



THE INSTITUTION OF  
CIVIL ENGINEERS

# PHEW NEWSLETTER

Panel for Historical Engineering Works

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Ted Labrum

## PANEL SPRING MEETING – 2002 by The Editor

### Personnel Changes

The Spring Panel Meeting, held on 17 April 2002, was the last attended by its Vice-Chairman and long-serving member Ted Labrum. Ted joined the Panel in 1984 at the invitation of the Chairman Professor Skempton and has since represented the East Anglia area. He contributed many completed record forms to the Panel's collection and was appointed as the Panel's Vice-Chairman in April 1998. He has been influential in the production of the Panel's *Civil Engineering Heritage* book series and capably chaired a number of 'book committee' meetings relating to some of the volumes and edited the book covering *Eastern and Central England* which was published in 1994. This contained a number of Ted's own illustrations, reflecting his lifelong interest in photography. Ted was presented with a copy of the recently published *Biographical Dictionary of Civil Engineers* on behalf of the Panel and a bouquet for Doreen, his wife, who regularly attended the Panel's autumn meetings.

Ted's role as Vice-Chairman has been taken by Brian Crossley, who retired as a Director of Alfred MacAlpine Construction in 1996. He has been very active over many years in Institution affairs both for the North Western Local Association and also in the corridors of Great George Street where he has served on numerous committees and recently as Vice-President. Brian previously acted as the Panel's North

Western Local Association Representative back in the 1970s.

Ian Anderson, currently employed by Suffolk County Council as Deputy Structures Manager, has agreed to act as the Panel member for East Anglia and attended the Panel for the first time. It was also the occasion of John Ruddy's first Panel meeting having taken over the responsibility for the Yorkshire area from John Carter (see *Newsletter* No.92).

### Presentation on Arch Analysis

Prior to the formal meeting, Dr Graham Tilly and Mr Kevin Smith of Gifford and Partners gave a fascinating presentation on recent developments in masonry arch analysis. They showed impressive videos of several masonry arch bridges loaded to destruction which indicated that conventional analysis methods were significantly underestimating the bridges' true load bearing capacity. This has led to the development of a discrete finite element programme, ELFEN, which, it is believed, more accurately models arch behaviour. The approach led to the 32m masonry Winston Road Bridge in County Durham, being assessed as capable of carrying the required 40 tonne load and not requiring, as initially thought, significant strengthening work (see *Newsletter* No.92).

### Other Panel Business

The Panel was advised of steady initial sales of the recently published *Civil Engineering Heritage: London and the Thames Valley*, edited by Denis Smith, although sales of the other volumes remained

somewhat disappointing. Some progress was reported towards the publication of the Scottish volume which will complete the coverage of the United Kingdom and Ireland.

Good progress was also reported in respect of the work of the Sub-Panels which are further investigating aspects of the developments of specific types of works.

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## **OWEN MILNER GIBBS – 1922–2002**

by Mike Chrimes

Readers of the *Newsletter* will be saddened to learn of the death of Owen Gibbs in early April 2002 at the age of 79. Owen served on the Institution's Panel for Historical Engineering Works from 1977 until 1990, making an important contribution to the recording of the civil engineering heritage of South Wales and the Panel's volume on *Civil Engineering Heritage: Wales and West Central England*, now in its second edition.

Although born at Teddington, on 22 November 1922, his parents were Welsh, and he spent almost his entire adult life in Wales, studying engineering at Cardiff Technical College, and University, and working for most of his career for Glamorgan County Council Highways Department.

A keen amateur photographer, Owen's interest in industrial and local history was combined with a lifelong commitment to a wide range of activities. He was Honorary Treasurer of the South Wales Branch of the then Institution of Highway Engineers 1956–1970, becoming Branch Chairman in 1972. He was elected to the ICE Local Association Committee in 1970, and was Chairman of the Branch in 1985–1986.

Committed to the unification of the engineering profession, he was Honorary Secretary of the Engineering Council Regional Organisation 1982–1994, and also served on the Council of the South Wales Institute of Engineers. Most recently he drafted for the Motorway Archive Trust an account of the construction of the South Wales Motorways, with which he was heavily involved, acting as Project Engineer for the Cardiff–Bridgend section of the M4.

