

## CONTENTS

*Obituary – Harold Edwin Merion ('Harry') Eagles*  
*Dr Jim Shipway's Graduation*  
*Conservation Accreditation – Press Release*  
*First International Congress on Construction History ...*  
*Glen Ogle Cycle Way*  
*The Chairman's Column*  
*The History Program of the Canadian Society for Civil Engineering*  
*Notices on Forthcoming Events*  
*Correspondence and an Appeal for Information*  
*Book Announcement*  
*HEWs in the News*  
*Editor's Note*

## OBITUARY – HAROLD EDWIN MERION ('HARRY') EAGLES by The Editor



'Harry' Eagles  
© Paul Dunkerley

Harold Edwin Merion ('Harry') Eagles, died in Medway Maritime Hospital on 29 December 2002 after a long period of deteriorating health. He was in his eightieth year. He became a Chartered Civil Engineer in 1955 and spent much of his working life in local government in London. It was in 1981 that he first became associated with the affairs of the ICE's historical engineering panel and later became its representative for the Kent area, a position which he held until 1998.

Many Panel members will remember the very enjoyable and informative visit based at Canterbury which he organised in 1988. Members will also recall his willingness to assist in their historical research. He made a significant contribution to the Kent chapter within the Panel's book *Civil Engineering Heritage: Southern England* first published in 1994, and he contributed to a number of local publications dealing with the civil engineering history and heritage of Kent. He had an easy and cheerful manner and has been missed from recent Panel meetings.

Our condolences are extended to his daughter Caroline, son John and his friends and family.

## DR JIM SHIPWAY'S GRADUATION by Roland Paxton



Dr Jim Shipway being congratulated by the Chairman  
© Professor Paul Jowitt

Congratulations to Jim Shipway, Panel Member for the West of Scotland, on obtaining his PhD from Heriot-Watt University, Edinburgh, for a thesis entitled 'Some aspects of the development of the girder bridge 1820-1890'.

## CONSERVATION ACCREDITATION – PRESS RELEASE

### Information supplied by Eunice Waddell

The scarcity of engineers skilled in conservation has led to the proposal to form a list of those qualified and formally accredited to deal with the conservation of the built environment.

The Institution of Civil Engineers (ICE) and the Institution of Structural Engineers (IStructE) have jointly formed a Conservation Accreditation Register for Engineers (CARE), whose purpose is to create and regulate an accreditation scheme for Engineers. English Heritage and Historic Scotland fully support this development. The Chartered Institute of Building Services Engineers has been invited to join the scheme.

The CARE Panel, chaired by Ian Hume, MStructE, has been working hard since its formation in the autumn of 2002, preparing guiding principles and assessment criteria. Its next task is to form the assessment teams who will ultimately consider applications for accreditation from engineers versed in conservation. Accreditation should prove a major asset to engineers wishing to work on historic structures and it is hoped that CARE will encourage more engineers to acquire the necessary skills and seek to qualify.

The CARE Panel hope to be ready to invite applications for accreditation in the summer of 2003

All enquiries should be directed to Eunice Waddell, ICE Engineering Department, on 0207 665 2238 or [eunice.waddell@ice.org.uk](mailto:eunice.waddell@ice.org.uk).

crosses the valley of Kendrum Burn via a multi-span railway viaduct constructed mainly of mass concrete. The river span was originally of steel construction but this was removed after the railway line was closed. A significant feature of the project is the replacement of this missing span with a new lightweight steel arch. At Lochearnhead, a new connection was made between the lower and upper levels of the route, meandering at a gentle gradient up steeply sloping hillside. The route then continues northwards, providing the user with some fine views across Loch Earn.

## THE CHAIRMAN'S COLUMN by Professor Roland Paxton

In 1981, when I was planning a cycle path project for Lothian Regional Council, a cast iron beam bridge of 1831 literally 'came to light' at Braid Burn on the line of the former Edinburgh and Dalkeith Railway. PHEW members who visited Edinburgh in 1981 may remember parting shrubs and large weeds to inspect it! The bridge, the only known survivor of several similar structures, is remarkable in providing probably now unique examples of 'L' and inverted 'T' cross-section empirically designed cast iron beams of the 'Tredgold era'. The bridge is also notable for its authentic conservation (with beams unpainted at my request) and for still being in service after 172 years.

