



# IABSE UK NEWS

Newsletter of the British Group of the  
International Association for Bridge and Structural Engineering

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*IABSE-IASS Symposium 2011, London, opening ceremony*

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# IABSE British Group News

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## Editorial

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

There has been a longer than intended delay since the previous issue, mainly because I wanted to hold back until after the IABSE-IASS 2011 Symposium, in the knowledge that it would generate no shortage of material to report. The Symposium, attended by over 1000 people, exceeded all expectations, and I trust that is reflected in the reports provided here.

I hope that the period until the next newsletter will be shorter, and members can help in that by volunteering to write short reports. These can be technical: reports from committees, working groups, conferences, or on the activities of related organisations. Project reports or abridged papers from IABSE-related events will always be considered for inclusion.

Please also consider if you have any personal news to share (awards, appointments etc). In the past, *IABSE UK News* has included short pen portraits of members, and I would like to revive this tradition. If you would like to introduce yourself (don't be shy!) please let me have up to 300-400 words and, optionally, an appropriate project or personal image. To show how easy it is, I have included my own in this issue.

Regards,

Brian Duguid, Editor

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## Events

<u>Date</u>	<u>Time</u>	<u>Event</u>
3 November 2011	6pm	<u>Milne Medal Lecture</u> (see page 7) <i>"Roller Coaster"</i> Ed Clark, Arup
7-9 May 2012		<u>IABSE Conference – Cairo</u> <i>Global Thinking in Structural Engineering – Recent Achievements</i>
10 May 2012	6pm	<u>Annual Lecture</u> <i>"London Olympic Stadium"</i> Tony Aitkenhead
July 2012		<u>Henderson Colloquium</u> Details to be confirmed
19-21 September 2012		<u>IABSE Symposium – Seoul</u> <i>Innovative Infrastructure – Towards Human Urbanism</i>
6-8 May 2013		<u>IABSE Conference – Rotterdam</u> <i>Assessment, Upgrading and Refurbishment of Infrastructure</i>
24-27 September 2013		<u>IABSE Symposium – Kolkata#</u> <i>Long Span Bridge and Roof Structures – Development, Design and Implementation</i>

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.

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## IABSE on the Internet

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

I am still looking to add further papers or summaries from past Henderson Colloquia to the website, so if anyone can assist by supplying copies, please get in touch ([brian.duguid@mottmac.com](mailto:brian.duguid@mottmac.com)).

The international website of IABSE at [www.iabse.org](http://www.iabse.org) contains comprehensive information on IABSE organisation, activities and publications.

Recent additions to the IABSE website include online versions of a number of the Structural Engineering Documents. The following are available to members who log in (the first four are otherwise out of print):

SED 1 – *Concrete box-girder bridges*

SED 2 – *Dynamic response of reinforced concrete buildings*

SED 3 – *Vibrations in structures*

SED 4 – *Ship collision with bridges*

SED 12 – *Case studies of rehabilitation, repair, retrofitting and strengthening of structures*

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## Disclaimer

The views and opinions expressed in IABSE UK 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.

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## Welcome to new members

First, a welcome to Neil Loudon of the Highways Agency, who has recently taken the place of Gerry Hayter on the British Group's Executive Committee. Neil is Head of Pavements and Structures at the Highways Agency.

Also, a warm welcome to these new members:

- Andrew Jackson – Uni. of Cambridge
- Tim Kersley – Network Rail
- Kelvin Montgomery – DAR Consultants
- Panagiotis Spyridis – Dr Sauer & Partners

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## Structural Engineering International

The February 2011 issue of *Structural Engineering International* included a large number of papers on recent structures built in the UK and Ireland, and again, copies of the papers are available online to IABSE members free of charge via [www.iabse.org](http://www.iabse.org).

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](http://www.iabse.org). David Doran is the UK Correspondent for *SEI* and can offer assistance to prospective authors (see Directory). Forthcoming issues in 2012 will cover Recent Structures and Research in Korea; Codes of Practice in Structural Engineering; Structures and Climatic Changes; and Fire.

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## Updates from the Working Groups

**WG 3:** *Guidelines for Design Competitions for Bridges* (update by Brian Duguid, Mott MacDonald)

This Working Group was formed in response to concerns over the number of bridge design contests in recent years which had led to outcomes of an unsatisfactory nature. It coincided with the 2007 Henderson Colloquium which shared the same topic (see *IABSE UK News* 28), and the British Group have been well



represented on the Working Group by Naeem Hussain and Angus Low (Arup), Brian Duguid (Mott MacDonald) and Roger Buckby (Halcrow).

