



THE INSTITUTION OF  
CIVIL ENGINEERS

# PHEW NEWSLETTER

Panel for Historical Engineering Works

DECEMBER 2001 no.92

## CONTENTS

*The Historic Bridge Awards 2001*  
*New Panel Member for Yorkshire*  
*Tynemouth Pier – A Re-Commemoration*  
*Commemoration of Sir Nigel Gresley CBE*  
*An African Centenary*  
*Annual Panel Meeting, Limerick – September 2001*  
*The Chairman's Column*  
*Linen Drawings*  
*ASCE International History Congress, Houston*  
*HEWs in the News*  
*Editor's Note*



## THE HISTORIC BRIDGE AWARDS 2001

by David Greenfield

Fifteen projects were nominated for the 4<sup>th</sup> annual Awards scheme which, as before, was open to all repair, strengthening and conservation projects affecting bridges and aqueducts over 30-years-old, in England and Wales, which had been completed during the previous two years.

Professor Roland Paxton again chaired the panel of judges, who were:

- Terry Girdler, Chief Structural Engineer of English Heritage
- Mike Winney, Editor Emeritus of NCE
- Andrew Leadbeater, ex-Chairman of the County Surveyors' Society Bridges Group.

The judges were impressed by the continuing high quality of all the submissions, and again by the innovative techniques employed in many. They decided to give Awards to four outstanding projects, Commendations to a further four, and a Special Mention to one other.

The four projects which received **Awards** are:

- Mercury Bridge Rebuilding, North Yorkshire
- Hammersmith Bridge Strengthening, London
- King Street Railway Bridge Strengthening, Flintshire
- Winston Bridge Strengthening, County Durham

The Cleddau Bridge 'Team' with Professor R A Paxton (l) and ICE President Mark Whitby (r)

The four **Commendations** went to:

- Inclined Plane Bridge, Telford & Wrekin
- Footbridge No.35 Restoration, Shropshire
- Marton Bridge Restoration, Warwickshire
- Cookham Bridge Strengthening, Berkshire

The **Special Mention** was given to:

- Cleddau Bridge Pier Top Strengthening, Pembrokeshire

Each project is briefly described below.

On 15 November 2001 Mr Mark Whitby, President of the ICE, presented framed certificates to representatives of all parties directly involved in the nine projects, at a ceremony in the Godfrey Mitchell Room at the ICE in London.

A welcome innovation this year was the presence in the audience of a number of local authority elected members, accompanying the engineers who collected awards.

Grateful thanks are again due to English Heritage, Railtrack and British Waterways for their continuing financial support which covered running costs. Support-in-kind was again provided by ICE and the CSS Bridges Group.

escarpment to the Rift Valley floor in four stages. The upper and lower inclines (down which stock was lowered on its own wheels) were of 1 in 7 and 1 in 6 grades. The two central inclines (of 1 in 2 grades) were of 5 foot 6 inch gauge, with angled platform 'carrier' wagons onto which the metre gauge rolling stock was run horizontally. John Fowler of Leeds supplied cable equipment for the inclines.

---

## ANNUAL PANEL MEETING, LIMERICK – 6-9 SEPTEMBER 2001

by The Editor

The Panel met in Limerick for their second visit to Eire. The meeting was advised of the likely publication before the end of 2001 of the *London and the Thames Valley* volume of the *Civil Engineering Heritage* series and continued progress on the *Scotland* volume. Most sub-panels reported progress in their investigation of specific types of works, including various types of bridges, canals, water towers, etc. It was agreed that Panel members responsible for the coverage of Wales would jointly discuss their response to the Institution's proposed 'boundary changes'.

An interesting programme of visits was undertaken including canal, harbour and bridge works and an extended visit to the spectacular Ardnacrusha hydro-electric power station built by Siemens-Schuckert in the 1920s.