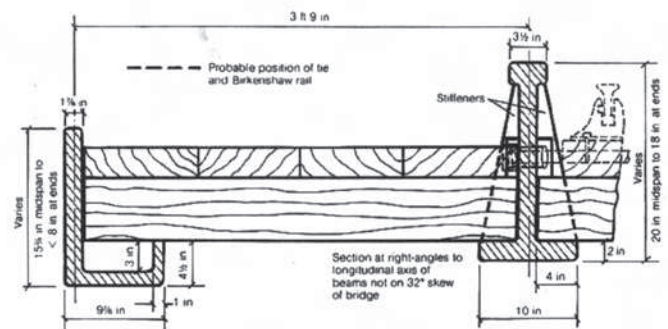
In August 2001, the bridge's deck was lifted under the direction of the City of Edinburgh Council to increase the water headway in the burn. I was invited to attend during this delicate operation and, in the event, was able to advise on the successful overcoming of a complication that arose when two beams were found to be attached to hidden bank seating plates by corroded wrought iron wedges. Sir William McAlpine and Sandra Purves, Secretary, PHEW Scotland, also visited the work and we were all impressed by the care taken in its execution.

The Council entered the project for a 2002 Saltire Civil Engineering Award in the *Conservation* category, but was unsuccessful. This outcome was not too surprising to PHEW Scotland who had become concerned about the quality of some of the Awards Committee's recent judging decisions. So much so, that in 2001 PHEW Scotland withdrew from advising this Committee after its advice was not taken in a case involving ingenious innovation on a small project. The withdrawal decision was a difficult one for PHEW as it was at its instigation that the Awards Committee had, with reluctance, introduced a *Conservation* category in 1993. Although PHEW advised this Committee for nine years, mostly with success, it has never been allowed a vote in the adjudication process.

At its annual meeting last November, PHEW Scotland resolved that the exceptional care taken in preserving the historic materials on the Braid Burn Bridge Project deserved to be recognised by the Institution if it did not attract a Saltire CEA commendation. As mentioned, it didn't, and *Special Commendation* certificates have been prepared and framed and will be presented to the client, engineer and contractor by Sir William McAlpine and myself in March. Sir Robert McAlpine Limited has generously agreed to sponsor the award.



Braid Burn Bridge – 'Exceptional Care' award  
© Institution of Civil Engineers



Braid Burn Bridge cross-section – beam and rail details  
© Roland Paxton. *Civ. Engrg Technol.* 8. (August 1983)



Braid Burn Bridge – Bank seat plate lug fixing detail –  
Effective, and probably the only surviving example  
© The City of Edinburgh Council



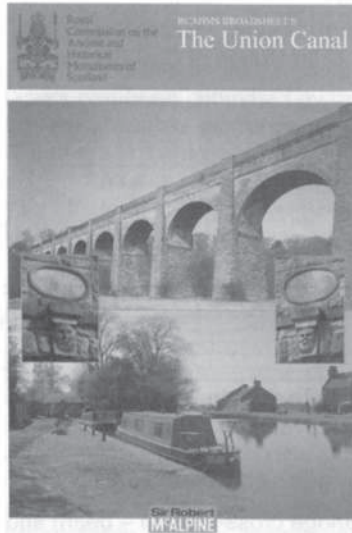
Braid Burn Bridge – 18ft span iron beams 'as found'  
© The City of Edinburgh Council



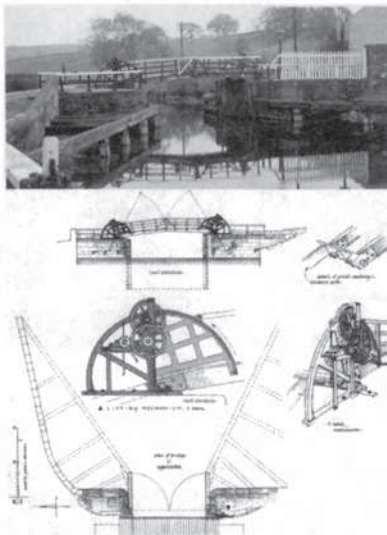
Braid Burn Bridge after being raised 0.9m – September 2001  
© The City of Edinburgh Council



