant events were recorded in the Train Register which was kept by the Signalman in his signalbox, and this would always be consulted in the case of accident or working irregularity to ascertain the possible cause.

Single line working presented a particular problem and Roger outlined several methods of train control which could be used in this situation. Nearly all the methods involved the use of some form of 'staff' or 'token', the possession of which by the engine driver authorised him to take his train into the single line section to which it referred. The use of 'tickets' to enable trains to follow one another through a single line section was also explained.

Modern developments that were briefly considered included the use of multiple aspect colour light signals, track circuits and automatic warning systems which give an indication to the train driver of the state of the signals.

A Second Look

Burton Dassett Ironstone Workings

Unlike neighbouring Northamptonshire and Oxfordshire, little iron ore has been quarried in Warwickshire. There are proven reserves of ironstone on Edge Hill, which led to the abortive Edge Hill Light Railway, but only the ironstone outcrop on the Burton Dassett Hills was commercially exploited for iron ore and here quarrying was a small intermittent operation.

Eric Tonks in his history of the site[1] suggests that the quarries were working by the early 1870s. Thereafter, a reopening took place in November 1898, for which Wm. Glover & Sons Ltd of Warwick, installed a steam powered aerial ropeway to Burton Dassett Platform on the Stratford and Midland Junction Railway. Tonks states the quarry tramways were operated by pony and gravity but also gives anecdotal evidence of a steam locomotive being used for a short while. Closure came again in 1901, with a brief working interlude in 1907/1908, until the increased demand for iron ore in World War One caused a final reopening in 1918 by T. & I. Bradley & Sons Ltd. Equipment from the previous periods of working was reused. Production during this phase of operation was small; Tonks quotes 100 tons per day, largely by hand labour. Final closure probably came in 1921 and all the equipment was removed sometime after 1929.

Today of course, the site is part of the popular Burton Dassett Hills Country Park. This has ensured the survival of many of the quarrying features and it is easy to trace both the various tramway routes radiating from the site of the former ropeway terminal and some quarry faces.

References:

1. Tonks E. *The Ironstone Quarries of the Midlands History, Operation and Railways Part II The Oxfordshire Field*, Runpast Publishing, Cheltenham, 1988

Coventry City Planning

October 2001 Brian Redknap:
Thoughts on the Planning of Coventry from a Historical Point of View

Brian Redknap, former City Engineer of Coventry, painted a very broad canvas in his talk to our October meeting and, in fact, gave members a panoramic view of the development of the City from mediaeval times to virtually the present day. He tackled three main aspects of its civil engineering history, namely sewerage, drainage and highways. All three were set against the background of a City which grew from a population of a mere 16,000 in 1800 to a peak of over 330,000 in the 1970s, and which in the late 1940s was destined to play a pioneering role in urban redevelopment, following its devastation by bombing in the second world war.

The topography of Coventry played a crucial part in attempts to provide the city with effective sewerage and drainage systems. The rivers Sherbourne and Sowe, also Canley Brook, were the main natural arteries for these systems but for a long time the city tried, for financial reasons, to utilise only gravity for liquid flow. There was also a reluctance, again for financial reasons, to provide proper sewage treatment, and for a very long time sewage and effluent were simply 'passed on' by way of the water courses to towns outside the city boundary. In the mid-19th century, however, Government legislation forced change and major work on disposal systems for both sewage and drainage was started. Treatment of sewage, however, was not provided for and it was not until 1874 that settling tanks were built by the Coventry Manure Co Ltd, which hoped thereby to have a 'saleable' product! These hopes were not fulfilled and the company failed.

In 1901, the City finally accepted that 'gravity was not enough' and conceded that a proper pumping system was imperative. Massive pumps capable of handling over 11 million gallons/day were installed, but still no treatment system was provided. Indeed, the city did not have that amenity until the construction of the Finham Sewage Works, in 1929.

Brian's account of the planning of the new city centre post-1945 was a fascinating story of contrasting ideas, not least those of the long-serving City Engineer Ernest Ford and the relatively newly appointed City Architect Donald (later Sir Donald) Gibson. To an extent it was a conflict between the visions of a younger and an older man, one seeing the opportunity for a fresh start with a 'brave New World' of concrete and traffic-free precincts, and one who took a more conservative (and perhaps conservational) view. Both schemes eventually had to be put before Lord Reith, as an arbiter. He drily commented that whereas one scheme seemed rather to lack imagination the other appeared to have a surfeit of it! Shrewdly Reith suggested that perhaps the best aspects of both schemes should be implemented.

Brian showed two excellent photographs of the Upper and Lower Precincts shortly after they were officially opened. Each picture touchingly recalled the high hopes of the period, illustrated both by the freshness of the architecture and the self-confidence of the people strolling about in the sunshine. The original vision was of a 'People's City' but, as Brian observed, architectural fashions were to change with time, as also perhaps were the people of Coventry.

Finally, Brian turned to the equally interesting story of the design and construction of the Coventry Inner Ring Road. This bold venture, designed specifically for traffic only and deliberately without 'frontages', is especially successful in catering for those who make daily journeys from one side of the city to the other for work, allowing them to avoid the centre itself. Brian's talk was a *tour de force* not least because it gave WIAS members a uniquely personal and firsthand account of the many problems involved in the major redevelopment of an industrial city in the second half of the 20th century.

Book Review

Baldwin N. and Pilley P. *A Guide to the Industrial Archaeology of Cambridgeshire and Peterborough*. Association for Industrial Archaeology 2001. ISBN: 0 9528930 4 5. Price not known.

Cambridgeshire is probably not a county that might be considered to have a rich industrial heritage. However, the reality is quite different as this latest of the guides from the Association for Industrial Archaeology demonstrates. Published to tie in with the location of the annual conference, the guide follows the established and successful format of previous years. The area of study is divided into smaller geographical regions and significant sites therein are described by a short written piece together with a grid reference and access details. Good, although sometimes rather small, monochrome photographs illustrate some of the chosen sites. Also, for the first time, criteria are given for the choice of sites. Although not exhaustive, the contents will prove of interest to the enthusiast and if taken with previous AIA regional guides, form part of a useful and growing resource.

Industrial Archaeology and British Waterways

November 2001 Nigel Crowe:
Recent Archaeological Work at British Waterways

With a staff of only six, and the entire country to cover, Nigel Crowe's remit as Heritage Manager for British Waterways is daunting by any standards. Just how daunting was illustrated by the range of different projects, in widely scattered locations, which he chose to cover in his talk to our November meeting.

Nigel has been with BW for 15 years during which time, he said, the organisation had changed beyond all recognition. Its dedication to the heritage of our waterway system is unquestionable but, as Nigel pointed out, BW must 'pay its way', and time and money spent on heritage work must always be consistent with, and proportionate to, that requirement. Nevertheless, the examples he gave of heritage projects already accomplished, and others in hand, were impressive.

Work on the Anderton Boat Lift, which connects the River Wear Navigation with the Trent & Mersey Canal, has included excavation of the original engine house, first used when the lift was powered by steam. It had been possible to trace significant stages in the history of the engine house from its opening in 1875 through to its final electrification, just before the first world war. On the Kennet & Avon canal, a pair of stop gates has been discovered which were designed to close automatically if there was a sudden unintentional loss of water. Adjacent to Lock 10 on the same canal, but not connected with it, a large water tank had been found which appears to have been a cistern or reservoir once supplying water to a nearby 'grand house'.

At Clarence Lock, Leeds, Nigel's team was called in to investigate and record the remains of a very large derelict boat. Measuring over 20 m long, and unusually broad of beam, it was sadly in a completely unrecoverable condition. In design, however, this boat appears to have been not unlike one of the famous Forth & Clyde 'steam puffers' and its presence on an inland waterway was both surprising and difficult to explain. Also in Leeds, Nigel referred to excavations on the site of a BW property alongside the Aire & Calder Canal. Here was found a 1940s air raid shelter with accommodation for 165 persons.

Coming nearer to home, work on repairing leaks in the Engine Arm Aqueduct of the Birmingham Canal has uncovered some unusual 'Gothic' decoration in the ironwork, which has been carefully recorded. A project of an entirely different nature, namely maintenance work on the 3-mile long narrow Standridge Tunnel, Huddersfield, required recording the facing stones in the portals individually before work could begin. A 'lost' spillway at Lock 24 on the Lichfield Canal needed recording before work on the lock itself started, and to conclude Nigel described a particularly successful educational project which BW has started at Welford Wharf on the Grand Union Canal.

This project had its origins in the excavation of a canalside lime kiln but has since been extended to provide a centre where training in the methods and disciplines of industrial archaeology is provided. Indeed, the site is now a community project, with the enthusiastic involvement of local schools and villages, and is significantly raising awareness of the importance of industrial archaeology. As a postscript to his talk, Nigel drew attention to an interesting aspect of BW in the 21st century. More of its income is today derived from the fibre optics cables laid in its towpaths than from any activity connected with boats or boating!

Errata

The September edition of the Newsletter unfortunately contained a couple of minor errors. First, the speaker for October was Brian Redknap; not Brian Rednap as printed. Apologies to Brian for this proofreading oversight. Second, the subscription rates quoted were of course for 2001/2002 and not for 2000/2001 as indicated.

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NEWSLETTER

THIS ISSUE

EDITORIAL

The testimony of people once involved with what, by reason of passing time or technological progress, is now industrial archaeology, is something that is perhaps neglected. Only those who were there can truly describe how something was done.