Following final discussions at the IABSE Symposium in Venice in 2010, the Working Group were able to agree a final text for the proposed IABSE Guidelines on International Bridge Design Competitions. A number of photographs to illustrate the text are being added by the WG Chairman, Naeem Hussain, and it is hoped that the final document will be published soon.

I have been asked to give a presentation on “*Best practice in Bridge Design Competitions*” at the Bridges 2012 conference in Manchester, in March 2012, and hope to be able to take the opportunity to promote the IABSE guidelines to a wide audience.

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## **Henderson Colloquium 2011 – Designing for Construction**

*Report by David MacKenzie, Flint and Neill*

The Colloquium was attended this year by 23 people:

Phil Wilbraham – BAA	Mike Wade – DLT
Tony Black – Transport Scotland	David MacKenzie – Flint & Neill
John Evans – Flint & Neill	Darren Dobson – Costain
Alan Tweedie – Ramboll	Mark Bulmer – AECOM
John Eynon – Wates Group	John Rushton – PBA
Peter Miller – Watson Steel	Phil Wright – HSE
Brian Bell – Bell Johnson	John Tubman – Scott Wilson
Richard Snell – formerly BP and Consultant	Alastair Soane – CROSS
John Parker – WSP	Henning Shultz – Monberg Torsen
Richard Matthews – Arup	Cam Middleton – University of Cambridge
Graham Nicholson – Tony Gee & Partners	Cees van Rooijen – Hollandia
Jack Tarrell – Flint & Neill	

An excellent cross section of the civil engineering profession (and an architect!) was represented at the 2011 Henderson Colloquium and spent two days at Magdalene College debating the topic “*Designing for Construction*”. The debate looked at the issues facing the construction industry in moving from the design phase to the construction phase of major projects and the difficulties that arise in ensuring that what we design is ultimately ‘buildable’. The focus was on the expectations of the client, the designer, the contractor and the fabricator when each of them sees the design and construction requirements and what each party seeks to get out of the process. The over-riding feeling of the Colloquium was the need to ensure early involvement of the construction professionals at the earliest effective time and the differing skill sets of the design/build interface.

The client side was well represented by BAA and Transport Scotland, who both highlighted some of the constraints on the delivery of major projects. The early contractor input was welcomed by both private and public clients alike, but with differing procurement processes available to the two sides: the public sector looks to design and build to minimise public risk. The private sector has greater freedom in method of procurement but often tighter programme constraints that require greater client side involvement.

An interesting proposal was put forward by John Eyton that there are two tribes in the design and construction sector that have slightly different perspectives towards the delivery of engineering and that these perspectives need to be better aligned at the interface. The wide range of designers and contractors attending developed this theme identifying how the demands of the design and those of construction had the same overall focus (remove unnecessary risk, deliver certainty) but often were rooted in slightly different outputs (design quality v construction programme).

There is a significant task to write up the Colloquium and to provide a document that sets down the expectations of all parties at the interface, the considerations that a designer must make when providing a design and the flexibility of construction method that a builder can explore. It is hoped that a best practice guide could be the outcome of the Colloquium. One immediate point which was recognised and will be acted on is the need to ensure that the education of our younger engineers must include exposure to design and construction matters. The watering down of such requirements under the Chartered Engineer training requirements needs to be resisted.



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## Personal Profile – Brian Duguid

When I started my career in civil engineering, graduating from the University of Aberdeen and joining Mott MacDonald's Glasgow office, I had no expectation as to what kind of work I might get involved in doing. My first project was the preparation of bridge assessments for Highland Regional Council, leading me into the bridge field, and I have certainly never regretted this happy accident.



I have now worked for Mott MacDonald for 21 years, working almost entirely on bridges for all that time. After spells in Glasgow, Bishop's Waltham (Hampshire), and Croydon, I am now based in Altrincham, near Manchester. As our Bridges Practice Leader for the North-West, my particular responsibilities relate to encouraging technical and business collaboration between offices, and pushing for improved professional excellence, alongside a wide array of project roles covering the full spectrum of bridge sectors. My latest in a long line of "hats" I have worn is responsibility for increasing the adoption of BIM (Building Information Modelling) in our bridges and infrastructure teams.

