

The Institution of Civil Engineers

Panel for Historical Engineering Works

NEWSLETTER

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was not possible for the errata sheets to be inserted in volumes on sale, but they would be sent to Panel Members.

The centenary of the Manchester Ship Canal was to be marked with a day-school at the Merseyside Maritime Museum and a series of articles written by Roy Hughes and others.

The Librarian requested anyone preparing reports on a word processor to supply their reports on disk (as a WordPerfect or DOS/ASCII file/format). The same applies to contributions to the *Newsletter*.

Annual Meeting (8 September 1994)

The annual gathering and meeting of the Panel took place at Clyne Castle, University of Swansea.

The Chairman paid tribute to Roy Hughes, whose death last May was reported in the June *Newsletter*.

Paul Dunkerley spoke about the scheme, backed by the North West Local Association, for using students' assistance in revising record forms, which not only aids Panel Members in their work but introduces student engineers to the Institution and to PHEW in a positive and interesting way. The Chairman hoped that the scheme could be taken up in other areas.

The Technical Secretary reminded Panel Members that many record forms would need some revision because of the forthcoming reorganisation of local government. All the record forms are to be computerised.

Roger Cragg presented the final report of the working party on the Merit-Marking/Assessment Formulae. No overall formula could be applied to all types of structures, and it was proposed that sub-panels of not more than four people be set up to consider the assessment of different types of structures. Initially there will be five such panels, dealing with cast-iron bridges,

Panel Meetings 1994 • The Editor

Spring Meeting (21 April 1994)

This report of the Panel Meeting last April does not include matters which are covered in the report which follows of the Annual Meeting.

The Chairman welcomed Dr Thomas Day, who will be making arrangements for the Panel's visit to Aberdeen in 1995. The Chairman reported that the recent Stevenson Symposium in Edinburgh, which examined the achievements of the great family of lighthouse engineers, had been very successful.

The Technical Secretary reported on the unveiling in September 1993 of the joint ASCE/ICE Thames Tunnel plaque at Rotherhithe station. He stressed that all HEW Reports should be submitted on the new format (D/2, dated 03/93). Periodic reviews should be reported even if no alteration to the record is necessary.

Two more volumes of 'Civil Engineering Heritage' had been published, covering Southern England and Eastern and Central England, but errata sheets were needed. It

masterpiece regarded in its day as one of the scientific wonders of the age, is to be restored to its former glory (HEW 286). English Heritage has agreed to invest £500,000 towards the £3 million needed to rescue the lift, which stands where the Trent and Mersey Canal flows 50ft above the river Weaver near Northwich, Cheshire. The lift, which is constructed of wrought and cast iron, was designed by Sir Edward Leader Williams, Edward Clark and J W Sandeman, and was the forerunner of several similar lifts constructed in Europe.

When opened in 1875, the lift provided a boost to the coal and industrial trade, allowing canal traffic to join the river and continue to coastal ports. The lift fell into disuse 12 years ago. Owned by the British Waterways Board, the Boat Lift is scheduled as an Ancient Monument. A planned fund-raising trust is likely to include voluntary canal societies who have been heavily involved in reviving interest in the lift, local authorities, British Waterways and English Heritage. Almost all the boats expected to use the lift are pleasure craft, the aim being to attract a lot of tourism to the area.

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The September 1994 edition of *Municipal Engineer* contained an article on the history, repair and upkeep of Wadebridge in Cornwall (HEW 884). The construction of the new bridge downstream diverting the trunk road A39 to bypass the town has enabled the County Council to carry out a scheme of rewaterproofing and refurbishment to this ancient bridge dating from 1460.

Water from the skies falling on the bridge causes almost as many problems in maintenance as the river water passing the piers and foundations below, and one of the major problems in recent years has been the seepage of the water through the entire construction. This has probably been due to the lack of a waterproofing membrane over the earlier structure, and the breakdown of the membrane along the longitudinal joint which was laid in 1963 between the original structure and the widened portion which was supported on piles.

As always, the exposure of surface for rewaterproofing enabled the gas, water and telephone services to be added to or relaid. An improved drainage system was installed utilizing a continuous gulley channel design, with twice as many outlets as the original kerb inlet system.

It was felt that the bridge, which was still the focal point of the town, could benefit from some aesthetic improvement; instead of the previous 24ft wide carriageway and two 6ft wide footways, the carriageway has been reduced to 5500mm (18ft), flanked by block paved cycleways and narrower footways in concrete flags, and ornate street lamp-posts have been installed. These works complement a major post-bypass enhancement project for the whole of the town.

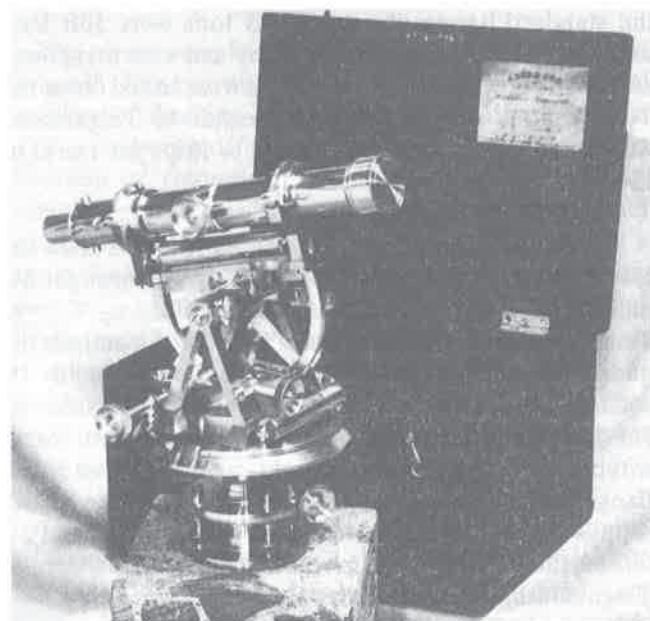
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Enthusiasts of Brunel's timber work will enjoy a book by John Binding, *Brunel's Cornish Viaducts*, profusely illustrated by 144 photographs with 146 pages of text. It

is obtained from Atlantic Transport Publishers, Penryn, Cornwall, TR10 8HE at £19.95.