With this in mind, this Newsletter sees a change in layout to publish a piece by Peter Chater. Peter's experience as a locomotive fireman gives a valuable insight into how the job was done and I am grateful for his contribution.

Mark W. Abbott

FREIGHT TRAIN WORKING

I would like to give a detailed description of a journey with a heavy freight train, weighing more than one thousand tons and made up of seventy loaded wagons, between Leamington and Stratford on Avon. All the wagons are unfitted, that is with no continuous brake and are loose coupled. I have chosen this particular journey as it is quite undulating and a route I frequently worked over in the 1940s and early 1950s.

On leaving Leamington there is a falling gradient of 1 in 100, this takes the railway under the canal aqueduct, then immediately the track rises by 1 in 90 to climb over the River Avon thus forming a dip beneath the canal. The next part of journey is Warwick to Hatton, a long bank of 1 in 100. From Hatton to Stratford the route is generally falling, with a steep decline of 1 in 75 on leaving Wilmcote.

Most long distance freight and mineral trains were worked by tender engines as they carried more coal and water. As this train working that I am about to describe was destined for South Wales, I will suppose the engine to be a 28xx class 2.8.0 tender engine.

When the train is ready to leave Leamington and the signals are in the off position, the driver will create vacuum in the engine and tender brakes. When this is done the fireman will gently ease the tender hand brake and as it is falling gradient the engine will edge forward to take up the slack in all the couplings. This might be as much as a hundred feet. The guard at the rear of the train keeps his hand brake hard on until he reaches a point near the dip beneath the canal aqueduct, then releases it. When the driver on starting away knows he has a tight coupling throughout the train, he applies a little steam to keep it that way. The fireman would be busy making up his fire. On reaching the canal aqueduct the driver would apply maximum power to climb the gradient of 1 in 90 to the bridge over the Avon and to keep the couplings tight. This is to prevent a snatch from the rear portion of train that is still on a falling gradient. (Every few weeks a coupling or draw bar would be broken here). When the train is completely through this dip, firing could start again. (When an engine is being worked at its maximum it is not easy to fire, as the blast from the chimney would take the coal off the shovel.) On arriving at Warwick the driver would bring his train to a stand in advance of the station to await the assistance of the banking engine to Hatton. (The prime purpose of this engine is to assist heavy trains, but it also has a secondary role; this being in the event of a coupling breaking to hold the train from running backwards.) The bank engine would buffer up to the rear of the train, the guard would hand this driver details of his train and then remove the tail lamp from his van. The bank engine driver would then whistle the signal code, two crows and one. (A crow is one long, three short and one long whistle.) When the driver of the train hears this whistle he repeats it and both drivers start off together. On reaching Hatton the bank engine would stop at the signal box and if lines were clear the train would continue towards Stratford on Avon. This is mostly a falling gradient, but very steep after leaving Wilmcote where the train would be kept under close control.

The remainder of the journey to Gloucester is fairly straight forward.

Peter Chater

Meeting Reports *by Arthur Astrop*

December 2001:
Windmills and Watermills, Fishponds and Carpets

From time to time events fortuitously conspire to reveal the depth of knowledge which resides, just waiting to be tapped, among the members of our own Society. Such was the case in December when, a bare 24 hours before that meeting was due to open, the scheduled speaker was laid low with 'flu. The Committee was immediately and urgently seeking a substitute. In fact, they needed to look no further than member Peter Chater who, despite the extremely short notice, stepped in with a full length talk on windmills and watermills, illustrating it with his own slides of outstanding quality.

Before the arrival of steam engines, windmills and watermills were the only sources of mechanical power available to agriculture and industry and, as Peter reminded us, from the 12th century onwards our countryside was increasingly populated with both. The evolution of the windmill saw three main types being developed, namely (in order of appearance) the post-mill, the smock mill and the tower mill. Peter explained the basic design principles of each type of mill in turn, also the various designs of 'sails', illustrating all aspects with sectional line drawings and colour slides of mills still surviving. The problem of turning the mill to face the 'wind of the day' was the first design challenge to be met, and was initially solved by arranging for the entire structure to be rotated about its massive stationary central post. Rotating the total dead weight of the mill was no mean task and was undertaken by the miller (and an assistant surely?) pushing on a long lever projecting from the base of the structure.

Eventually, of course, it was realised that it was really only necessary to rotate the cap of the mill, containing the sail spindle and the bevel crown and pinion which turned the vertical shaft driving the mill wheel. Soon the fantail drive also appeared, which meant that the mill would automatically seek to maintain an optimum position relative to the direction of the wind. Millers (and their assistants) must surely have thought the millenium had arrived. Peter's slides showed mills he has visited and explored in a large number of English counties, some of them lovingly restored, some adapted as dwellings, and some sadly in a state of dereliction. Among them were many old favourites in Warwickshire which most of us have seen but possibly not studied.

Turning to watermills, Peter started by briefly outlining the four main types, namely undershot, overshot, pitchback and breast shot. He had excellent slides to illustrate each type and in sites as widespread as Bridgnorth, Bristol, Sheffield, Woodbridge, Blockley, Derbyshire and the Isle of Man. The latter, of course, boasts to this day the giant, splendidly restored Laxey Wheel (The Lady Isabella), which pumped a mine and developed no less than 200 hp.

The December meeting concluded with two short contributions, also from Society members. John Brace spoke about a long-forgotten country 'industry' centred on man-made pond systems for cultivating fish, and their associated stewponds for nurturing small fry. The design of the ponds in a group, and the systems of channels whereby they could be drained for maintenance when necessary, was quite complex. John drew particular attention to the fishpond/stewpond complex which once existed at Compton Verney from as early as 1738, records suggest.

Finally, Martin Green showed a short video on the Templeton's 19th century carpet mill, Glasgow. Dubbed locally The Doge's Palace, its exterior is notable for its highly decorative design and its polychromatic facing brickwork. The video also included developments in the design and manufacturing of carpets.

Society News

Programme

Sadly Brian Stokes, who was to speak on the history of Automotive Products at the April meeting, has died. A new speaker is being sought and members will be advised of the topic of the presentation once details are finalised. However, it is unlikely that the subject of the meeting will remain as Automotive Products.

Lives and Times

The *Lives and Times* festival of Coventry and Warwickshire history will take place during the second weekend of June (June 8th and 9th 2002) in the War Memorial Park, Coventry. The Society has accepted an invitation to attend and further information should be available to members once the booking has been confirmed. The end of March is the deadline given for this confirmation, but this has proved optimistic in previous years.

Offers of help to staff the Society's stand over the weekend will be gratefully received. Please speak to Mark Abbott if you can spare a few hours.

Steam Power Variety

January 2002 Peter Coulls: *A Cavalcade of Steam*

Few of us can claim to have had friendly GWR loco drivers blowing their whistles at us when we were babies in our prams, but that was how Peter Coulls was initially infected with the 'steam bug'! Then, almost as soon as he could walk, he was into train spotting and today he is a leading authority on virtually any machine or mechanism which is driven by the by-product of boiling water.

Peter started his talk close at home with early slides of Leamington Station and shots of steam locos of various classes. Gradually his pictures widened in scope to include Continental railways, locos and rolling stock, and he recalled how on one occasion in post-war Germany his enthusiasm for 'train spotting' nearly resulted in his being arrested. Unwittingly he had photographed an ammunition train and it required all his phrase-book German and skill at sign language to escape with nothing more than a stern warning.

As the use of steam locos steadily declined, Peter's interest widened out to include road engines, traction engines and, his particular enthusiasm, ploughing engines. He showed slides of a number of the latter and described the various ingenious methods whereby pairs of engines and steel cables were used to drag massive multi-share ploughs back and forth across large-acre fields. This technology was an early attempt to mechanise ploughing but it required considerable skill, not least in manouevring and positioning the engines on the edges of the fields, and was quickly (and one suspects thankfully) abandoned when the tractor appeared.

Ploughing engines, as well as road and traction engines, inevitably led Peter into the world of steam rallies and events such as the Town & Country Festivals where, because of his encyclopaedic knowledge of the makers and their types of steam engines, he soon found himself recruited to give running commentaries. The names of the engine builders he mentioned read like a roll of honour and the glory of many of the lovingly-restored machines shown in his slides, often in their original makers' colours, was a joy to see.

Peter also had some slides of the more unusual types of steam-driven machines, including a tram, a dredger, a jib crane, an excavator, showmens' fair engines and, believe it or not, a Haleson steam-driven motor cycle! The latter is believed to be the only example of its type still extant and if its performance was comparable to the famous Stanley steam car then its acceleration might have shown a modern bike a thing or two. Another of Peter's slides showed a 'fireless' steam loco, a variation developed for use in hazardous environments such as munition factories. Steam drawn from a steam-raising plant off-site was stored in a heavily insulated pressure accumulator on the engine and, depending on usage, one charging could drive it for up to six or eight hours.

As a digression, Peter also showed a series of slides of the wholesale meat market and abattoir in Birmingham, built in 1903 and demolished in the 1960s. He drew particular attention to the ornamental facing brickwork of the massive building and to the stone heads of animals, also the City's coat of arms, which were incorporated to decorate the façade.

Warwick Castle Mill

Long standing members of the Society may well recall an evening visit to Warwick Castle Mill. Organised a number of years ago, by Toby Cave, the visit enabled members to see the restoration work being done on the building, in preparation for opening the mill to visitors.