Following involvement in various bridge design competitions, I was motivated to take part in the IABSE Henderson Colloquium on this subject in 2007, my first contact with IABSE. I joined the IABSE Working Group charged with preparing guidelines for better competitions, and then took the opportunity to present a paper on my Nottingham Station Bridge design at the IABSE Venice Symposium in 2010. This was only one of several bridges on the Nottingham Express Transit scheme that I had been responsible for over a period of several years.

Amongst several other roles, I am currently the structures technical adviser for Transport Scotland's Borders Railway project, and "bridgemaster" responsible for Besses o'th' Barns Bridge, an unusual 160m long post-tensioned spine beam structure owned by Transport for Greater Manchester. Recent achievements include being invited to give the opening keynote speech at the Footbridge 2011 conference (a version of this has been published in *Bridge Design & Engineering* magazine), and receiving a local ICE Award for Prince William's Bridge at Fort Amherst in Chatham, which was pleasing because of the consciously modest nature of this footbridge design.

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## IABSE-IASS Symposium, London 2011 – Taller, Longer, Lighter

*Summary report from the Organising Committee, by Ian Firth, Flint and Neill*

### "IABSE-IASS London Symposium a roaring success"

Last month, over 1000 delegates from 54 countries attended the annual Symposium in London, and it seems to have been well received and enjoyed by all, much to the writer's considerable relief!

This special joint event between IABSE and IASS had been awaited with eager anticipation for several years. First mooted as long ago as 2006 and approved in principle by both Associations in 2007, this was the first IABSE Symposium to be held in the UK, and therefore hosted by the British Group, since 1984 when it was also a joint meeting between the two Associations. Immediately afterwards, in a pretty exhausted state, I have to admit hoping that the next one is not for another 27 years; at least then someone else can organise it!



**Brian Smith and Ian Firth**

The over-arching title for the Symposium was Taller, Longer, Lighter - meeting growing demand with limited resources. This theme reflects the ever-growing demands on the engineer's ability to stretch the boundaries while recognising the need for us all to do so responsibly in relation to the environmental, economic and other impacts of our work. The theme (and, it has to be said, the venue) seems to have struck a chord, and the



organisers received over 900 abstracts for review. This presented an immediate challenge for the Scientific Committee under David Nethercot (IABSE) and Sergio Pellegrino (IASS) which had to be expanded overnight to cope with the demand. Eventually we ended up with 589 papers in all, with about 26% of these being presented in Technical Forum, a slightly modified form of Poster presentation.

Number of Abstracts and Papers	Total	Response to invitation	For Special Sessions
Abstracts received (from 54 countries)	902	760	142
Abstracts accepted	761	624	137
Papers received	581	457	124
Papers accepted	575	452	123
Keynotes and other invited papers	4		4
Invited papers for the Olympics Session	6		6
Invited papers for the Public Session	4		4
<b>Total papers accepted for presentation:</b>	<b>589</b>	<b>452</b>	<b>137</b>
<i>Percentage of initial submissions</i>	<i>65%</i>	<i>59%</i>	<i>96%</i>
Lecture Format (plenary & parallel sessions)	431	294	137
Technical Forum	158	158	

Some of the papers were organised into Special Sessions with a defined subject or purpose. For example, the teams involved in the Messina Bridge, the Forth Replacement Crossing and the Shanghai Tower arranged special sessions dedicated to these structures. Other sessions were arranged thematically by the chairmen of IABSE Working Commissions and IASS Working Groups. This device seemed to be very successful, and considerably eased the burden of organising the accepted papers into sessions when preparing the final programme. It is a device which I believe could be followed to good effect in future such symposia.

Three interesting keynote lectures were given on the three main threads of the theme by Bill Baker (Taller), Lars Hauge (Longer) and Mamoru Kawaguchi (Lighter). For those of you who missed them, these will be available online through IABSE's e-learning facility in due course. In addition, we were fortunate to secure an appearance by Lord Foster on the opening day who delivered an untitled but predictably polished and stimulating lecture. There followed a plenary session on the main structures and infrastructures for the London Olympics, arguably one of the most successful sessions. I was not able to attend many of the sessions, but my impression was of a generally high standard with lots of really excellent material. Of those that I was able to dip into, the special session on the work of Heinz Isler, the master of the concrete shell structures, which included a wonderful lecture by David Billington, will remain one of the highlights in my mind.

