



IABSE NEWS

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International Association for Bridge and Structural Engineering

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River Oise Bridge, Compiègne, France

Image courtesy Flint & Neill

Contents

Events	2
British Group News	3
Henderson Colloquium 2007 – Lessons from Design Competitions	4
Henderson Colloquium 2006 – ‘Factor 10’ Engineering for Sustainable Cities	5
Report – Young Researchers’ Conference 2007	6
Obituary – Professor William Cranston	7
Profile – Dr William Henderson (1912-1980)	8
IABSE British Group Directory	9



IABSE British Group News

Editorial

Welcome to *IABSE News*, the newsletter of the British Group of IABSE.

Many friends and colleagues across the civil and structural engineering industry raise their eyes to the heavens at the mention of workload, both current and projected. Everyone seems to be busy! But it is precisely now, when it is hard enough to see ones way to the end of the week, that we must make sure that we do not forget the long term future of our profession and of our organisations.

September traditionally brings a new wave of graduates into the construction industry and we must remain committed to providing them with proper training and adequate opportunities to develop. This often means making time to train, coach and mentor exactly when there doesn't seem a moment left to spare, a task even more onerous than usual at present but one that we can not afford to let pass by.

Also, the dawn of the structural Eurocodes is coming ever closer. They are the 'elephant in the room' which can not be ignored for very much longer. Not that our industry is ignoring the introduction of the Eurocodes. Regular articles and updates are published in the technical press and guidance is available from ICE and IStructE at www.eurocodes.co.uk. However, the success of UK engineers in adapting to the Eurocodes will rest with the commitment of individual engineers to invest the necessary time to take on the changes.

With best wishes,

Andrew Martin
Editor

Events

<u>Date</u>	<u>Time</u>	<u>Event</u>
Thursday 29 November 2007	5.00pm	<u>Annual General Meeting</u>
	6.00pm	<u>IABSE Annual Lecture 2007</u> Heavy Lifts Mike Wade Dorman Long Technology
	8.00pm (following Annual Lecture)	<u>Annual Dinner</u> (Fee payable. Prior booking essential.)
Thursday/Friday 27/28 March 2008		<u>Young Engineers Conference</u> <i>Details tba</i> Venue: BIRMINGHAM

Unless noted otherwise, all events take place at the Institution of Structural Engineers, 11, Upper Belgrave Street, London. Tea is usually served before evening lectures and meetings from 5.30pm.

The views and opinions expressed in *IABSE News* are those of the respective authors and not those of either the Executive Committee of the IABSE British Group or the Editor. Whereas effort has been made to ensure the accuracy of statements and acknowledgements, we reserve the right to be as wrong as everyone else.



IABSE British Group News

New Members

A warm welcome to IABSE and to the British Group is extended to the following new members:

Julian Devoy
Martijn Veltkamp

T. Harris
Dominik Weiss

Markus Just
J. Yang

Martin Knight

Honours and Awards

Professor **Haig Gulvanessian** (BRE), IABSE member and former member of the British Group Executive Committee, was honoured by Her Majesty the Queen in the 2007 New Year Honours with the award of a CBE for Services to the Construction Industry.

The 2007 Sir Frank Whittle Medal has been awarded by the Royal Academy of Engineering to **Mike Glover** (Arup) for 'outstanding and sustained achievement which has contributed to the well-being of the nation'. The award acknowledges Mike's key influence and involvement in the Channel Tunnel Rail Link (CTRL) project, the subject of his memorable IABSE Annual Lecture in 2004.

IABSE Lectures in Print

Papers from two recent lectures associated with IABSE have been published in *The Structural Engineer*, journal of the Institution of Structural Engineers.

'*Sustainable engineering – a philosophical perspective*' is the title of the paper presented by **Bob Silman** (Bob Silman Associates, New York) as the IABSE Annual Lecture 2006. The paper may be found in the 1 May 2007 edition of *The Structural Engineer*, pp38-42 (Vol.85, No.9).

'*Geometry and structure – the benefit of the third dimension*' was presented at IStructE by **Tristram Carfrae** (Arup) following his award of the IABSE Milne Medal for 2006. The paper is reproduced in *The Structural Engineer*, 20 February 2007, pp27-30 (Vol.85, No.4).