Since then the project seems to have attracted little publicity and it has been unclear what progress was being made. However, as reported in the Coventry Evening Telegraph of 19th December 2001, the intention is apparently to open the mill to the public sometime this year. A photograph in this newspaper showed machinery being unloaded in preparation for installation in the building. The only identifiable item was a horizontal cylinder Crossley steam or oil engine, which the accompanying text stated was, 'Part of the restored machinery that drives the mill...' *(sic)*. In addition, the piece stated that visitors would be able to see both the engine house and water wheel in working order and that the 'mill house' would be recreated as it was in 1900.

The mill has a long history dating back to the late 14th century. Originally a corn mill, an engine house was added to pump water to the castle in the 17th century and in the late 19th century the Earl of Warwick set up an electricity generating station in the building. If the Crossley engine in the photograph is originally from the mill building, it was presumably part of the electricity generating equipment.

If any member can provide further information about the history of the mill or indeed the current restoration plans, please pass this to the Editor.

Motorway History

February 2002 J. M. Carrington:
The Motorway Archive

Work is well advanced on the compilation of a national archive which records the design and construction of the motorway network in the UK, and when it is complete the nation will have a research resource equal to those which record the history of the waterways and railways of this country.

As John Carrington explained, the archive was the brainchild of Sir Peter Baldwin, a former Permanent Secretary to the Department of Transport and current chairman of the Motorway Archive Trust. Some 200 volunteers nationwide are involved in providing, collecting and collating data and the archive is subdivided into three main sections, namely: Policy; Standards and Technology; and Planning and Construction. Along with the storage of records, the archive will include learning packages for schools, a website, and ultimately the publication of a comprehensive 3-volume motorway history.

John Carrington's career was intimately connected with the motorway system in the Midlands, notably through his years of service with the Midlands Road Construction Unit based in Leamington Spa. As John pointed out, unlike some European countries, notably Germany with its 1930s autobahns, Britain had no previous experience of planning, designing and building a network of motorways. As a result, when in the 1950s work on 'a motorway system for the UK' began everything had to be started from scratch. As a result there was a long, sometimes painful, and occasionally a rather costly learning curve to be endured.

The history of motorway building in the UK is largely that of the second half of the 20th century, and while there are now some 2,000 miles in Britain that figure is still relatively small compared with say France and Germany. In fact, a recent report has described the current motorway provision in the UK as 'sparse and inadequate for the nation's needs'.

Drawing on his firsthand experience, John described some of the problems of motorway planning and construction in the Midlands, masterminded by the MRCU and covering eight different counties and the Birmingham conurbation, with its 3 million population.

He gave insights into many of the Midlands motorways, including the BNRR (Birmingham Northern Relief Road), and the ill-fated BWOR (the Birmingham West Orbital Route), together with the M40, which was the first motorway in the UK to be the subject of a public consultation exercise. When the intention to build any motorway is first mooted there is understandably immediate intense speculation as to its possible route, with all the implications that carries.

To the fore in such speculation is often the local Press which is eager to show that its has 'inside information'. In one instance, John said, a well-known Midlands paper even assigned a journalist to record the position of all bore holes being drilled, and then published a map purporting to show the intended route of the 'new motorway'. Unfortunately, this bore no relation to the actual route with the result that a number of residential areas were unnecessarily 'blighted' for a considerable time.

Using a PowerPoint computerised presentation (have colour slides had their day?) John showed some splendid shots of motorways and their bridges under construction. These including the M54 (for which no fewer than six public inquiries were needed); the M42 where many public inquiries were also necessary; and the world-famous Spaghetti Junction. When the latter was first opened, a leading Midlands newspaper thundered that, 'an ambulance should be posted permanently on each loop, to pick up the bodies'. In fact, the safety record of this most complex junction has proved to be exemplary.

* * *

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NEWSLETTER

THIS ISSUE

EDITORIAL

A constant source of surprise to me is just how much industrial archaeology there is in Warwickshire. I suspect that many outsider's impression of the county is one of a rural shire and perhaps not the most likely place to find evidence of past industrial activity.

The truth is rather different of course. Both Birmingham and Coventry, once major industrial centres, were part of Warwickshire, while the rest of the modern county has evidence of industrial activity almost anywhere one cares to search; something that Peter Chater's industrial walks ably demonstrate. It is therefore disappointing to report below the apparent lack of interest amongst members for these short excursions. Each was a fascinating snapshot of our industrial heritage, as those who did attend will testify.

Mark W. Abbott

SOCIETY NEWS

A feature of the Society's programme for many years, have been evening walks in a local area with industrial connections, usually led by Peter Chater. This year Peter elected to try a different approach and proposed a series of walks on Sunday mornings, at fortnightly intervals. At the time of writing, two of these have taken place, sadly with poor support from members.

The first walk saw five members meet on a beautiful late spring morning at Leamington's Victoria Park, for a walk to the Emscote area of Warwick, via the Leam riverside path and the Grand Union Canal.

En route, there proved to be many points of industrial interest, starting with the Princes Drive bridge over the River Leam; an early example of a concrete built bridge. At the Grand Union Canal both the aqueducts over the railway and the River Avon were studied, a peculiar feature of the former being that the railway falls from Leamington to go under the structure, before climbing again to cross the Avon. In the lee of the Avon aqueduct Peter pointed out an apparently insignificant ditch, all that remains of the tailrace from Emscote Mill. This mill, which was demolished some years ago, was unusual in that it used the overflow from the canal as its power source.

After traversing Tesco's car park, once the site of Emscote power station, the walk continued across Emscote Road to Charles Street. Here, the only evidence remaining of Nelson's Gelatine Works is the imposing brick-built social club. However, further up Charles Street are a number of concrete built houses, dating from the latter half of the 19th Century and provided by Nelson's as worker's accommodation. Two more larger houses, of similar construction (provided for management?), exist on All Saints Road.

The canal was then regained by way of All Saints Road and the environs of All Saints Church, for the return to the start.

The second walk was preceded by an almost biblical deluge and was consequently even less well supported than the first, with just two members walking from Hatton Station, along the Grand Union Canal, to Shrewley and back.

This commenced with a look at the now unmanned Hatton Station, where Peter was once Station Master with no fewer than 19 staff! Then, after a hunt for GWR boundary markers in the hedge along the canal, the walk continued to Shrewley with a stop at the Shrewley Canal Tunnel. Here considerable time was spent discussing how horse and boat might be efficiently separated, there being no towpath through the tunnel. The evidence of an *in-situ* rubbing post on the horse path and a roller at the Birmingham end of the tunnel, supports Peter's theory that the rope remained attached to the horse while it traversed the horse path.

The return to Hatton Station was made by field paths. Fortunately the weather held!

Mark W. Abbott

Please see overleaf for advance details of the Society's new season of meetings.

Meeting Reports *by Arthur Astrop*

March 2002 Anthony Coulls: *Power in Manchester*

The sheer density and variety of industries which sprang up in the North-west region of the UK during the industrial revolution and thereafter meant that it was an extremely important area for the development and application of all types of power units. It is entirely fitting, therefore, that the Museum of Science and Industry in Manchester should have what is possibly an unrivalled collection specifically dedicated to 'Man's use of power'. And it was the good fortune of WIAS to have Anthony Coulls, the Curator of Energy at that very Museum, as the speaker at its March 2002 meeting.

Anthony covered the entire field of Man's efforts to apply power to manufacturing, from early wind and water mills to the most advanced turbines, but understandably his main focus was firstly on steam engines, then on oil and gas engines, and finally on the generation and application of electricity. The Museum's collection of historic, restored, and most importantly *working* units in each of those fields of technology is most impressive, and as a resource both for research and for the enlightenment of the young it can have few rivals in the UK.

The museum and its exhibits are designed on the interactive pattern which is increasingly popular today, with an emphasis on 'working' as distinct from 'static' exhibits. Considerable effort has also been put into explaining the operating principles of each type of power unit. Using an excellent set of slides, Anthony in effect led us through the Museum, from early water wheels to a 1/3rd scale model of a Newcomen atmospheric engine, and onwards through oil, gas and internal combustion engines in general to examples of large high-speed steam turbines. In this journey it became apparent how many engine-building companies once flourished in the UK in general, and in the North-west in particular, and just how important a part they played in the development of all types of industrial power units.

The technological advances made by these engine-builders were frequently driven by the users of power themselves, who were based virtually on their doorsteps and who constantly clamoured for engines with greater output to drive more and more machines in larger and larger factories. Not least, the textile mills of the North-west were massive consumers of power and, as Anthony remarked, the size of those mills, the numbers of machines installed in them, and the thousands of workers they employed, are difficult to imagine today. But not all engine development was aimed at horsepowers measured in the hundreds.

Anthony showed, for example, a slide of a tiny single-cylinder steam engine designed to drive an equally small dynamo which was installed in one corner of a shop window. The engine and dynamo provided just enough electricity to light the bulbs which illuminated the shopkeeper's display of goods. This was groundbreaking 'marketing' in its time and must have drawn the crowds!

Anthony's presentation went on to cover hot-air engines, the generation and storage of Town's gas, early means of generating electricity, and finally he touched on hydraulic power. For over 100 years, the city of Manchester had a hydraulic 'ring-main' carrying water at a pressure of 1,100 psi through thick-walled underground cast iron pipes. Manufacturing companies could literally plug-in to this main and use the hydraulic pressure as motive power. The system itself is long since out of use, of course, but the pipes are still *in situ* and today have been 'rediscovered'. They are being put to use for carrying cable TV!