RCAHMS Mallaig Railway Broadsheet – Glenfinnan Viaduct with the timber centering used to build it  
© RCAHMS [ISBN 1902419316]\*



RCAHMS Union Canal Broadsheet – Avon Aqueduct; 'Laughin and Greeting' keystones; Linlithgow Basin  
© RCAHMS [ISBN 1902419294]\*



RCAHMS Forth and Clyde Canal Broadsheet – Craigmarloch bascule bridge. Drawing by the late G Hay  
© RCAHMS [ISBN 1902419308]\*



Forth and Clyde bascule bridge drawing 1810 – Telford  
© Alasdair Cullen Wallace

My term as a Commissioner on the Royal Commission on the Ancient and Historical Monuments of Scotland, for the past five years as Chairman of its Architectural Programme Committee, has just ended. I was thought to be its first civil engineer member and it was pleasing to see our discipline featuring in the advertisement for my successor! Contributing to the survey, record and knowledge promotion of Scotland's historic built environment proved most worthwhile and, at times, even exciting! I already miss the outstanding professionalism of the RCAHMS, but have a delightful reminder of it in a splendid presentation album comprising 54 images of works and people associated with my decade in office. I wish to take this opportunity of acknowledging the invaluable support I, and also PHEW, have received from the RCAHMS staff, particularly Geoffrey Stell, Head of Architecture and his team. Our latest RCAHMS/PHEW collaboration has been on the production of broadsheets to enhance public enjoyment of the regenerated Forth and Clyde and Union Canals and the Mallaig Railway.

From these beautifully produced broadsheets\*, each with map and 30+ images, many from originals, including Smeaton drawings, I have illustrated as an example the late Geoffrey Hay's finely executed drawing of a cast-iron cog geared bascule bridge erected on the Forth and Clyde Canal. Bridges of this type were provided as replacements when the 1770's–1790 timber drawbridges decayed, some having been erected by 1805. Others were installed on the Union Canal c.1822. An 1810 drawing of this bridge type was found by Alasdair Cullen Wallace among Gotha Canal drawings in Sweden. It was not adopted for the Caledonian Canal because *'unless they are always very carefully raised to a proper height, the masts of the vessels will, in passing, strike against, or be impeded by the part of the bridge which is raised up'* [Jessop/Telford report. November 1805]. The Mallaig Railway broadsheet includes images of 'Concrete Bob' McAlpine's bridges under construction and, from a joint exercise by Dr Colin Stove and myself, the radar image of the horse and cart entombed in Loch-nan-Uamh Viaduct.



Dr E Kemp talking to Mr S Ritch astride the Menai Bridge link being conserved at Heriot-Watt University  
© Roland Paxton

This Summer, ASCE and PHEW are to visit the ICE East of Scotland Museum in Heriot-Watt University's School of the Built Environment. They will view our new display centered on a wrought iron link from Menai suspension bridge. For the initiated, it is 7.56ft long and of 4 x 1.56in cross-section, widening to 10in at each end with a 4.20in diameter hole. This c.1823 link weighing about 180lb, painstakingly brought here from Wales by Michael Jones and myself (not in my Peugeot 106!), is on loan from the Welsh Assembly Government. Unusually, the link lacks a proof testing mark (a 0.125in diameter saucer-shaped depression with raised cross). It is shorter and of larger cross-section than links used in the open air and was probably used in an anchorage tunnel. The old paint nearest the iron was ivory in colour. Whilst the link was being prepared, we were delighted to field questions from PHEW's *Corresponding Member* and bridge historian, Dr Emory Kemp of West Virginia University's IHTIA.