With a full programme of Technical Tours and visits for the Accompanying Persons there was plenty to do, and hopefully all delegates managed to get to see and enjoy something of London while they were here. Those able to go on the Young Persons' Event or the Gala Dinner were treated to an excellent evening out, enjoying the sights and sounds of London from a boat on the river. Thankfully, the weather held out for us - never a predictable situation for London in September, thus allaying another of my many concerns for the week!

I would like to thank the enormous support and assistance provided by the Organising Committee, many of whom are





also members of the IABSE British Group Executive, and in particular my IASS co-chair and partner in crime, Brian Smith, as well as the professional conference organisers Brintex without whom the event would simply not have happened. It was a great team effort.

If you want to see a large number of photographs taken during the event and have the time and inclination to wade through them, we are hoping that these will be available online through the event web site in due course. Keep an eye on [www.iabse-iass-2011.com](http://www.iabse-iass-2011.com).

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*Report from the Scientific Committee by David Nethercot, Imperial College*

Preparing for the September 2011 joint IABSE/IASS Conference began a couple of years ago with the title, format, venue and dates. Clearly the combination struck a chord with the International Structural Engineering Community as we received over 900 offers of papers in response to our initial invitation. Thus the Scientific Committee was confronted with a monumental reviewing task. Thanks to the combined efforts of those concerned and especially the organisational support provided by Ana Ruiz Teran and Jeanette Abela from Imperial College London this, together with the subsequent task of reviewing some 600 final manuscripts, was all conducted smoothly. The result is the conference volume and, of course, the programme of lecture presentations and technical forum sessions that formed the core of the event.

The Scientific Committee also had a hand in securing the three Keynote Presentations – one each on Taller, Longer and Lighter – plus the Opening Address delivered by Lord Foster. All were of particularly high quality and gave the conference a splendid start. Bill Baker used the Burj Khalifa to illustrate the challenges of building Tall, Lars Hauge reviewed the extremes for Long-span Bridges and Mamoru Kawaguchi illustrated Light-weight structures through the example of an enormous Kite; prior to this Lord Foster immediately endeared himself to a largely engineering audience with a slide showing an exploded view of the inner workings of a dust cart taken from the pages of the Eagle Comic.



**Presidents Predrag Popovic and John F. Abel of IABSE and IASS**

Other notable parts of the Programme established by the Scientific Committee were the special sessions on the Messina Crossing, Forth Bridge and Shanghai Tower as well as several sessions organised by IABSE and IASS Working Groups. The Programme closed with a public session “Constructing the Future” at which four presenters gave their views from very different perspectives, after which it was the turn of the audience to make their final contributions by participating in a lively and imaginative discussion.

It was quite a task to plan and deliver all this but, from the reactions of those who attended, worth every late night, tense wait and frustrating moment. Would we do it again? Of course, but not for another 50 years.

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*Attendee's Report by James Parsons, Cass Hayward*

**“Taller, Longer, Lighter ... But should we?”**

It's in our nature, especially as structural engineers, to want to design a building or a bridge taller or longer, or as light as possible. The conference built on this theme with a dramatic series of presentations that included the Burj Khalifa (tallest building at 828m) and the proposed Messina Straights Crossing, which with a main span of 3300m will become the worlds longest main span suspension bridge. Of course, the majority of presentations were concerned with significantly more modest structures and the associated issues and challenges that the majority of us deal with.

The conference ended with a series of lectures that highlighted the sustainability issues that affect all of us, wherever we are around the globe not just the UK. At the end of the conference I was suddenly brought “down to earth” and I was left with the feeling “but should we?” And the phrase “more for less” still stands out for me, and on this basis I wonder whether there is also a moral facet to “taller, longer, lighter”.



With the world's population now at 7 billion and set to increase to 10 billion by mid-century, with China predicted to build the equivalent of the USA in the next ten years, with the planet on course to build the equivalent of all the cities the planet currently has, the call to do “more for less” is a challenge to us all. Are the “tallest or longest” projects the most efficient use of the planet’s rapidly reducing resources? So is the construction of structures like the Burj Khalifa or the Messina Straits Crossing a proper use of diminishing resources?

