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Panel for Historical Engineering Works

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A. W. Skempton

PAST PHEW CHAIRMAN RECEIVES MILLENNIUM HONOUR

by Mike Chrimes

Professor Sir Alec Skempton, Past-Chairman of PHEW was Knighted in the Millennium honours list for 'services to engineering'. Professor Skempton, best-known internationally as one of the founders of modern 'soil mechanics', has made an enormous personal contribution to the study of engineering history in this country, transforming it from the world of the amateur to a serious academic subject.

His work, spanning five decades has covered early cements, the origins of steel frames, the development of geotechnics, history of steam dredgers, but most particularly the work of eighteenth century engineers, whose world he has illuminated as never before. He has recently been acting as Chairman of the Editorial Board for the *Biographical Dictionary of Civil Engineers*.



Members of the Laigh Milton Project 'Team'
at the viaduct

Photograph by courtesy of James Yee (SAC)

LAIGH MILTON VIADUCT RECEIVES SALTIRE COMMENDATION by The Chairman

Five civil engineering projects received recognition in the 1999 Saltire Awards, which were announced last November by Alasdair Morrison, Deputy Minister for Enterprise in the Highlands and Islands.

The Laigh Milton project, involving the restoration of the world's oldest surviving public railway viaduct dating from the early 1800s received a Conservation Commendation and also received praise from the adjudication panel for 'skill in restoring a structure on the verge of collapse'. The project was initiated by PHEW whose initials are incorporated into the malleable cast iron commemorative plaque. The design was by Barr Technical Services; Barr Construction undertook the construction and the work was commissioned by the Laigh Milton Viaduct Conservation Project whose Company Secretary is Panel Chairman Roland Paxton. Roland received the award on behalf of the project from ICE President, Professor George Fleming.

important conclusion of the Workshop was to establish a new Inland Waterways Hydrology Study Group, for which Frank and Henry are providing the initial secretariat.

For further details of this Group, contact Henry Gunston, Institute of Hydrology, Crowmarsh Gifford, Wallingford, Oxon OX10 8BB. Tel: 01491 692452; fax: 01491 692424; email: h.gunston@ceh.ac.uk

THE CHAIRMAN'S COLUMN

by Professor Roland Paxton

It is not every day that an MA degree is obtained for a dissertation on 'The Institution of Civil Engineers (UK) Approach to the Recording and Conservation of Historic Engineering Infrastructure and Comparison with the Approach of Similar Institutions in America, Australia and Ireland'. This recent Panel-newsworthy achievement was carried out under the auspices of the University of Leicester by Mrs Elisabeth Allsop of Paignton.

Chapter 1 begins with the quotation 'We have a great and ubiquitous engineering heritage; let it not remain unsung! (Paxton 1992)' and identifies the growing awareness in the early 1960s of the need to preserve the best of the national engineering heritage. The first formal recognition of this need by a national engineering society is said to have occurred in 1964 with the formation of the American Society of Civil Engineers' (ASCE) Committee on History and Heritage (CHHACE) to 'enhance the knowledge of and appreciation of America's 'History and Heritage''. In Britain PHEW, originally named the 'Engineering Monuments Panel' was founded in November 1968 by the ICE 'to foster a proper interest in civil engineering heritage, care being taken not to give any impression that the Institution was "immersed in the past" (Jellett, 1968)'. The Panel's remit was more exhaustive than that of CHHACE in that it was 'to draw up lists of engineering works illustrating the history and development of civil engineering' with its volunteer Members covering all parts of the United Kingdom and Ireland.

The Engineering Monuments Panel first met on 11 April 1969 becoming known as PHEW from 1973, the year that its first annual provincial meeting was held at Ironbridge. In 1972 the Panel's Technical Secretary, Maurice Barbey [1911-1989], introduced his legendary 'B7' record form and merit mark formula. Although both were eventually modified, no one who has ever met Maurice and experienced his meticulous *modus operandi* and 100% commitment to the Panel

and its work will doubt his key role in the Panel's development. He kept us all on our toes!

A major development occurred in the USA in 1969 with the setting up by ASCE, the National Parks Service and Library of Congress of the Historic American Engineering Record (HAER) to 'survey and document' America's historical engineering and industrial works and provide a basis for informed decision-making on preservation and re-use. HAER was also charged with recording the working life and living conditions of the people. Its subsequent achievement made possible by a full-time core staff, considerably enlarged for several months of each year by professionally qualified assistants in a 'Summer Program', is truly outstanding. [Newsletter No.79, page 2 refers].