\* Available at £1.50 each from Mr G Stell, RCAHMS, 16 Bernard Terrace, Edinburgh, EH8 9NX

## INDIAN RAILWAYS – A VICE-REGAL CONNECTION

The Chairman feels sure that Lord Elgin will not mind the following part of a recent letter from him being shared with Newsletter readers. It reads:

*'The recent copy of the PHEW Newsletter had a flier with a wonderful Indian railway bridge under construction and it reminded me that, in fact, I think I do have a number of Indian railway engineering project photographs. The 9<sup>th</sup> Earl was Viceroy from 1894/1899 and the largest of the railway bridges ever built in India in the 19<sup>th</sup> century was named after him but was not, in fact, opened to traffic until the year after his return to Britain. The Elgin Bridge went northeastwards from Lucknow.*

*Some years ago at this very moment [30<sup>th</sup> January], Lady Elgin and I went to Delhi for the 50<sup>th</sup> Anniversary Celebrations of India's independence. One of these events was to take us to see the Railway Museum in Delhi where I made a formal re-presentation to the museum of a silver spike which was sent back to my grandfather as being the replica of the last spike to be driven into the completed railway track over the Elgin Bridge. It was good also to see that the Vice-regal train, which had been specially made for Lord Elgin's tour of duty, was in the museum.*

*We travelled by rail from Delhi to Jaipur and I took the route timetable of the Viceroy's visit in 1896 which passed from Simla through Delhi to Jaipur. The modern train ran at the same speed as the Vice-regal train had run and the copious notes printed in the Vice-regal route memorandum were as apt today as they had been in 1896 and the only change came in that, instead of being welcomed at Jaipur with a host of elephants with all their trappings and carriages and a 21-gun salute, there was only one small moth-eaten elephant. Later in the visit, however, the Maharajah himself entertained us most hospitably . . .'*

## THE HISTORY PROGRAM OF THE CANADIAN SOCIETY FOR CIVIL ENGINEERING

by Alistair MacKenzie

The Canadian Society for Civil Engineering established a History Program in 1983. The Committee responsible for this Program is the CSCE National History Committee, whose mandate is 'to record and preserve whatever tangible evidence remains of the significant works of earlier

generations of Civil Engineers and through suitable publications and publicity to make the general public and even engineers themselves, more aware of the importance of Civil Engineering in the historic development and welfare of Canada'.

The principal activities of the Committee are:

### *Historic Civil Engineering Sites*

Civil Engineering Sites of important historical significance are identified and commemorated. At an appropriate location on each site, a plaque is displayed containing brief information about the site and its importance. A Comprehensive Document is prepared for each site containing the research information leading to its Nomination, Photographs of the site, and copies of Press coverage of the Commemoration Ceremony, etc. From this information, a brief explanatory brochure is prepared for the information of participants at the 'plaquing' ceremony and of visitors to the site thereafter. To date, 34 National Historic Civil Engineering Sites, 2 Regional Historic Sites and 3 International Sites (with ASCE) have been commemorated and 'plaqued'.

### *Oral History Program*

To date eight interviews with distinguished engineers have been recorded and an Oral History Student Scholarship has been established but no award has yet been made.

### *Publications*

The National History Committee regularly produces a 'History Notes' insert to the Society's bi-monthly magazine *Canadian Civil Engineer*. Committee members have recently produced two books: *A Civil Society* by Peter Hart is a history of the Canadian Society for Civil Engineering and *For King and Country* by Mark Andrews is a biography of Lieutenant Colonel John By. Work is underway on a book on the National Historic Civil Engineering Sites, a Biographical Directory of Canadian Civil Engineers, and a Bibliography of Canadian Civil Engineering. Articles on Civil Engineering History are contributed to several other appropriate journals and magazines, e.g. *Canadian Journal of Civil Engineering* and *Canadian Consulting Engineer*.

### *Awards Program*

An annual award commemorating the founder of the CSCE History Program, the late W Gordon Plewes, is given for outstanding contributions to the literature of Civil Engineering History. This award was first made in 1994 and nine awards have now been presented.

### *Preservation of Historic Civil Engineering Works*

The CSCE National History Committee work closely with

appropriate National and Local organisations to encourage the preservation of Historic Civil Engineering Works.

### *Research*

This has taken the form of physical research in identifying artifacts of interest as well as academic research into early Canadian Civil Engineering History.

### *Education*

Whenever possible, lectures, presentations and seminars are given by committee members to engineering students, engineers and the general public. This initiative includes