New Season Programme

Looking forward to September 2002 and the new season of meetings, the following speakers have been booked:

12th September 2002
Roger Cragg: *The Stratford to Moreton Tramway.*
10th October 2002
Charles Catt: *Why Roads Exist.*
14th November 2002
Dr. John Bland: *Coal Mining in North Warwickshire.*
12th December 2002
Paul Howells: *Restoring the Royal Pump Rooms, Leamington Spa.* To be confirmed.
9th January 2003
Peter Coulls: *A Look at the History of Fairground Machines.*
13th February 2003
Anthony Grantham MBE: *Gas Making.* To be confirmed.

A full programme for the 2002/2003 season of meetings will appear in the September 2002 edition of this Newsletter. A number of dates currently remain vacant, so suggestions of potential speakers remain welcome. Please pass details to a member of the committee.

Nineteenth Century Roadbuilding

April 2002 Jo Bell:
Thomas Telford's Holyhead Road

A long walk, mostly in the rain! That was how Jo Bell described the exhaustive survey which she and a colleague undertook, in 1998, of the 83-mile stretch of Telford's Holyhead Road which traverses east/west across Wales. Telford is recorded as having expressed the wish that this road, built between 1811 and 1824, should be his 'memorial' and it is undoubtledly one of his masterpieces.

To set the scene, Jo sketched in the general parlous state of Britain's major roads at the time when they were built by private venture, for private gain and with private vested interests having a marked influence on the routes they took. It was only at the beginning of the 19th century when, for political, economic and military reasons, the Government started to take an interest in road routes and their construction that things began to change for the better.

Telford planned his roads, and the Holyhead Road was no exception, on rational routes ignoring (if not actually riding roughshod over) vested interests, and introducing tight control over design and construction. Under Telford's management, the Welsh section of the route for the Holyhead Road was divided into discrete blocks of varying lengths but of approximately equal work content.

These blocks were bid for by contractors who, once they had won a contract, came under continuous scrutiny for adherence both to specification and to start and finish dates. Telford's 'site inspectors' were empowered to order contractors to tear up and remake, at their own expense, any stretch of road which fell short of specification. Quality control, as we would know it today, was imposed on all aspects of construction, including the use of gauges to monitor the sizes of the aggregates used.

Telford could impose such tight specifications because he had Government money behind him, and he also had at his disposal the craft skills and the technology (i.e. sheer blasting power!) to follow his chosen route and simply force the road through any obstacles which lay in its path. Gradient control was very important to Telford, and he aimed never to exceed an incline steeper than 1 in 30. At various points along its route, the road had to cross water, and traversing the Menai Straits was probably Telford's greatest challenge. The suspension bridge he designed to span the Straits, which was the largest of its type at the time, was built between 1824 and 1826.

Jo showed a number of excellent slides taken during her survey in which even parts of Telford's original constructions could still be seen. Also still to be seen are some of the Telford-designed toll houses on the road, together with smaller items of road furniture such as 'sunburst' gates and his standard pattern of milestones. Jo announced that the complete survey of the Welsh section of Telford's Holyhead Road will be published in book form later this year.

The April meeting concluded with short contributions from two WIAS members, namely Roger Cragg and Martin Green. Roger gave an account of an organised visit to various industrial archaeological sites in Limerick. He touched on the canal from Dublin to Shannon; the Barrington Bridge built in 1818 and featuring some interesting wrought-iron tubular construction; and a hydroelectric power station built in 1929 by Siemens Schukert and fed by water with a 100 ft head. This station at its peak supplied 80 per cent of Ireland's electricity. Other sites described by Roger included Limerick Docks and the Foynes flying-boat terminal and rail head.

Finally, Martin Green described a short visit to Londonderry, showing pictures of the 'walled city', the route of the Bloody Sunday March, and some poignant shots of the city's now silent flax mills which, at one time, employed many thousands of workers.

Society Library

Members are reminded that the Society is an affiliated member of The Association for Industrial Archaeology. This entitles the Society to receive a copy of the AIA's publications; the biannual *Industrial Archaeology Review* and the quarterly *Industrial Archaeology News*. These are held by the Treasurer and are available to members on request.

Those with a general interest in IA may find the journal *Archive* more to their taste. This is picture led and the current edition (Issue 34), includes an article on the Argyll Motor Works; a description of the Bude Canal and the second part of a two instalment look at the Cardiff (Llanishen) Royal Ordnance Factory. Again, the Society subscribes to this publication and copies may be borrowed through the Treasurer.

Regrettably, for logistical reasons, it is not possible to formally offer the loan of these journals at meetings.

IA in Northants

February 2002 Geoffrey Starmer:
Industrial Archaeology in Northamptonshire

With a history to date of at least 40 years, the Northamptonshire Industrial Archaeology Group (NIAG) must be one of the strongest and most vigorous in the Midlands and, as such, is both an example and an inspiration to others in the region. Its range of activities, and the authoritative position it has established, were vividly described by Geoffrey Starmer, a stalwart of NIAG and an enthusiast for all aspects of IA.

Indeed, Geoffrey's enthusiasm illuminated his coverage of every aspect of IA which has been tackled by his Group, including the iron ore industry, footwear, transport (road, rail, canals), the utilities, breweries and foundries. The iron ore industry, centred around Lamport, Brixworth and Scaldwell, was once of major significance to the County and Geoffrey had a number of slides showing workings when it was at its height. These included an extensive pylon-supported ropeway by which the ore was carried over long distances, high above ground, to processing plants. Narrow-gauge railways and blast furnaces also featured in his slides.

The boot and shoe trade has been of great importance to Northamptonshire and Geoffrey had a series of slides showing practices in that industry in its early days, when everything was carried out manually by skilled craftsmen working in what were, by today's standards, Dickensian conditions. Some of those practices, moreover, prevailed until well past the middle of the 20th century, must have constituted a Factory Inspector's nightmare, and may have contributed to the industry's subsequent decline. The shoe industry was originally based primarily on 'out-workers', labouring away in their own homes, and it was not in fact until 1857 that the first 'shoe factory' proper was built. Some of the slides showing skilled workers making the uppers for surgical shoes from hand-drawn 'brown paper patterns' were fascinating.

Northamptonshire has a long history of brewing and at one time there were no fewer than 10 breweries in Northampton town alone. The same was also once true of the iron foundry industry in the County, of which slides of pattern-making, moulding and iron-melting cupolas were shown. Today one foundry alone survives.

In the field of 'utilities', Geoffrey concentrated on Northamptonshire waterworks and showed some splendid slides of beam engines, filter beds, pumping stations, the Ravensthorpe reservoir and the 1868 Castle Ashby water tower. The latter, incidentally, was scornfully dismissed by Pevsner as being of 'little interest', but today is cherished as a splendid example of well-designed and executed 'waterworks' architecture.

Finally, Geoffrey turned to transport where his County, in the famous Watford Gap area, has a unique juxtaposition of the old and the new in the shape of Roman roads, canals, railways, and 20th century motorways all competing for the attention of the industrial archaeologist. Aerial photographs of the area, showing the splendid brick-built ventilation shafts of the Blisworth tunnel from an angle rarely seen, were included.

An important point for NIAG came in the 1990s when a County Sites and Monuments Officer was appointed, and the Group recognised that its procedures had to be revised and its activities needed to become more 'professional'. This has been achieved, and today some of its enthusiastic 'amateur' workers have even moved into the laptop era!

ADVANCE NOTICE OF THE AGM

The AGM of the Society will be held on Thursday 11th July at 7.30 pm. Some changes to the committee are anticipated, so the attendance of all members is requested.

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WARWICKSHIRE Industrial Archaeology Society

WIAS

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NEWSLETTER

THIS ISSUE

CHAIRMAN'S MESSAGE

I felt that I could not let this issue of the Newsletter pass without officially recording the Society's – and my own – gratitude to my predecessor as Chairman of WIAS, Mr. Toby Cave. Toby has been the guiding light of the Society since its formation in 1989, working tirelessly to raise the profile of industrial archaeology both locally and beyond, taking responsibility for securing speakers for the monthly meetings, and making his own personal contributions to the recording of the industrial history and industrial archaeology of Warwickshire. I was delighted that he was willing to accept the position of President of WIAS, and we look forward to his continued influence on the Society.

The new committee is made up of the President, the Chairman, the Secretary – Mr. Dennis Crips – and the Treasurer – Mr. Mark Abbott, with the approval of the AGM to co-opt further members. The first decision taken at the recent meeting of the new committee was to issue a members' survey to ensure that all our information about members was accurate and up-to-date, to discover whether there were any members willing to make a fuller contribution to the work of the Society, and to seek members' views on the future development of the Society. The members' survey is distributed with this Newsletter, and I do hope you will be able to complete this in the near future.

I very much look forward to my new position as Chairman and sincerely hope that the next twelve months will be a happy, busy and successful time for the Society and its members.

Martin Green

SOCIETY NEWS

Subscriptions

Members are reminded that following the agreement of the AGM to retain subscriptions at their 2002 / 2002 levels, these are now due. The amount is £10.00 per person inclusive of partner. A further £1.00 per person is payable at each meeting to help meet the cost of refreshments. Please make cheques payable to Warwickshire Industrial Archaeology Society. To save on postage costs, any payments received by post will be acknowledged by receipt at the subsequent meeting.

Programme

A full programme for the forthcoming season is set out on the back page of this Newsletter. Once again this represents the sole work of the retiring Chairman, Toby Cave, to whom our thanks are due. Two meetings await confirmation of a speaker and members will of course be advised of developments.