The visit was very capably organised by Dr Ron Cox, who revealed a hitherto unrecognised talent in the compilation of an appropriate ode delivered at the Panel's annual dinner:

*'Tis thirty years after the PHEW  
Was formed by a far-sighted few,  
To consider the quirks  
Of the engineers' works  
From Berwick to old Killaloe*

*With pencil and pad, and camera too,  
The regions they scour for a HEW.  
For historical sites,  
That would seem to be right  
For inclusion in Database 2.*

*On structures small and structures vast  
Of stone, iron, wrought and cast;  
By canals and towers  
They spend their hours  
Recording our heritage past.*

*From all and sundry and national archives  
They trace the story of engineers' lives;  
A commission here,  
A challenge there,  
On which our great profession thrives.*

*To Limerick the panel made its way,  
On the banks of the Shannon to stay;  
To watch the sun gleam  
On the great Shannon Scheme,  
In which the future of Erin lay.*

*Our bibliophile chairman named Paxton  
Who craves every book since Caxton;  
Was heard to remark,  
As it slowly grew dark,  
I happen to speak Anglo-Saxon!*

*And so, without further ado,  
I'll hand over now to you;  
To propose a toast  
To our guests, and boast  
Of the value and merits of PHEW.*

---

## THE CHAIRMAN'S COLUMN

by Professor Roland Paxton

During my researches into the work of the Stevensons, I became aware from their writings<sup>1</sup> of their achievement of an isolated lighthouse at Platte Fougère off the north coast of Guernsey on the main sea route to England. Its provision on a small submerged rock surrounded by deep water 1¼ miles out-to-sea presented an exceptional engineering challenge to state-of-the-art practice in 1909. With the assistance of former Guernsey States Engineer, Bernard Frampton, who for nine years has advised the States' Conservation Committee regarding many authentic and tasteful historic building preservations ranging from dolmens to 19<sup>th</sup> century forts, I recently managed to visit the lighthouse's shore station at Fort Doyle.



Platte Fougère Lighthouse, 2001  
© Author

The lighthouse designed by D and C Stevenson, and which cost about £10,000, is believed to be the earliest isolated rock lighthouse station with remotely controlled apparatus. Its foghorn, often heard as far away as Alderney and France, was electrically operated from the shore via an heavily armoured submarine cable made and laid by Siemens Bros. Its light was illuminated by acetylene, with the gas being automatically turned up at dusk and down at daylight. The whole arrangement with its standby generator and fog signal at the shore station was economical to run, requiring only two keepers, fewer than if the lighthouse had been manned. This concept and the use of concrete enabled the construction of a narrower and more cost-effective tower than for a conventional lighthouse, but at some sacrifice of visual elegance.

The 80ft tall lighthouse is solid for the first 46ft with two chambers above for housing the motors, compressors and siren gear and a top platform at 64ft bearing the compressed air receivers, fog horn and light. It was built by Messrs Arundel of Bradford. In Charles Stevenson's words,<sup>1</sup> *'The rock being submerged except at Low Water Spring Tides the work of construction was evidently difficult<sup>2</sup> even in the best of weather. A very strong octagonal tower 14' 6" and 17' across the faces was selected as giving greatest ease and quickness of construction as well as by its narrowness avoiding the full stroke of the sea by offering a minimum surface to the waves. Exceptionally heavy seas divide and slip round the tower ... The lower portion of tower was formed of pure Portland cement inside wrought iron moulds<sup>2</sup> and the upper part of concrete. Iron bars were sunk into the rock to give the cement a good hold and steel beams were built in to give strength, where tension was more likely to come on the concrete, making it practically a ferro concrete structure. The electric motors revolve, driving the air compressors. Then comes the ear-splitting, deep-toned roar from the siren overhead, attended by the whirr of the machinery in motion. In a few seconds absolute stillness prevails once more. The sensation is decidedly eerie'*. The lighthouse is still in service with updated equipment. The cable was renewed in 1950 at a cost of £10,000.

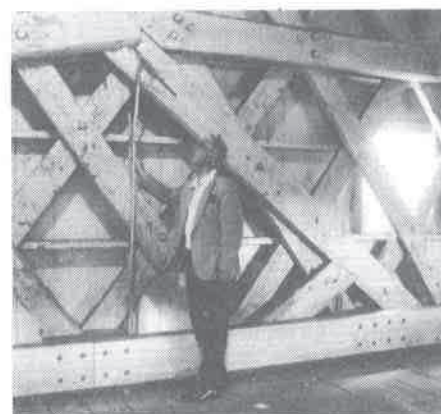


Speakers at Chase Building during ASCE's Conference, Houston [L-R] Eric DeLony, Bertrand Lemoine, and Jerry Rogers  
© Author

Congratulations to Professor Henry Petroski and other members of ASCE's History and Heritage Committee on their very successful Historical Congress forming part of the Society's Annual October Conference at Houston (see later item). There was little time for extra-conference visits, but I did manage a congenial one to Rice University's Foldren Library with its Director of Development Mary Bixby and, to a c.150ft span 1840s? covered timber bridge at West Cornwall, Connecticut.