Take the Messina Crossing with a 3300m main span. The weight of the main suspension cables is predicted to be about 170,000 tonnes (the weight of the deck and surfacing is being optimised to the kilogram – for every extra one kg of permanent load the main cable increases by 1.8 kg.). The cable weight is 3.5 times the current longest suspension bridge and almost equivalent to the total of the next five longest suspension bridges. Or equivalent to 16 times that used at the Humber Bridge, UK’s longest suspension span at 1410m, which currently ranks fifth. Of course the Messina Crossing will be significantly wider than the Humber Bridge and also carry two lines of railway.



**Messina plenary discussion**

I remember visiting the Humber Bridge as a student shortly after it opened to traffic and being told that the total length of the main cable wires would circle the earth almost two times. In comparison, the wire length for Messina Crossing will circle the earth over 23 times and is enough to reach the moon and back and encircle the earth four times. The scale factor with increasing span, which also affects the towers, cable anchorages and foundations is staggering.

My concern is that if a structure such as the Messina Crossing is constructed then another community in another country will want an even longer crossing, even if it is only longer by a few metres in order to hold the world record. I don’t believe the planet can afford for this to happen. Do you?

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*Report from the Young Person’s event by Jason Barrington, Mott MacDonald*

After the second day of proceedings at the 2011 IABSE-IASS Conference in London, the Young Person (YP) delegates were invited on board a Thames River Boat for a relaxed evening social event. The event sponsored by Mott MacDonald provided a unique opportunity for networking, sightseeing and gaining many interesting facts about the numerous bridges and structures along the river.

Following the afternoon programme at the QEII conference centre, YPs were escorted the short distance to Westminster Pier where they boarded the “Viscountess,” a 1920s Thames Riverboat. Everyone was given some time to adjust to the floating venue and find their sea legs as they enjoyed some drinks before the welcoming address.



Chris Walker, the YP Representative for the Conference Organising Committee opened the event and welcomed people before handing over to Chris Davis the Managing Director for Transportation of Mott MacDonald. Mr. Davis welcomed the guests to this unique event and exhorted them as young professionals by reflecting on the career of Isambard K. Brunel. He noted that many of Brunel’s great engineering accomplishments were as a young person including the Thames Tunnel over which the tour passed. The Tunnel has recently been refurbished to carry the East London Line across the Thames as part of the London Overground Network showing the truly lasting impacts of the young Brunel.

Before long the boat cast off from Westminster Pier and the River Tour began while drinks and canapés were served. On board there were delegates from all over the world and for many this was their first experience of





the London sights. A professional Blue Badge Guide, Stephen Szymanski, the self proclaimed Bridge Tour Enthusiast, lived up to his claim as he provided a thoroughly interesting and entertaining tour of the river.

There was a real buzz through out the boat as countless conversations took place and many connections and friendships were made. As we passed Greenwich we had the privilege to have Ian Liddell formerly of Buro Happold give a technical presentation on the design and construction of the O2 arena (formerly known as the Millennium Dome).

As the boat rounded the Thames Barrier and began its return journey, dinner was served by the catering staff. And as the conversations continued to flourish on technical and non-technical matters, in English or one of the many other language groups represented, the evening was thought by all a huge success. Everyone was treated to a beautifully clear evening to see the London sky line by night.

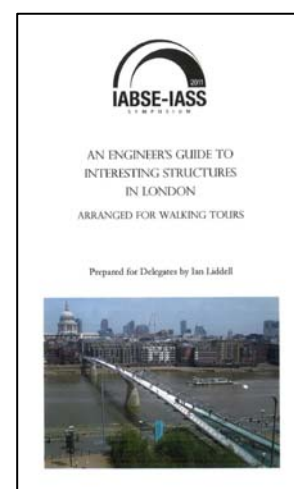
Once back at Westminster Pier people were enjoying themselves so much that they began to sing and express dismay at the imminent end of the evening. Everyone who attended will no doubt take with them great memories from this IABSE-IASS Young Person's event. Thanks to all who made this event possible!

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*Report on publications, by Brian Duguid, Mott MacDonald*

An excellent booklet, titled “*An engineer's guide to interesting structures in London*” was prepared by Ian Liddell and provided to all delegates to the Symposium. This was aimed at delegates wishing to walk around London and see buildings with particular engineering interest, ranging from Westminster Hall to the British Museum court roof. It's wide-ranging and well illustrated, and refreshingly honest in offering opinions on many of the structures included.