With the election of Martin Green as Chairman at the AGM, responsibility now passes to him for the organisation of the programme. As ever, suggestions of potential speakers are welcome; all the more so if you have personal experience of their ability.

John Turner Festival

The Society has been invited by Southam and District Lions Club to appear in the Hobbies Section of the 2002 John Turner Festival. This will take place at Southam College, Welsh Road West, Southam, on the 1st and 2nd November 2002. Opening times will be 6.00pm to 9.30pm on Friday 1st November and 10.00am to 5.00pm on Saturday 2nd November.

Members Survey

As the Chairman noted in his opening message above, the committee has agreed to issue a members survey form with this edition of the Newsletter. A principal aim of this survey is to update the Society membership records. Currently the membership database contains around 60 names, many of which lack corresponding telephone numbers and e-mail details. In particular, the committee is keen that the Society has an up-to-date e-mail address for all members who have a one, as this is a quick and economical means of communication.

Meeting Reports *by Arthur Astrop*

June 2002 Roger Cragg: *The Stratford to Moreton Tramway*

At the June meeting, the scheduled speaker was unavoidably prevented from attending and Roger Cragg came to the Society's rescue. At a mere six-hours notice, Roger was able to bring forward his talk on the Stratford to Moreton Tramway (originally programmed for September 2002), and produced one of his highly professional presentations.

The story of the Stratford to Moreton Tramway started in the early 19th century when William James conceived the idea of a rail connection between Stratford-upon-Avon and London (no less). The 16-mile stretch from Stratford upon Avon to Moreton-in-Marsh, with a branch line to Shipston-on-Stour, was to be the first link in this highly ambitious project. As it happened, it turned out to be the *only* link in the project! James got permission to go ahead but only on condition that where his line ran close to the turnpike road 'no steam locomotives would be allowed'! Since approximately the first third of his proposed route did precisely that, this was an onerous condition by any standards, and one with far-reaching consequences. Motive power was consequently restricted to horses, which also meant that conventional sleepers could not be used and each rail chair had to be set on its own square stone block. Very many thousands of these blocks were needed to build the line, and astonishingly Roger discovered one, in the undergrowth, and has a colour slide to prove it.

Work on the tramway started in 1824. Wrought iron rails in 15-ft lengths were laid at 4-ft 81/2-inch gauge, with the chairs at 3-ft spacing. Between each pair of chairs, the rail had a fish-back profile on its underside. Eventually it became clear than the original estimate of around £35,000 to build the line was inadequate and that another £11,000 would be needed. (*Plus ça change…!).* Two shareholders alone then bravely donated £5,000 each, to make sure the line was completed, and in 1826 it was officially opened. The branch line to Shipston-on-Stour, however, did not materialise for another 10 years.

Following canal practice, any carrier was allowed to use the tramway provided he had wagons of the appropriate gauge, complied with the Company's rules and regulations and, of course, paid the statutory fee. The track was single-line, with passing places at ¼ mile intervals, and a post was placed at the precise midpoint between each pair of passing places so that there should be no argument as to who should back-off! Predominantly used for transporting freight, the line typically carried coal, Cotswold stone, lime etc, and the maximum load per wagon was set at 4 tons. By 1853, there was also some passenger traffic, and the journey time from Stratford to Moreton-in-Marsh was a mere two hours!

In a series of slides, Roger highlighted items testifying to the existence of the tramway which can still be seen to this day, including bridges, junction houses, residual track routes and so on. In 1854, the line was leased by the Oxford, Worcester and Wolverhampton railway, and in 1858 passenger services on the line ceased. In 1863, the OW &W line was taken over by GWR, and in 1869 the original tramway company was finally wound up.

To conclude the June meeting, Toby Cave gave a short paper on 'historic concrete structures', illustrating the use of unreinforced concrete in an extremely wide range of applications, from the production of classical statuary and decorative items to a wide variety of buildings. With an excellent series of slides, Toby covered the uses of this very versatile material from lighthouses to viaducts, from humble dwellings to mock castles, and from stately homes to follies. Examples included as widely disparate structures as the 1870 Marine Crescent in Folkestone, a 21-span viaduct in Scotland, a mock-Elizabethan manor in Wales, a 65-metre high tower in the New Forest and a group of Norman Shaw-designed houses in Croydon.

Toby's talk was by way of a trailer to the more extensive one on the Warwickshire Cement Industry which he subsequently presented in July, following the formal business of the Annual General Meeting.

Industrial Archaeology Journal

Thanks to the generosity of Huw Jones, Coventry's Keeper of Industrial History, the Society has been donated a run of the Industrial Archaeology Journal from Volume 1 (1965) to Volume 16 (1981). Although undoubtedly much of the content will now be rather dated, a glance at the accompanying bound index reveals many articles of possible interest to members. This index will be available for inspection at Society meetings and members who wish to borrow copies of this Journal should advise Toby Cave of the relevant dates.

Unfortunately, because of the number of journals involved and the difficulty in keeping track of borrowings, it will not be possible to have the entire collection at meetings for members to browse.

Local Lime and Cement

April 2002 Lyndon Cave:
The Warwickshire Cement Industry

Even before the era of universal DIY, and certainly after it, there can be few people who have not at some time or other found themselves wielding a shovel and following the classic recipe of 'three of sand and one of cement'! From the traditional one hundredweight paper sack (of which only one third was usually used, leaving the remainder to set solid!), to the dainty 1 kg plastic bag of 'readymix' we have all used the stuff, with probably few of us realising that the Romans in their time were doing likewise with a not dissimilar substance.

Since the early 18th century, our County has been a major producer of cement and it was the development of that industry in Warwickshire which Lyndon Cave traced in his address to the July meeting. The origins of the industry in Warwickshire lay first in lime workings, with clusters of kilns around the Arbury Estate and Chilvers Coton being recorded in 1746. Twenty years later kilns were also springing up in the Long Itchington area and by 1800 both lime and cement production were also thriving in the Stockton/Southam areas, with the industry largely controlled by Warwick businessmen with premises near the canal.

Of immense significance to the growth of the industry was the Stockton blue lias ridge, and soon powerful business men like John Tomes and Charles Handley began to appear as important figures in lime and cement production. In the first quarter of the 19th century John Greaves was another powerful player, by which time Southam was already one of the most important areas in the UK for lime and cement production. By that time also, the first patent for 'artificial cement' had been granted to one James Aspdin, now widely acknowledged as the originator of Portland Cement. As often happens with a new technology or process, the military soon became interested and in the 19th century the Royal Engineers played a very important part in the development of cement.

The Midlands canal system as a means of transportation of cement and limestone was crucial until towards the end of the 19th century, when the railways took over, but it is interesting to note that some working boats were still being used to carry cement as late as 1940.

In 1910, the first 'combine' of 32 British companies involved in cement production was formed, and such an important industry inevitably had its industrial relations problems. In 1924, a strike of cement workers demanding 1/4d per hour rise and a seven day annual holiday brought the industry to a standstill. However, the employers stood firm against this outrageous demand, and the strike collapsed.

Lyndon concluded by sketching the history of the industry in Warwickshire in the late 20th century, when once mighty groups like RPCC began to show the signs of distress which led to take-over battles and finally, in 2000, to the acquisition of Rugby Cement by the Australian Ready Mixed Concrete Company.

All the w's..... Parys Mountain Website

Members who read the short piece on the copper mines of Parys Mountain in the September 2001 edition of the Newsletter, might like to visit www.parysmountain.co.uk.; the homepage of the *Parys Mountain Underground Group*. Here, the link 'Go Underground' gives access to a comprehensive body of information on this industrial site of world importance.

There are pages devoted to the location, history and unusual geology of the area. Further pages detail how the ore was processed, the use of steam power and the locations of the various steam engines on the mountain; together with photographs of the engine houses in the past and now. All 163 known shafts and adits are described, located with six or eight figure grid references and for the majority, modern photographs are provided. This information is also available to download as a text file for those who wish to study the remains in the field.

Perhaps of more interest to members, given the distance of this site from Warwickshire, are the illustrated Virtual Tours. These give an excellent impression of the important mining features and the surreal landscape of the mining ground.

There is also a link to the informative sister website of the Amlwch Industrial Heritage Trust.

As a whole, this website is a superb example of the positive aspect of the Internet. A bonus is that it presents industrial archaeology in an interesting and accessible manner. Yes, the design of the site may be a little fussy for some tastes and a number of the images suffer from heavy compression, but these are minor points in the face of the sheer wealth of information provided. This is almost as good as visiting the mountain itself and even those familiar with the locality will find something new here.

Mark W. Abbott

Programme 2002 / 2003

2002

Thursday 12th September
Peter Lee: *Railways in the Warwickshire Coalfield.*

Thursday 10th October
Charles Catt: *Why Roads Exist.*

Thursday 14th November
Dr. John Bland: *Coal Mining in North Warwickshire.*

Thursday 12th December
Paul Howells: *Restoring the Royal Pump Rooms, Leamington Spa.*

The majority of time at these meetings is occupied by our speaker, followed by refreshments and a subsequent period for questions and follow up material. The final part of the meeting is then usually taken up with a brief contribution from one of our members, often concentrating on an aspect of the industrial archaeology of Warwickshire. We are always keen to have contributions from members or visitors – do not be afraid to put yourself forward for one of these presentations. Occasional additional events will also take place during the year, and members will be duly notified of these.

2003

Thursday 9th January
Peter Coulls: *A Look at the History of Fairground Machines.*

Thursday 13th February
Speaker and Subject to be Confirmed.