West Cornwall Bridge, CT, USA  
© Author



West Cornwall Bridge – Author examining Town truss additions  
© Adèle Mierzejewski

In conclusion, I should like to take this opportunity of thanking everyone concerned with this year's successful Historic Bridge Awards event, in particular, ICE President Mark Whitby for presenting 31 certificates, David Greenfield, Val Lawless, my co-adjudicators Terry Girdler, Andrew Leadbeater, and Mike Winney and essential and generous sponsors British Waterways, English Heritage and Railtrack.

## References

- 1 *Electrical Review*, 14 October 1910; Talbot F A. *Lightships and Lighthouses*, 1913, 269-274; Leslie J & Paxton. R. *Bright Lights*, 1999, 125; and family papers – the quotation.

2 *Guernsey Evening Press*, 13 September 1975 – Workman Brache's first-hand account – his father made the iron shuttering to prevent the concrete 'continuously being washed away'. Priaulx Library.

---

## LINEN DRAWINGS

by Barry Barton

I can recall, as a trainee engineer in my 'gap' year in 1963, soaking old linen drawings in water to remove the stiffening, and then cutting up the fine linen fabric that remained to make rags and cloths for use in the site drawing office in which I worked. It was an exercise in practical recycling before it became fashionable. The drawings concerned seemed to be duplicates, damaged or superseded; it was one of my tasks and I never thought twice about doing it.

Until, that is, a few days ago when I came across an item in the January 1941 issue of *Water & Water Engineering* which read as follows:

### Old Tracing Linen

The Womens Voluntary Services Headquarters point out that old linen drawings can easily be utilised for the making of all kinds of articles such as surgical war stores, where the use of fine linen is necessary, and request that all available tracing linen should be collected for use. It is asked that old tracings, etc., should be addressed to Mr F R Yerbury, Director, The Building Centre, 158 New Bond Street, London W1.

How many irreplaceable engineering record drawings that would today be eagerly archived were sacrificed for the war effort? And, like the miles of park, garden and cemetery railings that went for scrap at the same time, how much of the 'fine linen' was actually recovered and ever put to good use?

---

## ASCE INTERNATIONAL HISTORY CONGRESS, HOUSTON – 10-15 OCTOBER 2001

by The Editor

This major conference attracted over 2,000 attendees. The ICE and the Panel were represented by Amar Bhogal, Acting Chief Executive and Secretary of the ICE, Mike Chrimes and Roland Paxton. They presented a number of papers including, the 'Development of the Institution of Civil Engineers'

(AB and MMC); the 'Archives held by the Institution' (MMC); the 'Activities and Functions of PHEW,' 'Aspects of the Forth & Clyde Canal and Falkirk Wheel,' and the 'Significance of the Forth Bridge' (RP). Roland was presented with a framed 'Certificate of Appreciation' by Professor Henry Petroski, new Chairman of ASCE's History and Heritage Committee for his contribution to the Conference.



Roland Paxton receives award from Henry Petroski at ASCE Conference  
© Mike Chrimes

ASCE Vice-President Dr Jerry Rogers and Professor Jay Fredrich ably organised the advance publication of no less than 60 papers in the *Proceedings*.<sup>1</sup> These commence with Professor Petroski on 'The importance of engineering history', which should be prescribed reading for all engineers! Other fascinating papers included, Messrs Clere on world industrial heritage; Griggs on 150-years of civil engineering in the USA; Lemoine on Eiffel's genius; Bussell on restoration of landmark structures in Britain; and Parkhill on 150-years of geotechnical practice.

1. *International Engineering History and Heritage*. ISBN 0-7844-0594-8, \$60. Copy at ICE Library.

---

## HEWS IN THE NEWS

by Brian George

Each station on the West Highland Line is particularly important for tourism in the summer and three hours from Glasgow is Rannock. The *Sunday Post*, 28 January points out that while on a calm day you can stand on the station surrounded by breathtaking loch, mountain and moorland scenery, on a wild day, with 100mph gales battering from Glencoe, you would be lucky to stand at all! The station tearoom and gift shop are only open from Easter until October, when a rush of tourists, walkers, birdwatchers, butterfly collectors and rare plant experts come to sample the famous carrot cake. But the tearooms are up for sale for offers over £95,000 and the owners had been