The Symposium also saw the launch of “*IABSE – The First 80 Years*”, by Tom F. Peters, a thoroughly researched history of the organisation, from its beginnings in the period immediately after the First World War. It contains a great deal of information on important personalities of twentieth-century structural engineering well beyond what the title might suggest. IABSE members who didn't receive a complementary copy by attending the Symposium can purchase one at <http://www.iabse.org/publications/onlineshop/index.php>, or download a complete version free of charge from [http://www.iabse.org/pdf/IABSE\\_History\\_web.pdf](http://www.iabse.org/pdf/IABSE_History_web.pdf).



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## Milne Medal Award 2011

The British Group of IABSE is awarding the Milne Medal for excellence in structural design for 2011 to Ed Clark (pictured). Ed is a Director of Arup in London. He studied engineering at Leeds University and joined Arup in 1996. He has designed across a wide range of different project typologies from art installations to city masterplanning. Key projects have included the Selfridges building in Birmingham and, since 2008, the Serpentine Gallery Summer Pavilions.

He will be presented with his medal on 3 November 2011 at the Institution of Structural Engineers, 11 Upper Belgrave Street, London SW1X 8BH (see <http://www.istructe.org/courses/display.asp?ID=4835> for details).

After the presentation he will present the Milne Lecture with his title “*Roller Coaster*”. He will use this lecture to explore how design fits within the profession of structural engineering. This journey will address what we might mean by design excellence and what purpose it should serve. It will question our grasp on the roller coaster which is the design process, and why we're so rarely willing to learn from our mistakes.

After the Lecture the British Group will entertain Ed and his guest at a dinner. Members and others are welcome. The charge for the dinner is £54.00 (includes VAT). If you wish to attend the lecture and/or the dinner please contact Louse Clifton, [louise.clifton@istructe.org](mailto:louise.clifton@istructe.org).





## Annual Lecture 2011 – Keith Brownlie – 5<sup>th</sup> May 2011

### *Where to Now? – Ten Years of 21<sup>st</sup> Century Bridge Design*

*Report by Peter Curran, Gifford*

Keith Brownlie of Wilkinson Eyre Architects addressed and engaged a full audience at the Institution of Structural Engineers in London, including an array of eminent bridge engineers, reflecting provocatively on his role as a bridge designer, the impact that the millennium projects have had on bridge design and the direction it has taken since. The title was prompted by the suggestion that was made to him a little while ago that perhaps bridge design was heading in the wrong direction, but is it?

Keith observed that the millennium period and since, had seen an increased role for Architects in the design of bridgeworks with, at the zenith, possibly three primary projects setting the scene for the era, the Gateshead Millennium Bridge, the Golden Jubilee bridges and the London Millennium Bridge. An array of other structures created at the time were also illustrated, most reflecting the optimism of the time and most far from demure, some not well ordered at all. Keith suggested that a consequence of the period was the response of some designers to visually inflate their offerings, often to what would appear to be the extreme, regardless of what would ordinarily be considered to be the drivers for good design.

In contrast he presented ten bridges from his own practice illustrating each in turn and highlighting their specific characteristics. He proposed that all were informed by ten key drivers rather than any reaction to that which had gone before, all born out of a consideration of logic. The drivers identified and discussed and illustrated through an array of visually stunning examples were:

Symbolism  
Economy  
Technology  
Situation  
History

Trajectory  
Destination  
Perception  
Evolution  
Adaptation



*Slide from presentation illustrating “adaptation”: South Quay Footbridge, London, and Peace Bridge, Derry*



So where to now? Well underground apparently! Having spent 15 years developing relationships and helping to change attitudes in the bridge field Keith was turning his attention to tunnelling, with his then-recent win of the Fehmarnbelt tunnel as part of the Ramboll team. He pondered if tunnel engineers would be a harder nut to crack than bridge engineers! Time will tell.

With over 100 slides presented and with the usual Brownlie humour and wit the evening proved to be a delight and a great success. In his vote of thanks Ian Firth, Vice-Chairman of the IABSE British Group, summed up perfectly by saying we had been offered a visual treat, an insight into bridges of the highest quality.