Thursday 13th March
Huw Jones: *Coventry's Engineering Heritage.*
To be Confirmed.

Thursday 10th April
Alan Cooke: Subject to be Confirmed.

Thursday 8th May
Peter Cross-Rudkin: *Some Warwickshire Eighteenth Century Engineers and Their Work.*

Thursday 12th June
Speaker and Subject to be Confirmed.

Thursday 10th July
Annual General Meeting, followed by Lyndon F. Cave: *Brickmaking in Warwickshire.*

Please note that this programme may be subject to change without notice. If you are particularly interested in a specific speaker and subject, it is recommended that confirmation of that meeting is sought from a member of the committee.

WIAS Meetings

Meetings of the Society are held on the second Thursday of each month in the Sixth Form Centre at Warwick School, Myton Road, Warwick, starting at 7.30pm. A map of how to find the Sixth Form Centre at Warwick School is available from the Secretary. Visitors should park in the Junior School / Sports Hall car park. The Sixth Form Centre is next to the car park.

Subscriptions 2002 / 2003

£10.00 per person (or couple).

Cheques payable to Warwickshire Industrial Archaeology Society please.

An additional payment of £1.00 per person is due at each meeting to meet the cost of refreshments.

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WARWICKSHIRE Industrial Archaeology Society

WIAS

NUMBER 9 December 2002 **PUBLISHED QUARTERLY**

NEWSLETTER

THIS ISSUE

EDITORIAL

This copy of the Newsletter sees a slight change in layout compared with previous editions. The reason is the absence of the booked speaker from the September meeting, a vacancy admirably filled by the new Chairman, Martin Green, at the last minute. As his subject, Martin took the Industrial Archaeology of Warwickshire and gave a broad summary of some of the important sites in the County, followed by a video of hat-making in Atherstone. He also shared with the members some thoughts on how he would like to see the Society develop over the next few years.

Rather than going over what to many is probably familiar territory, the space allocated to the meeting report has been given over to a piece about the Lincolnshire Aviation Heritage Centre written by John Willock. This has a local link, since the Avro Lancaster that forms its centrepiece was built at Longbridge.

However, as John points out there is far more to the museum than this one aircraft. In my opinion it is probably one of the finest aviation museums in the country. The atmosphere is tangible and the supporting displays are on the one hand fascinating, yet poignant and moving, bringing home the terrible loss of life endured by Bomber Command during WW2.

This area of Lincolnshire is, after all, what came to be termed bomber country. East Kirkby was just one of many operational Bomber Command airfields in this region. Both 57 Sqn, and later 630 Sqn, operated from East Kirkby for about 18 months. Both flew Lancasters, largely on night raids over Europe. The chapel, reconstructed as part of the museum, illustrates the human cost. The side walls are lined with column after column of names in gold leaf; the members of 57 Sqn and 630 Sqn who died on active service while stationed at East Kirkby. There are over 400.

Details of the museum are appended below and I would recommend a visit. It is well worth the long journey, especially if the Lancaster is performing a twilight taxy. There is nowhere else in the UK that one can get so close to a living piece of aviation history.

Mark W. Abbott

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Website: www.lincsaviation.co.uk
The museum is open all year round apart from the Christmas holiday period. Opening hours vary depending upon the season. Specific opening times and details of any special events, such as the twilight Lancaster taxy displays, are available from one of the above sources.

SOCIETY NEWS

Fenny Compton Tunnel

The current edition of *Industrial Archaeology Review* (Volume XXIV, Number 2, November 2002) sees the publication of John Selby's research into the erstwhile Fenny Compton Tunnel on the Oxford Canal, and its associated brickworks. The account covers the construction, and opening out in stages, of the tunnel and the establishment of a brickworks to utilise the clay spoil. The text is supported by some excellent diagrams and both period and contemporary photographs.

The Society is of course an Affiliated member if the AIA and so receives a copy of the *Review* that members may borrow. If you do not personally subscribe to the AIA, but wish to read the article, please speak to the Treasurer.

Members Survey

The response to this has been a little disappointing, with a slightly less than 50% reply rate. A prime aim of this exercise was to update the Society's address database, so please complete the form so the records can be brought up to date. Also, any suggestions of potential speakers would be most welcome.

Meeting Reports *by Arthur Astrop*

October 2002 Charles Catt: *Why Roads Exist*

Britain got its first roads because, as is so often the case, it was the army which needed them! In short, it was the Romans and their determination to get their occupying troops from A to B as quickly as possible (to put down the recalcitrant natives!), who saw to it that the first hard surfaces were laid down in this green and pleasant land. And it was from that starting point that Charles Catt, at our October meeting, began a most interesting talk on the development of roads in the UK.

Charles spent a major part of his career in the Highways Department of Warwickshire County Council, so he was able to relate much of his talk to roads with which we are all familiar. Major landmarks in road construction in the Midlands to which he referred included the Fosse Way, Watling Street and Icknield Way. In the South, the road from London to Dover, and thus to a channel port, was another vital route.

As a cross-section of the construction of a typical Roman road showed, the need for a 'cambered' surface which shed water to either side was already well understood. Unless the water could be shed efficiently, into ditches at either side, the tramp of countless legions would soon reduce the road to a muddy morass. And indeed, as Charles explained, water and its almost unstoppable power to penetrate remains to this day the single most common cause of damage to roads.

When the Romans left these islands, the roads they had bequeathed us progressively deteriorated and road construction, as we understand it today, did not really start until the 1800s. In fact, road construction proper in Britain started with Thomas Telford (1757-1834) and Robert McAdam (1756-1836), and their pioneering work on basic road construction and road-surfacing respectively remains unparalleled to this day. Showing a cross-sectional drawing of a modern road, Charles identified the many layers required, starting with the deep sub-base (which rests on natural soil), and including successive layers comprising the base proper, the binder and finally the carriageway surface itself. The principal constituents in road making today are stone, sand, filler and bitumen.

The discovery of North Sea oil and natural gas had an unforeseen consequence for Britain's road builders. Traditionally it was tar, a by-product of town's gas, which was used as a binder on top dressing of roads. But with the advent of natural gas, and the progressive closure of gasworks, tar first became scarce and then disappeared. Bitumen was its replacement, but the properties of bitumen are quite different from tar and road builders had to learn a whole new technology. Unfortunately, bitumen is not as 'sticky' as tar but, on the plus side, it is not, like the latter, carcinogenic.

Charles quoted some figures for the weight of materials required for making various types of road. For the very simplest hard surface on which a vehicle can be driven (i.e. a drive), 1 ton per sq metre is needed, for an estate road 1.5 ton is needed, and for a motorway it rises to 2.5 ton per square metre. Most of us from time to time have complained bitterly about the state of our roads, but Charles put the problem neatly in perspective with his last slide. This showed a large water-filled 'pothole' in a metalled road in an unidentified third-world country alongside which sat a man……..fishing!

A MYSTERY

Thanks to David and Thelma Gee, I have recently been able to scan a couple of old photographs of the local lime and cement industry. Both reputedly show workers from the Blue Lias works of Greaves, Bull and Lakin. This was alongside the canal by the *Blue Lias* public house, between Stockton and Long Itchington. The site is now occupied by Dowdswell Engineering. This works was also known locally as *The Cally*; Cally being a corruption of California, the original name of the *Blue Lias* perhaps?

The more recent of the two pictures contains a slight mystery. It shows a gang of workmen posed in a works setting, one of whom is holding a roughly chalked sign on which the words *Silent Ones* and *Rotary 1923* (or possibly *1928*) are just visible. This presumably refers to the gang's work location or job, but just what this job was, is not clear.

My best guess is that *Rotary* refers to either the rumblers which screened the quarried rock to remove the unwanted clay, or to the crushers used both to reduce the limestone to a fine powder suitable for the kiln and to mill the kiln output, known as clinker. These processes would have been very noisy and any supervising men could only have communicated by hand signs or lip reading and thus might have been known as *Silent Ones.* However, it must be stressed that this is only conjecture. A more reliable explanation would be very welcome.

Mark W. Abbott

Warwickshire Coal Mining

November 2002 Dr. John Bland:
Coal Mining in North Warwickshire

A splendid pictorial pageant of an industry which once dominated a large section of our County, and indeed became a way of life for many thousands of families, was unrolled at the November meeting by Dr John Bland. Dr Bland was a GP in the Arley area for over 40 years and as a consequence had intimate contact with the coal mines of north Warwickshire, the miners themselves, their families and their daily lives. Over those years he painstakingly amassed a very large number of pictures, maps, drawings and anecdotes of practically every aspect of the mining industry in the midst of which he practised, and consequently was able to present a fascinating story of an activity and a way of life which so swiftly came to an end in the 1980s.

Dr Bland started by showing a map drawn by Bateman in about 1600 AD on which the sites of a number of primitive pits in north Warwickshire were included. He touched on early mining methods, including the bell-pit used in outcrop working, the adit mine, and the 'dig a bit, leave a bit' method where natural pillars of coal and rock were left as roof supports. Early mining practices, which included the employment underground of women and very young children, were also described.

The North Warwickshire coalfields saw some of the earliest applications of Newcomen atmospheric engines and later of Boulton & Watt steam engines. Around this time the names of Warwickshire collieries also began to gain fame and prominence, including Griff, Bedworth, Hawkesbury, Exhall, Newdigate, Binley, Arley, Dawe Mill and, of course, Coventry. Dr Bland had some fine slides of many of these pits and the men who managed and worked them. Inevitably, from time to time, there were pit disasters and other slides showing scenes around the pitheads, and the early rescue squads with their primitive breathing apparatus of the time, were grim reminders of the real price which was paid for coal.