Structural Engineering International

The ongoing opportunity exists for all members to have articles published in *SEI*, the international journal of IABSE. Rules for publication are available through the IABSE website at www.iabse.org. David Doran is the UK Correspondent for *SEI* and can offer assistance to prospective authors (see Directory).

Cover Images - A New Urban Bridge for Compiègne

The cover images of this edition of *IABSE News* illustrate the winning design by Flint & Neill Partnership from an international competition for a new urban highway bridge across the River Oise in Compiègne, north east of Paris. Flint & Neill worked together with French architects Explorations Architecture in a team that also included engineers Terrell International and landscape architects Agence Ter. The bridge is part of an important re-development scheme involving urban and landscape design of the surrounding areas. The bridge will carry a 3-lane highway, 2 cycle tracks and 2 footways over the river.

The bridge is a steel structure with two box girders along the edges of the carriageway stiffened by a shallow arch over the main river span and an underslung catenary in the side span. The resulting form is a smooth and sinuous curve which responds to the topography of the site, keeping the top of the arch below adjacent building levels. The footways are cantilevered on the sides of the structure to maximise enjoyment of the river and open views for pedestrians and to physically separate them from the busy roadway. Construction is due to start in 2008 for completion in 2010.



Lessons from Design Competitions

*The annual Henderson Colloquium took place in Cambridge in July. The following extracts come from a press release issued by **Angus Low** (Arup), Chairman of the organising committee.*



“New guidance to clients on when and how to run effective bridge design competitions is to be published following a high level meeting in Cambridge. This follows concerns raised by several high profile design competitions which have failed to produce the desired outcome in recent years. The meeting was attended by many of the country’s leading bridge designers, including engineers and architects, as well as leading clients and contractors. The RIBA Competitions Office was also represented during one of the sessions, providing useful input from their experience of organising 10 bridge design competitions in the last 10 years.”

“Agreement was reached on the need to provide clear industry recommendations on issues such as the composition and role of the competition jury, the entry submission requirements, the competition programme, the honorarium or fee payable to competitors and winners and many other aspects. Chairman of the organising committee, Angus Low of Arup, said “Most clients only hold a bridge design competition once, whereas we all have experience of participating in several, so we are well placed to provide the much needed guidance on this issue.”

“The guidance notes are initially intended to apply to the UK but with wider application in Europe. Visiting overseas delegates included Henry Bardsley from RFR in Paris, Mike Schlaich of German consultants Schlaich Bergermann and Danish architect Poul Ove Jensen from Dissing+Weitling brought an international perspective to the proceedings. A written contribution was received from Michel Virlogeux, engineer for the Millau Viaduct and the Pont du Normandie in France. IABSE has taken up this initiative of the British Group and has just set up an International Working Group on this subject under the chairmanship of Naeem Hussain of Arup Hong Kong, who was also present, as were two other members of the International Working Group.”

[Thanks are offered to the organising committee – Keith Brownlie (WilkinsonEyre Architects), Peter Curran (Gifford), Ian Firth(Flint & Neill) and Angus Low (Arup) – for producing such a successful event. Ed.]



‘Factor 10’ Engineering for Sustainable Cities

Report by **Andrew Martin** (Arup)

The 2006 Henderson Colloquium took place at Magdalene College, Cambridge, between 10 and 12 July and was chaired by **Peter Head** (Arup). The purpose of the Colloquium was summarised in the invitation to participants, who were drawn from a diverse range of disciplines and roles from across the built environment.

“The majority of people on the planet will live in cities by 2050 and so the future of humankind is linked to how successful urban living will be as part of the planet’s eco-system. We know that our current model of urban development, created by the industrial revolution, is unsustainable because of environmental pollution and resource depletion. Decision makers and politicians in many countries have realised that we are at a tipping point in human history when the actions we take now will be critical to our survival. We need to find radical solutions and deep innovation in order to change direction.”

“Amory Lovins has inspired many engineers to look for ‘Factor 10 solutions’ in which performance outputs are improved by this order of magnitude. This Colloquium is the first event to bring together ‘Factor 10 solutions’ which specifically address urban development performance – social, economic and environmental. The event is designed to enable leading thinkers, researchers and practitioners from all over the world to pool their ideas and see how they fit together. It is believed that a much more optimistic outcome can be realised by exploiting our current blindness to the virtuous cycles of sustainable development that successful competing organisms have mastered.”

