WARWICKSHIRE Industrial Archaeology Society

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NEWSLETTER

THIS ISSUE

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 Rednap, 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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