Fathers, sons and grandsons followed each other successively into working in the pits, and the infrastructure which gradually grew up around the collieries and their workers, to meet their needs and those of their families, included hospitals, schools and a very wide range of social and cultural activities. Religion also played an important part and many churches, chapels and organizations such as the Church Army and the Boys' Brigade, flourished mightily. To many of these movements, including the brass bands, the colliery owners were substantial benefactors with gifts of land, or money, or both. In fact, when one by one the mines closed the loss of this support was felt as keenly on the social and cultural levels as it was in terms of employment.

In addition to his talk and slide presentations, Dr Bland also mounted an exhibition of maps, photographs, models of engines and wagons, and mining memorabilia which added even further to the interest of a very successful evening.

ANOTHER BRICK KILN

An Imaginary Conversation with a Donkey

I met this donkey in a small paddock at Norton Lindsey. He was very proud of his surroundings and home, and kindly invited me to look over his little bungalow.

It was a building of substantial brickwork with battered outside walls and on entering this cosy single room of about 15'x 9', one noticed it had been well heated as there were the remains of twelve fireplaces and to prove they had at one time been used there was vitrified brickwork above them. The donkey commented that he much preferred his new corrugated iron roof to the old brick one as it was safer and kept him so much drier, he also liked his new concrete floor as it was so very easy to keep clean. He also loved his little sunken paddock (former clay pit), which protected him from the winds and is now covered with luscious grass.

I asked if he would reveal his address to me so I could write a 'thank you' letter and others could come and see him. He said it had a name and a very long number, which he kindly gave. The Brickyard, Curlieu Lane, Norton Lindsey. O/S Grid Reference SP 222635.

This kiln and old clay pit are visible from the roadside gateway.

Peter Chater

This brings the number of extant brick kilns in Warwickshire, known to the Society, to three: Fenny Compton Tunnel; Elms Farm, Bishops Itchington and now Curlieu Lane, Norton Lindsey. Do any members know of others that may be added to the list?

A site that I have recently discovered is Toft Cottage Farm, Toft, just south of Dunchurch on the A426. There is no kiln now, but an obvious claypit remains, together with a two-storey house that was originally an office or workshop according to a contact I made at a Local History Fair in Coventry.

Mark W. Abbott

Further Afield

The Lincolnshire Aviation Heritage Centre

by John Willock

This very interesting museum, which is situated on the site of a former RAF wartime airfield, was set up by the Panton brothers, Fred and Harold, to commemorate their brother, Christopher, who was killed whilst flying on operations with Bomber Command in 1944. The Heritage Centre is also dedicated to the memory of service personnel of No's 57 and 630 Squadrons, who operated from East Kirkby during the war.

The Pantons have re-created at East Kirkby all the atmosphere of an operational wartime Bomber Command airfield, complete with original, fully equipped Control-Tower, NAFFI, Huts, Air Raid Shelter, Hangar and Chapel. Housed in the museum are extensive collections of memorabilia relating to the RAF Escaping Society, together with the remains of many aircraft and artefacts found on various excavations carried out by the Lincolnshire Aircraft Recovery Group. Also displayed is a genuine Bouncing Bomb, designed by Barnes N. Wallis. It is similar to those used on the famous Dam Raid, although the example exhibited is a practice bomb, retrieved from the sea at Reculver, in Herne Bay.

Centrepiece of the museum is Avro Lancaster B Mk VII, NX611, *Just Jane.* This aeroplane was built by Austin Motors at Longbridge, Birmingham, in April 1945, and therefore is quite a late wartime Lancaster. One of a batch of 150 machines built to Far Eastern Tropical standards, NX611 was intended for use in the Pacific theatre of operations. However, the war ended before it could be deployed and the aircraft had a very chequered service career, including maritime reconnaissance use in the Pacific with the L'Aeronavale. It finally ended its operational life in August 1964 at Bankstown, Sydney, Australia.

At about this time a number of individuals started to take an interest in the aeroplane with a view to securing its preservation. NX611 was eventually flown back to the UK, to what was to be a rather uncertain future. After spending time in various locations and appearing at a few air displays, NX611 ended up at the Squires Gate, Blackpool, Aviation Museum where, in poor condition, the aircraft was eventually offered for sale by public auction. The outcome was unsuccessful and the aircraft remained unsold, failing to reach its reserve price of £12,000. Eventually the owner of NX611 offered the machine on extended loan to the RAF, and after some conservation work she became the Gate Guardian at RAF Scampton in 1974. In September 1983 the Panton brothers bought the aircraft, although it remained for another five years in RAF custody, before being removed from Scampton to East Kirkby.

Just Jane has undergone a considerable amount of conservation work since her arrival at East Kirkby. This has primarily centred on bringing the aircraft up to a ground engine-running standard. The four Rolls-Royce Merlin 24 engines have all been refurbished and can be run at full-power for public demonstration purposes. Some tail-up taxy runs have also been performed, during filming of a BBC drama production in the early spring of 2001. The writer of this report, together with his son, were fortunate on the 19th October to be aboard *Just Jane* during one of these ground-running and taxiing sessions at East Kirkby; a tremendous experience. On the same evening the machine's engines were again run-up in front of an enthusiastic crowd. It was an amazing sight to see jets of blue flame, and occasional showers of sparks stabbing the darkness, from forty-eight Merlin exhaust stubs. An altogether unforgettable experience; a true working museum of the twentieth century, and an absolute must for all aviation enthusiasts.

Errata

The meeting report heading which reads *April 2002*, in the September edition of the Newsletter, should read *July 2002.*

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WIAS

NEWSLETTER

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THIS ISSUE

EDITORIAL

This year, 2003, marks a significant anniversary in technological achievement. On 17th December it will be 100 years since Orville Wright first achieved flight in a powered heavier than air machine; at 10.35 am on 17th December 1903, at Kill Devil Hills, Kittyhawk, North Carolina. It may only have been a 120 ft, 12 second flight, and it is unlikely that Wilbur and Orville Wright could have foreseen the implications of their achievement, but that flight set in motion aeronautical research and development that led to the aeroplane becoming a key component of the modern global economy.

The original Wright Flyer is now in the Smithsonian Institute Collection, accompanied by the following on a descriptive plaque:

"THE ORIGINAL WRIGHT BROTHERS AEROPLANE: The world's first power-driven, heavier-than-air machine in which man made free, controlled and sustained flight invented and built by Wilbur and Orville Wright; flown by them at Kitty Hawk, North Carolina December 17, 1903. By original scientific research the Wright Brothers discovered the principles of human flight. As inventors, builders, and flyers they further developed the aeroplane, taught man to fly, and opened the era of aviation."

Warwickshire industry, of course, once played an important part in aviation, although sadly this is no longer the case now the technology has become the preserve of giant industrial corporations. That part was, however, significant since Warwickshire is the home of the most important element of modern aviation, the jet engine. Its inventor, Sir Frank Whittle, was a Warwickshire man; born in Coventry and an attendee of Leamington College. He undertook his jet engine development work in Warwickshire, although he laid down the principles as early as 1929 in a thesis written at Cranfield College. After initial trials at Cranwell, the first British jet-powered aircraft, the Gloster E28/39, was tested from Edgehill. Admittedly, Whittle's jet engine was not the now widely used axial flow turbine, subsequently developed in the USA using Whittle's theory and German wartime experience, but as a practical unit, the jet engine was first built here in Warwickshire and all such engines owe a debt to Whittle's work. Unfortunately, there is no significant memorial in the county to commemorate that momentous achievement.

Mark W. Abbott

SOCIETY NEWS

Programme.

The programme for the remainder of the current season is as follows:

10th April
Alan Cooke: Subject to be confirmed

8th May
Peter Cross-Rudkin: *Some Warwickshire Eighteenth Century Engineers and their Work.*

12th June
Speaker and Subject to be Confirmed.

10th July
Society AGM, followed by Lyndon F. Cave: *Brickmaking in Warwickshire.*

Society Coach Trip.

John Haslam has kindly volunteered to organise a coach trip for the Society. Possible destinations being researched are Blaenavon, Saltaire and/or Armley, Leeds. The provisional date is Saturday 16th August 2003. Other suggestions are of course welcome.

Subscriptions.

A number of subscriptions remain outstanding. By now, those who have still to pay should have received a written reminder, but if you are in any doubt the Treasurer can confirm payment or otherwise! If you are in arrears, prompt payment would be appreciated; cheques payable to Warwickshire Industrial Archaeology Society please.

* * * * *

Meeting Reports *by Arthur Astrop*

December 2002 Paul Howell:
Restoring the Royal Pump Rooms, Leamington Spa

The restoration of the Royal Pump Rooms together with the incorporation in the building of the town's library, musem and art gallery is undoubtedly a success story for Leamington Spa. It was the history of the restoration, from its start to its triumphant finish, which was the major part of Paul Howell's address to our December meeting. But he began by sketching in the origins of the building in the early years of the 19th century and by reminding us that from the very start it had a chequered history. The alternate periods of success followed by longer periods of commercial failure and neglect which characterized the late 20th century life of the Royal Pump Rooms were really only echoes of very similar events in its earlier years.