Papers were presented by participants from a diverse range of disciplines across the built environment and associated professions, from the UK, Germany and the USA. Formal presentations were interspersed with lively discussion and exchange of ideas

The Colloquium papers are available electronically as .pdf file downloads via the British Group website at www.iabse-uk.org (follow the link to Henderson Colloquium).

Participants and Papers

- **John Barrett** (Stockholm Environment Institute) ‘*Environmental Impacts of UK Consumption – Exploring Links to Wealth, Inequality & Lifestyle*’
- **Herbert Girardet** (Environmental Consultant) ‘*Urban Metabolism: London Sustainability Scenarios*’
- **Crina Oltean-Dumbrava** (University of Bradford) ‘*Assessing the Relative Sustainability of Management Solutions using Multi-Criteria Techniques*’
- **Samantha Heath** (London Sustainability Exchange) ‘*London: Making the Difference*’
- **Greg Franta** (Rocky Mountain Institute, Colorado, USA) ‘*A Factor 10 Solution: Integrated Design in Architecture*’
- **Bob White** (MACE) ‘*Construction Efficiency*’
- **David Fisk** (Imperial College, London) ‘*Urban Energy Systems*’
- **Brenda Boardman** (University of Oxford) ‘*The Challenge of Existing UK Houses*’
- **Mark Candlish** (RES Ltd) ‘*Renewable Energy Systems*’
- **Bruce Beck** (University of Georgia, USA) ‘*Water*’
- **Peter Head** (Arup) ‘*Case Study – Dongtan Eco-City*’
- **Hans Mönninghoff** (City of Hannover, Germany) ‘*Case Study – Kronsberg, Hannover: Components of a Factor 10 Strategy*’
- **Robert Lisney** (LRL Consultancy Services Ltd) ‘*From Waste to Material Resources Management*’
- **John Forth** (University of Leeds) ‘*Non-traditional Binders for Construction Materials*’



- **Hugo Spowers** (Independent Consultant) 'A 'Whole System Design' Approach to Personal Transport'
- **Volker Buscher** (Arup) 'Urban Information Architecture: The Concept Applied at Dongtan Eco-City'
- **Andrew Martin** (Arup) 'Sustainability, Bridges & Civil Engineering'
- **Peter Guthrie** (University of Cambridge) 'Sustainability & Development'
- **John Worthington** (DEGW) 'How Sustainable is Distributed Working in the Dispersed City?'



Enjoying the sunshine in Cripps Court at Magdalene College

Report

Young Researchers' Conference, 2007

Institution of Structural Engineers, London, 7 March, 2007.

The Young Researchers' Conference 2007 was attended by 75 delegates from across the UK. A total of 9 papers were presented and 15 poster presentations exhibited. The event was chaired by David Harvey, President of the Institution of Structural Engineers. The keynote address was given by Paul Westbury of Buro Happold. As in past years the British Group of IABSE was a sponsor of the event and this year was represented by Dr Graham Tilly and Steve Matthews. Steve Matthews also acted as one of the four judges for the oral presentations.

Both the verbal and poster presentations covered a wide range of topics and it was encouraging to see research activity directed towards pushing the boundaries of structural concept and producing prototype tools that can be used as the basis of future design processes.



The winners were:

Oral Category

- 1st Prize. (£300 + IStructE plaque) **Tak Ming Chan** (Imperial College, London)
Development of design rules for elliptical hollow sections
- 2nd Prize. (£250) **Pete Winslow** (Cambridge University)
Free-form grid structures
- 3rd Prize. (£200) **Joseph Symes** (Bristol University)
Aerodynamically induced galloping of dry inclined cables

Poster Category

- 1st Prize. (£300 + IStructE plaque) **Anthony Abu** (Sheffield University)
The mechanics of tensile membrane action in composite slabs at high temperatures
- 2nd Prize. (£250) **Donald Nyawako** (Sheffield University)
Active control of human induced floor vibrations
- 3rd Prize. (£200) **Paul Scott** (Cambridge University)
CFRP tendon durability in the marine environment

The synopses of all the presented projects (with contact email addresses) will appear on the IStructE website at: <http://www.istructe.org/technical/db/231.asp>. The prize-winners will be invited to write either an article or full paper for *The Structural Engineer*.

[The Conference is reported in greater detail in The Structural Engineer, 3 April 2007].

Obituary

Professor William Cranston

George Somerville writes:

It is with regret that we report the death of Professor W.B. ‘Bill’ Cranston, aged 73, a long-term member of the IABSE British Group.