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## Footbridge 2011, Wroclaw, Poland

*Report by Lee Franck, Arup (photos by Luca Zanaica, NET Engineering)*



**Wroclaw sights**

The 4th International Conference Footbridge took place in Wroclaw from July 6th – 8th 2011. It was organized by the Wroclaw University of Technology and under the auspices of IABSE, the Polish Academy of Sciences (PAN), the Ministry of Infrastructure and the city of Wroclaw. The Conference received 216 abstracts, of which 162 papers from 38 countries were accepted for presentation by the Scientific Committee, including 7 keynote lectures prepared by invited specialists.

The Conference made its debut in Paris in 2002 after two long-span footbridges experienced vibration problems. This motivated the better understanding of these phenomena and the conference served as a platform of exchange for the latest research into this domain. Whilst footbridge dynamics still occupied an important part of the agenda of the subsequent conferences in Venice in 2005, in Porto in 2008 and also in Wroclaw in 2011, the conference program now addresses the wider aspects of footbridge design.

The main topics of the Footbridge Conference in Wroclaw included the challenges of footbridge design in an urban context, the importance of the integration of footbridges into the natural environment, the issues related to operation, maintenance and

revitalization of footbridges and the possibilities in the use of innovative materials in footbridge design to which a pre-conference workshop was also dedicated.

The city of Wroclaw, one of the oldest and today the fourth largest city in Poland, is often referred to as “Lower Silesian Venice” for its location on 12 islands. Participants were not only given the opportunity to visit some of Wroclaw’s 300 bridges and footbridges, but were also introduced to the city’s most historic venues.

The Footbridge Awards were held in Wroclaw’s 14th century gothic Town Hall at the centre of the city’s Rynek (Market Square). The Gala Dinner (pictured below) was held at the Centennial Hall which was built to commemorate the 100th anniversary of the Prussian revolution against Napoleon’s occupation, hence the name. At the time of its construction in 1913 the reinforced concrete dome was the largest of its kind and is a UNESCO World Heritage Site.

The hospitality of our Polish hosts was exceptional and their choice of venues allowed the participants to get a feel for Wroclaw’s long history, from medieval market squares to post-war restoration and



**Footbridge Awards ceremony at Town Hall**



the early development of reinforced concrete structures.

But Wroclaw's development hasn't stopped there – after joining the European Union it has experienced very rapid modernisation and its role as a host for the UEFA European Football Championship 2012 has recently stimulated intensive infrastructural development.

Like many other cities around the world it faces challenges in managing its infrastructure investment, which is directly in line with this year's conference theme "*Attractive Structures at Reasonable Cost*". But what does "reasonable cost" mean? Are there benchmark values that could be used? What about the "value" that they might generate? And how could we measure that? All of these questions were addressed by Brian Duguid in his keynote lecture. In his paper he presents the results of a survey of the cost of landmark footbridges built within the last 15 years which can be used by designers and promoters to benchmark the cost of their projects and to get a feel for how their aspirations match their budgets.



**Wroclaw bridge**

I would also like to congratulate Cezary M. Bednarski from Studio Bednarski for a very critical and stimulating next keynote lecture and invite everyone to read his paper where he states: "*Fin de Siecle of the 20th Century and the first 10 years of the 21st Century saw a proliferation of eye catching but inefficient structures delivered to satisfy egoistic agendas of clients and their designers ... One day we may finally see a client suing a competition jury for selecting a design that is inadequate and/or not affordable.*"

He continues by discussing a number of bridges and bridge projects where engineers were forced to make a structure work that never made any structural sense. Ludwinow Bridge in Krakow is one of those examples which unfortunately was chosen by the conference's organizers as their logo. This might have put off some designers to participate and stimulated others to add an additional bridge support to the logo in their presentations! Bednarski's outrage at the Polish design did indeed prove controversial with one of the

engineers who replied that "*in his view the engineer's role is to realize the architect's vision*".

This view did not receive much support within the audience and a very different approach was also backed by Mike Schlaich during the closing ceremony. He illustrated the benefits of the collaboration between architect and engineer from the very beginning of a project and emphasized (as did Bednarski) the importance of having engineers as part of the judging team for competitions. He beautifully summarised this by stating that "*the art of engineering is undividable*" which is inspiration enough for me until this discussion can hopefully be continued at the next Footbridge Conference in 2014 in London.



**Gala Dinner at Centennial Hall**



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