In Australia it took much longer than in Britain and the USA for historical engineering works to be considered as part of the national heritage. It was only after many historical structures 'had been destroyed in the rush to modernisation' that the Institution of Engineers Australia (IEAust) formed its National Committee on Engineering Heritage in 1983, comprising engineers of all disciplines.

In Ireland the engineering heritage remained under PHEW's auspices until 1983 when the Institution of Engineers, Ireland (IEI) Heritage Society was formed covering all branches of engineering. In 1988 Dr Ronald Cox inaugurated within the Society the 'National Engineering Heritage Project' to identify and record the Republic's engineering heritage, but continued on PHEW working with Dr Michael Gould of the Northern Ireland Association of ICE in order to represent Ireland fully on the Panel.

Other chapters relate to conservation; problems, insofar as they relate to PHEW on which action is being taken where appropriate and practicable; and to the methodology of recording, of which HAER's four priority merit system for historical structures is of particular interest:

Priority 1

Either nationally significant or locally significant and retaining most of its historic structural material. Warrants further documentation with measured drawings, in depth histories and large format photography.

Priority 2

Regionally or locally significant with only some of its original material in place, although some alterations may have taken place. Warrants in depth histories and large format photography.

Priority 3

Deemed locally significant. Warrants large format photography.

Priority 4

Warrants only HAER baseline documentation.

Mrs Allsop concludes that the greatest success in recording and conservation programmes has been made in the USA, particularly through HAER, but acknowledges the enthusiasm and dedication of the voluntary members of all the heritage committees of the four countries considered. She writes, this 'is very obvious from their newsletters, web-sites and personal correspondence. Meetings are well-attended, publication of books and heritage trail leaflets continues, conferences, exhibitions and plaquing continue to be planned well into the future ... That civil engineering heritage should be a subject in its own right is now being accepted by heritage bodies and government departments. What needs to be done is to raise the profile of historic engineering works even higher.' Amen to that!

Forthcoming events at which all readers will be welcome

19 April at 6.15pm. Professor Emory Kemp - Lecture on American timber-covered bridges. Venue: Clerk Maxwell Foundation at 14 India Street, Edinburgh. Tea from 5.30pm

30 June – International Conference on the Forth and Clyde Canal Regeneration. Venue: Edinburgh International Conference Centre (contact: Sue Frye, ICE Conference Office. Tel: 020 7665 2315)

1 and 2 July – Scottish PHEW - Visit to sites on the ongoing £78m. Forth and Clyde Canal Regeneration. (Contact: Sandra Purves, 4 Scotland Street, Edinburgh, EH3 6PS. Tel: 0131 556 4503)

18 July – The 'Smeaton Lecture' by myself; Jim Stirling, Director Scottish Waterways; and ICE President Professor George Fleming on the Forth and Clyde Canal Regeneration, at ICE HQ London. Tea from 5.30pm

FURTHER INSIGHTS INTO THE MULBERRY HARBOUR PROJECT

by Ted Labrum

One of the most brilliant civil engineering achievements of the 20th century was the concept and

production of an artificial harbour to serve the Allied invasion across the English Channel in 1944.

In 1942 a civil engineer, H Iorys Hughes, realising that an essential feature of any eventual assault upon enemy occupied Europe from England would require a special military port, sent his concept for a portable modular port to Winston Churchill who immediately adopted it. Churchill instructed Hughes to start the project with the promise of top priority for resources and the offer of the rank of Colonel. The latter was declined by Hughes who wishes to retain his freedom of operation.



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Born in Bangor in 1902 Hughes gained a degree in civil engineering at Sheffield University and was for some time a senior Resident Engineer for Sir E Owen Williams on large reinforced concrete projects before setting up his own practice in 1937 as a Consulting Engineer at an office in Victoria Street, London. He was also a keen international racing yachtsman in company with other members of his family and was successful in several transatlantic races. He was a member of the Royal Thames Yacht Club and a life member of the Royal Ocean Racing Club. The two attributes of civil engineering experience and skill as a sailor were to prove a vital part in the success of the great Mulberry project.

In great secrecy arrangements were made for most of Hughes' staff, by then scattered in the armed forces and in ministries, to rejoin him at Victoria Street for the purpose of preparing detailed designs with the utmost urgency. Three prototype units of reinforced concrete each weighing 6,000 tons (codenamed 'Hippos') were built alongside the estuary at Conway by a workforce of quarrymen and then towed to the west coast of Scotland where Hughes and his team conducted sea trials. From this phase the modified 'Hippo' design became the 'Phoenix' and models