Using a fine collection of colour slides, Paul showed a record of restoration 'work in progress' virtually from Day One to the official opening. We saw the state of dereliction of some parts of the building when work began, together with many architectural features which literally 'saw the light of day again' as demolition connected with structural work took place. The original spa water spring was uncovered, as were the various grades of baths originally provided, catering for men and women and offering water at various temperatures. Underground was exposed the 'engine' room of the building, where once vast quantities of water were heated, and steam for the Turkish Baths was raised.

Part way through the restoration work, the Great Flood hit Leamington and the building, which at the time was in a quite vulnerable state, was potentially imperilled. Fortunately, the wooden hoarding which had been erected around the frontage of the building broke the main force of the surging waters. Some damage was inevitably sustained, but without the protection provided by the hoarding it would have been very much greater. During the course of the restoration work, the innovatory design of the king-post and roof structure over the de Normanville baths (now the library) was seen in all its ingenuity, and great care has been taken to preserve and highlight it.

The writer is probably not alone in saying that, following Paul's talk, he sees the restoration of the Royal Pump Rooms in a different light. Now knowing exactly what to look for, he will revisit them with even greater interest.

Sheep Washes: John Brace

To conclude the December meeting, it was appropriate that John Brace should also give a short talk on baths, this time not for people but for sheep! Sheep manage to get their themselves appallingly filthy and shepherds very soon recognised that a clean fleece fetched more money than a dirty one. John traced the history of 'sheep washes' in the Midlands from the early use of the village pond, in which the poor creatures were forcibly dunked. He went on to describe the progressive design and development of specially constructed 'washes' where one-way in and one-way out, plus running rather than static water, significantly increased both the effectiveness and the productivity of the process. Moreover, with the specially built washes it was only the sheep which got wet, and not the shpeherds as well! If you know where to look, and John surely does, remains of some of these 'sheep washes' can be seen to this day.

Leamington Gas

The current edition of *Archive*; issue 37, has under its *Skimpings* header, a familiar (to my eyes anyway), aerial photograph of Leamington Spa Gasworks taken in 1933. This is accompanied by an informative and detailed half page caption, within which a number of minor points are raised that, as a Society, we ought to be able to follow up in a letter to the publication.

Therefore, I would be pleased to hear from any member who can provide information about this now lost local industry, however minor the detail might seem. In particular, confirmation of the date when the gas holders were finally demolished would be welcome. They were standing when I first came to Leamington in 1981 and I seem to recall that they lasted at least a decade longer, but I have no record of the date that demolition took place. I also recollect hearing from an unknown source that the bridge under the railway between Waverley Road and the Sydenham industrial estate, was provided for the passage of horse drawn carts carrying coal from the GWR yard to the gasworks. Can anyone confirm or deny this too?

Should any member wish to borrow the relevant edition of *Archive*, this is available from the Treasurer. Quite apart from the view of the gasworks, it is an interesting exercise to compare other buildings with the modern scene.

REFERENCE:
Skimpings; Archive Issue 37, Lightmoor Press, Whitney, 2003.

Mark W. Abbott

Fairgrounds and Steam

January 2003 Peter Coulls:
Fairground Machinery

One of the most attractive features of the study of traditional fairground machinery must be that it allows one simultaneously to combine the joys and recollections of early childhood (i.e. roundabouts, swings, helter-skelters etc) with the serious grown-up business of coal, water and fireboxes (i.e. steam engines)! Both ends of this continuum were on display at our January meeting, when Peter Coulls made a most welcome return visit to the Society. This time to remind us of the magic of the fair as we saw it as children, combined with an insight into both the technology and the sheer hard work and raw muscle power which lay behind that magic.

Starting with the earliest simple machines, such as hand-driven roundabouts and swings, Peter sketched in the development of fairground machinery through the 19th and 20th centuries, and particularly the great leap forward which occurred with the advent of the steam engine as the prime mover for so many different types of fairground 'rides'. Steam was also the 'puff' and actuating force behind the magnificent organs which were progressively developed, and became such an essential part of fairground magic.

Peter's collection of colour slides of fairground machinery, from plain Roundabouts to Gallopers, from Swing Boats to Big Wheels, and from Steam Yachts to Showmens' Engines must surely be one of the finest, and his knowledge of the technology, also the makers of the machines and the history and tradition of fairs and fairground folk, is encyclopaedic.

Slides included shots of the Warwick and Stratford Mops in the early years of the 20th century and reminded us that, as today, the arrival of the traditional fair in a town was a once-a-year longed-for event. We were also reminded of the amount of physical effort which goes into transporting, setting-up and dismantling the rides, much of which necessarily takes place in the early hours of the morning. Fairground folk zealously guard their traditions and pitches in the towns which they visit at set times each year. For a local authority to attempt to make even the smallest alteration to these traditions, or to change the precise position of the 'pitch' traditionally reserved for a given 'ride', is almost impossible.

The steam-driven engines which hauled the fairs around the country are a subject for study in themselves, and Peter spent some time on them. Here again, one was reminded of the effort and physical endurance involved. Typical recorded journey times for early engines with iron-shod wheels, hauling heavy loads from town to town, were:-12 hours to cover 91 miles; 14 hours to traverse 109 miles (a single continuous run); and three days to cover 240 miles. It was most gratifying to see just how many of these magnificent 'showmens' engines' have been saved by enthusiasts.

All the w's.....IA on the Internet

Increasingly, the Internet is promoted as a source of entertainment. However, this overlooks this modern phenomenon's greatest resource; information. The access to information that the Internet provides is unrivalled and a common problem met is finding exactly what is required, especially if starting with a somewhat general term such as industrial archaeology.

As an example, the Google search engine; www.google.com, returns 12 700 references to the term "*industrial archaeology*". Note that the quotation marks ensure that only references to the two words together on web pages are presented. Without the quotation marks, the search looks for both words, irrespective of whether they are together on a page or not, and 161 000 references are returned! Apart from the sheer number of references listed, the other problem with this general approach is that many sites or pages with IA content will not contain the words *industrial archaeology* anyway, and so will be overlooked.

The key is of course to use more precision in the term selected for the search, or start from a comprehensive page of links that lead to specific IA content.

With the latter in mind, a particularly useful website is www.iarecordings.org. IA Recordings are probably well known to many members as producers of videos about industrial archaeology, but their site is a useful general IA resource and contains a links page with over 520 links to websites with specific IA content, all conveniently categorised under subject headings. Thus, for example, it is possible to view a list of links on mining, or general organisations connected with IA. As is frequent with such listings, not all the links work, but these dead links are few and the standard of the linked sites is high. Altogether an excellent starting point for anyone with a general interest in IA and one that is recommended to members.

Mark W. Abbott

Archaeology and Planning

February 2003 Edward Wilson

Archaeological Recording in Warwickshire

Today, the submission of a planning application to a Local Authority routinely triggers an enquiry to see if any archaeological sites or monuments are likely to be affected by the proposed development. In his position as Planning Archaeologist, in the Sites and Monuments Office,Warwick, Edward Wilson is therefore often among the first to know when anything of archaeological interest in the County, including industrial remains, is likely to be affected by building developers, and at our February meeting he gave a most interesting insight into the workings of his Department.

His remit covers everything from Roman times up to (broadly) the 1920s and the onus lies with the developer who makes a planning application to carry out, and pay for, investigations appropriate to ensure that no site or monument, industrial or otherwise, is inadvertently destroyed for lack of proper professional investigation. As an example, Edward showed pictures of Coombe Abbey, Coventry, (now a hotel), for which planning application for an extension to one side was made. It was believed that the extension would intrude over an area where late 19th century kitchens may once have stood, and trial trenches were ordered to be dug. Sure enough, not only the foundations of the kitchen were found but, unexpectedly, the remains of an ice house were also exposed. The development to the hotel was not stopped, but the archaeological items of interest found were meticulously recorded before building work was allowed to start.

Trial trenches dug on the Potterton Factory site prior to impending redevelopment have shown that all relics of 19th century industrial activity in the area have disappeared, but evidence that there was once a medieval bridge over the Avon, near the present Portobello bridge, was uncovered. By the same token, the recent development of Rock Mill, adjacent to the Potterton site, into residential properties, was preceded by an investigation and recording of the interior of the mill, before conversion work began.

Edward went on to describe similar finds which have been triggered by planning applications including: the foundations of a windmill at Lower Quinton; Bridge 51 over the Stratford upon Avon canal; an aquaduct at Yarningale, where work also revealed a hitherto unrecorded quarry site; unusual aspects of a late 19th century railway bridge at Brinklow; and the remains of a private sewage plant at Cawston House, near Rugby.

Moving towards more modern times, some interesting slides were also shown of a group of anti-aircraft gun platforms and associated buildings erected on the outskirts of Coventry just before the outbreak of the second world war, and forming part of a ring of defences for the City. The details of the site were carefully recorded and photographed. This investigation was triggered, Edward explained, by a planning application (subsequently approved) by the land owner to turn the remains of the wartime buildings into stabling for horses!

Much of the burden of Edward's talk was to stress just how many archaeological sites and evidence, including industrial, still remains to be recorded. Many, indeed, are far from concealed and only lack the interest, effort and manpower required to photograph and record them. The minimum of photographic evidence and written description, Edward stressed, is needed to get a site 'on record'. His message was plain. WIAS members were being cordially invited to help! Edward Wilson's office is in The Butts, Warwick; his telphone number is 01926 412734, and his e-mail address is ewilson@warwickshire.gov.uk.

Sir Frank Whittle Addendum

An excellent précis of Sir Frank Whittle's career, together with much other aviation history, can be found at www.raf.mod.uk/history/whittle1.html.

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