Even after his retirement from the Panel he was always generous with his time on PHEW affairs, and will be missed by all who knew him. Our sympathies are with his wife Nesta and his daughter and grandchildren.

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## **THE BALDWIN PROJECT**

by The Editor

### **Information Supplied by George V Ellis**

Since their nineteenth century establishment, railways have played an important role in the propagation of warfare. The building of a railway by Thomas Brassey and exported British construction expertise to supply the British army of the Crimea, in the 1850s, was an early, if not the first?, example. A few years later the use of railways was an important factor enabling rapid troop movement and concentration in the American Civil War, and rail networks played a significant role in supplying the Western Front in the First World War.

A troop locomotive from this period is being restored by enthusiasts. The Baldwin locomotive was built in the US to supply the Western Front, then spent sixty working years in India before returning to Britain. The Baldwin Project aims to restore it in time for its 90<sup>th</sup> 'birthday' in 2007. It will be used at the Leighton Buzzard Railway, Bedfordshire.

Donations may be sent to: The Baldwin Project, Page's Park Station, Billington Road, Leighton Buzzard, Bedfordshire LU7 4TN. Website address: [www.baldwinproject.org.uk](http://www.baldwinproject.org.uk)

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## **THE CHAIRMAN'S COLUMN**

by Professor Roland Paxton



Victorian Bridge, Pavilion Gardens, Buxton – April 2002  
© Roland Paxton

I recently visited Buxton and the nearly completed preservation of the ornamental cast iron 'Victorian Bridge' dating from c.1871 in the Pavilion Gardens. It was a welcome sight to see a 130-year-old cast iron horizontal beam bridge being tastefully and minimally refurbished to continue to contribute to this 19<sup>th</sup> century 'taking the waters' environment. The bridge

was designed by Henry Milner, son of the architect of the original Pavilion. Its main 'I' beams are 600 mm (24 in) deep overall and c.9.75m long with a river span of 9m. The flanges are 150 x 23mm (top) and 310 x 40 mm (bottom) and the stiffened web is 32mm thick. The ornamental fret facades are bolted on to angle brackets fastened to the underside of the bottom flange. The iron founder was H. Bayley Son and Company, Manchester. (see Langham, M and Wells, C. *The Architect of Victorian Buxton*. Matlock, 1996. p.277).

I am often asked what aspects of engineering history interest the younger generation. Since the last *Newsletter* I have graded the historical essays presented by my fifty First Year students at Heriot-Watt University. All exceeded the pass mark and five attracted best-in-class book prizes. Notable bridges were the most popular subjects, with the Forth & Clyde and Union Canal Regeneration also well to the fore. Group projects which seemed popular involved students selecting an eminent engineer from a list of twenty and preparing a poster illustrating his life and work. An idea of the course coverage, which had an emphasis on innovation, can be gleaned from the prize-winning essay titles:

- The Forth Rail Bridge
- The 'Millennium Link' canal regeneration
- Conservation of Laigh Milton Viaduct, Ayrshire
- Robert Stevenson and the Bell Rock Lighthouse
- The building of the Dean Bridge, Edinburgh

I have just returned from Denmark where, at the invitation of the Dansk Vejhistorisk Selskab (DVS – Danish Road History Society – Chairman, Ivor Schacke, Secretary Carl Johan Hansen), I lectured on the work of the Panel at a road history research and preservation seminar at Odense University. The varied programme, which also included contributions on road history museums in Norway and Sweden, attracted about sixty attendees. The DVS and Odense University are to be congratulated on the success of this event and also for their publication of S E Jørgensen's authoritative history of roads in Denmark 1761-1998. This finely produced 606-page hardback, with 250 illustrations and a comprehensive 28-page summary in English, is obtainable from Carl Hansen [cjh@vd.dk](mailto:cjh@vd.dk) at the bargain price of £20.00, including postage.