Bill hailed from Islay off Scotland’s west coast. After attending Dollar Academy, he took a first class honours degree in civil engineering at Glasgow University, graduating in 1955. He stayed on the staff at Glasgow, while earning a PhD in the process. Thereafter, he was commissioned into the airfield construction branch of the RAF, engaged on site work in Germany. In 1961, he joined the Structures Department in the R&D Division of the Cement and Concrete Association (C&CA) at Wexham Springs, becoming deputy head in 1968 and head in 1977, a position he held until the demise of C&CA in 1987. He then returned to Scotland as a professor at the University of Paisley until reaching retirement age; thereafter, he continued to pursue his life-long interest in education.

Bill was a bright caring committed engineer with a strong practical streak. During his 26 years at C&CA, he made a major contribution to research on structural concrete, especially on columns and frames. But he was also outward-looking, working closely with other research organisations, universities, institutions, BSI, and especially with practice to ensure that research outputs were in a suitable form for application. Here, his commitment to education and training showed through strongly, mainly via the C&CA Training Centre at Fulmer Grange, but also elsewhere both home and abroad.

Outside work, Bill had a strong interest in local politics, serving as a Councillor for many years. His other strong interest was his family, and our sympathy goes to his widow Nessie, and to his 4 sons and daughter, Stephen, Michael, Andrew, John and Christine.



Profile

Dr William Henderson (1912-1980)

An appreciation by David Doran

Dr Henderson MBE DSc FICE FISTructE, was educated at George Heriot's School in Edinburgh from which he went on to Edinburgh University where he took a 5 year sandwich course in Civil Engineering. His time was divided between the University and an apprenticeship under the city Engineer of Edinburgh W.A. McCartney.

His early practical experience included construction of sewers, roads, race courses and airfields; design experience on bridges and, as was the practice in the days before quantity surveyors, preparing quantities for a bridge widening scheme.

He was promoted to Senior Engineering Assistant to the Borough Surveyors department in 1938 and eventually transferred to the Ministry of Transport and became Chief Bridge Engineer for the Scottish Development Department with particular interest in the Forth Road Bridge and the Erskine Bridge. He was instrumental in the adoption of the HA/HB system of loading adopted in the British Codes. HB loading was not without its critics and one well known engineer was known to refer to it as a *Mythical Scottish Beast*! His DSc was an honorary award by Heriot-Watt university in 1967.

He was instrumental in the development of the British Group of IABSE and was always conscious of the need not to duplicate the work of other British professional institutions. He was Chairman of the British Group for the period 1969-1977 and during that time introduced the Annual Lecture and the Cambridge Colloquium. The former has attracted many distinguished speakers including Bruno Thurliman, John Burland and Martin Didier; the latter has provided a platform for straight speaking amongst a small group in an intimate closed environment. The Colloquium (now renamed *The Henderson Colloquium*) is generally followed by an open meeting held jointly with the Institution of Structural Engineers. Details of topics and papers can be found on www.iabse-uk.org Following his appointment as a Vice President of IABSE he became a Member of Honour.

His activities with IStructE were equally distinguished. He served on Council becoming Vice-President for the period 1977-1979. He was awarded an *Oscar Faber Silver Medal* for his Erskine Bridge paper and, ultimately a Lewis Kent Award – the Institution's highest award for personal services. In addition he was instrumental in re-modelling the house journal *The Structural Engineer* and acted alone as co-ordinator of the remarkably popular Verulam column.

A true Scot with a dislike for England he once pined for the return of the auld alliance between the Scots and the French. He had strong professional links with Alec Sandberg and Oleg Kerensky (Freeman Fox) and played bridge with them. He helped Oleg to develop BS 5400 – the bridge standard – and also chaired the committee which drafted Part 2 – *The Specification for loads*.

Bill was a small man with white hair who unfortunately developed lung cancer and died prematurely. Highly respected, if sometimes feared by subordinates, he made a considerable contribution to British civil and structural engineering.

[David Doran thanks David Nethercot, Graham Tilly & Rob Thomas (IStructE) for their assistance in the preparation of this article.]

IABSE British Group Website

The website of the British Group can be accessed at www.iabse-uk.org , where proceedings of Henderson Colloquia and back editions of *IABSE News* are available in downloadable form. We are grateful to the Institution of Structural Engineers for their continued generosity in hosting the website.



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