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The Chairman's Column • Roland Paxton



Theodolite c.1860 resting on a cube cut from colloidal concrete road made in 1878
Photo: © Courtesy National Museums of Scotland

Most civil engineers when presented with the opportunity show an interest in the superseded instruments, materials and equipment which enabled them and their predecessors to practise their profession. Because of this interest and the fundamental association of such artefacts with historical engineering works, it has given me particular pleasure since 1971 to help form, on behalf of the Edinburgh and East of Scotland Local Association of the Institution, one of the finest collections of its kind outside the major museums (see photograph). A prominently displayed exhibition of the collection is to be opened in its permanent new home at Heriot-Watt University on 23 November by Dr Edmund Hambly, President of the Institution. Any reader wishing to receive an explanatory leaflet and catalogue or even perhaps to donate an artefact, please do not hesitate to let me know.

The value of reliable printed sources in increasing our

knowledge of historical engineering works is well understood, but less so the sources of available information themselves. This shortcoming, and much more besides including a fascinating mention of the accidental acquisition at auction of the Countess of Blessington's memoirs instead of an engineering classic, (it is understood that booksellers have *sobbing rooms!*) was strikingly addressed recently by Miss Julia Elton of Elton Engineering Books in an excellent illustrated lecture on *The Literature of Engineering Invention*. It was presented to a joint meeting of the Edinburgh and East of Scotland Local Association of the Institution and the Edinburgh Bibliographical Society. Through the medium of the printed book Miss Elton ranged eloquently from Italian renaissance engineers and Galileo's cantilever beam, through the voluminous and profusely illustrated 18th century French classics of Gautier, Belidor and Perronet and their influence, to the fundamental reports of c.1760-1840 vintage by British engineers promoting particular projects. It was emphasised that these reports, which are generally well written and often include a finely detailed plan, constitute a valuable and authoritative source of historical information, as also do parliamentary papers, particularly from 1796 onwards. These papers often include valuable biographical information not available elsewhere. Numerous examples were cited and illustrated. Then followed instructive examples from large folios and quartos illustrating some of the major works of British engineers during the first half of the 19th century. This outstanding and attractively delivered lecture deserves wider dissemination. Lecture organisers please note!

On the Panel's objective of encouraging excellence in the conservation of historical engineering works through making awards, it was always intended that the Saltire Society-PHEW conservation commendation introduced last year should be the precursor of similar schemes covering the rest of the United Kingdom and the Republic of Ireland. I am pleased to mention that through an initiative taken by David Greenfield, a preliminary approach has been made to the County Surveyors Society by their South West representative Mr Richard Fish with a view to encouraging the Society to institute an annual conservation award covering bridges in England. The proposal was well received and a decision on whether to proceed is expected in the New Year. On behalf of the Panel I should like to thank David Greenfield very much for his active support in this matter and for offering to liaise with the Society in future if the scheme proceeds.

On the international fronting recent correspondents have been mainly from the USA. Regarding ASCE, possible future *Landmark* sites in the UK and Republic of Ireland are being considered and discussed with Professor Alan Prasuhn, Chairman of CHHACE. Dr Emory Kemp, Director of the Institute for the History of Technology at West Virginia and a corresponding member of the Panel is currently working on an historical and structural evaluation of the Wheeling Custom House. This building was constructed between 1857 and 1859

using a combination of cast iron columns with wrought iron I-beams and box girders which allowed internal load-bearing walls above, a novel concept in West Virginia at that time. Finally, whilst on the subject of wrought iron I-beams, I have received an off-print from our old friend Charles Peterson of Philadelphia on *Inventing the I-beam, Part II*, published in the latest APT Bulletin. His paper treats of William Borrow at Trenton Ironworks and John Griffen of Phoenixville and the fundamental role they played in developing heavy machinery to shape the large section I-beam precursors of the modern and universally applied rolled steel beam. Light is shed on the valuable work but short life of Borrow, an English mechanic, who developed the great rolling mill at Trenton from 1851.

In September I was invited to the opening by the Rt Hon Ian Lang MP, Secretary of State for Scotland of four new sections of motorway between Glasgow and Carlisle near Lockerbie. During the speeches after the ceremony it was pleasing to hear the name of the Panel mentioned and an opportunity occurred to explain to the Secretary of State something of Telford's great road achievement of 175 years earlier (see photograph). Strategically the new sections of road more or less follow Telford's line insofar as something of the order of a seven-fold increase in design speed would allow!



Roland Paxton and the Rt Hon Ian Lang MP
Secretary of State for Scotland
September 1994

Photo: © Courtesy Mr B Ireland, Miller Civil Engineering

Personal Notes • The Editor

The title of Honorary Professor has been conferred upon Mr Roland Arthur Paxton (to supersede his title as Honorary Senior Research Fellow in the Department of Civil and Offshore Engineering at Heriot-Watt University) in recognition of his national and international reputation as one of the UK's leading historian's and conservationist's of the nations civil engineering heritage and his association with the Department of Civil and Offshore Engineering. The appointment is until 31 July 1997 in the first instance.