Whilst in Denmark I was taken south from Copenhagen by my enthusiastic guides Carl Johan Hansen and Kirsten-Elizabeth Hogsbro to see the main Køge-Vordingborg road improvement of 1821-32, including Udby Kro inn 1821 and granite milestone

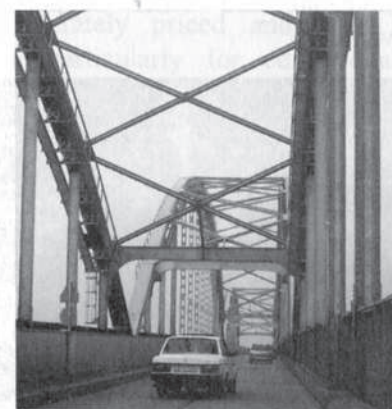
'12' with Christian 8<sup>th</sup> cypher at Ørslev 1832. Further south, the c.1600 3-arch masonry bridge approach to Vallø Castle with 3-ring yellow brick voussoirs proved impressive in its picturesque setting. Then on to the ancient Broskov roads consisting of large stones laid in a swampy area in 300-400 AD, partly overlain by another road 1,000 years later.



Udby Kro roadside inn, 1821 (refurbished and enlarged)  
© Roland Paxton



Tudse Broe – 1802 – with guide Kirsten-Elizabeth Hogsbro  
© Roland Paxton



Stor Stroms Bro, 1932-1937  
© Roland Paxton

Denmark is a land of contrasts regarding its bridges, with inland examples rarely exceeding 9m span and its numerous island connections ranging to 18km in

length and of spectacular appearance and variety. On our southern tour we crossed the beautiful Faro bridges 1985, and the historic 3.21km. Store Strøms bro with 3 large steel bowstring arches erected by Dorman Long 1932-37. Two inland masonry bridges of 1802 with elliptical arches of 9.4m span in the best French tradition were seen at Køge on the Vordingborg road and, west of Copenhagen, Tudse bro with a Christian 7<sup>th</sup> monogrammed keystone. Nearby was the small Butterupbro 1856 of traditional square twin-culvert design. Both featured a single red 30mm sq wrought iron safety rail on each side resting on stone pillars.



Broskov Roads, 300-400AD overlain by a c.1400 road turning right in distance  
© Roland Paxton

The DVS is trying to establish a road history museum in Denmark, possibly as part of Andelslandsbyen rural working life museum, Nyvang, near Holbeck, which includes a large collection of carriages, several road rollers and fire engines. We saw the Society's artefacts including numerous road vehicles temporarily stored in a 1911 former horse barracks at Holbaek. The Panel wishes the DVS all success in obtaining the necessary financial and other support for this worthwhile venture.



Andelslandsbyen Museum – tie sales vehicle in carriage hall  
© Roland Paxton

An important development in our field in the USA this year is the creation by the National Parks Service of the office of Senior Scholar for Historic Architecture and Historic Engineering to improve the scholarship in these disciplines. Dr Robert Kapsch, already well-known to the Panel, is the first holder of this post. The panel congratulates him on the considerable impact he has already made and wishes him well for the future.



Cover of S E Jørgensen's history of Danish roads – ISBN 87-7838-520-2  
© Roland Paxton

Finally, I have received photographs and a letter from Mr Ted Labrum, our former Vice-chairman who retired in April after eighteen years on the Panel, thanking Members for their 'handsome' retiral gifts.

## THE CABIN JOHN BRIDGE by The Editor

In a recent *Newsletter*, reference was made to 'a 220ft span Union Aqueduct Arch which not only carries the aqueduct and MacArthur Boulevard across Cabin John Creek but also now accommodates an interstate highway!' The 20ft wide masonry arch ... has transverse internal cavities.'

Richard Cook, a local historian in the Glen Echo, Cabin John area of Washington, and a keen-eyed reader of the *Newsletter's* web version (available on the ICE's website, <http://www.ice.org.uk>) has written that:

'There is much confusion both locally and remotely about the "Cabin John Bridge". The aqueduct bridge is properly named "The Union Arch" but has been referred to as the Cabin John Bridge for over one hundred years. In the 1960s a bridge was constructed, near Cabin John, spanning the Potomac River, being part of the Washington DC beltway (part of the interstate route 95 system). This bridge is named "The American Legion Memorial