Editorial

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Welcome to the final issue for 2016. This *Bridge Engineering* journal publishes a variety of peer-reviewed research and technical papers that cover a wide range of topics within the field of bridge engineering, such as planning, design, construction, maintenance, management, monitoring and upgrading of all types of bridge structures. This journal provides a forum where the most recent knowledge acquired by researchers, designers, contractors, and owners is effectively shared and disseminated worldwide. Our readers and authors are extensively spread throughout the world. Keeping up-to-date with the most advanced and recent knowledge and developments is absolutely essential for bridge engineers. Being aware of the current state-of-the art is very important if one wishes to be able to step further forward and innovate. This is where *Bridge Engineering* plays a very important role within our profession. If you wish to take a look at other issues published previously, or to get an early view of accepted publications that will appear in the future, these are available through the ICE Virtual Library (www.icevirtuallibrary.com).

Before presenting the contents of this issue, the ‘Bridge Engineering’ exhibition, which is currently on in the ICE Headquarters at One Great George Street in London, deserves a very special mention herein. It inaugurates a newly refurbished exhibition space, the Infrastructure Learning Hub, which has been sponsored by leading UK engineering and construction companies. The organisers describe it as ‘an inspirational place for visitors young and old to learn about one of the many examples where engineers create, solve, design and innovate to shape a better world’. The aim of this exhibition is ‘telling the human, social and engineering story of bridge building and demonstrating to visitors the value that infrastructure delivers to communities around the world’. The visitors will have the opportunity of learning more about some past, recent, and future bridge examples (such as the Thomas Telford’s Menai Strait suspension bridge, the Severn Bridge, the Rotherhithe Thames pedestrian bridge and the Queensferry Crossing). The exhibition also includes a dedicated interactive zone, allowing visitors and inspiring children to become civil engineers for the day by constructing their own bridges. A 31 m-long suspension bridge made of more than 200 000 Lego® bricks (which holds the current official Guinness World Record for the longest bridge span in the world made entirely out of these interlocking plastic bricks) is

part of this exhibition that will continue open to the public until April 2017 (Figure 1).

The current issue of *Bridge Engineering* includes six papers and two book reviews.

Enright, O’Brien and Leahy (2016) establish procedures to identify permit truck types from weight-in-motion (WIM) data. These are non-standard trucks, which require a special permit to use the roads, and induce lifetime maximum loading in very short- and medium-span bridges. Rules are developed to identify these permit trucks in European and US WIM data, based on their axle configuration, leading to the definition of different statistical properties for standard and permit traffic loads.

Walsh (2016) reviews the full process involving the assessment and strengthening of the Yara Bridge and the Gardiners Creek viaduct, both built in the 1960s, which are now integrated with a major elevated structure in the Melbourne CityLink tollway.

This issue includes two papers authored or co-authored by D Collings. The first of them (Collings, 2016a) is a technical article about the planning, design and construction stages of the Second Penang Bridge in Malaysia, one of the longest structures in South East Asia, with a total length of approximately 22 km. This paper focuses on the seismic design issues and the high-damping rubber bearings used for seismic isolation. The second of these two papers (Collings and Sagaseta, 2016) is a review article on the arching and compressive membrane action in concrete bridges, with an extensive reference list highlighting work done on this topic. This article disseminates some of the findings of the first author through his research studies at the University of Surrey.

Lantsoght, van der Veen, de Boer and Walraven (2016) present a comparison between Eurocodes and North American AASHTO prescriptions when obtaining the design shear forces and the shear resistances in a set of ten reinforced concrete short-span solid-slab bridges. The authors also refer to experimental work conducted at Delft University of Technology. The authors outline the different provisions and demonstrate how the application of different codes, with different associated reliability indexes, lead to different results.

Figure 1. ICE staff members lining up close to the Lego® bridge, 'Bridge Engineering' exhibition, One Great George Street

The last technical paper in this Bridge Engineering issue, by Biliszczyk, Barcik, Onysyk, Toczkievicz and Tukendorf (2016) is focused on the design and construction of two cable-supported concrete bridges in Poland: a cable-stayed bridge (Redzinski Bridge) and an extradosed bridge (Kwidzyn bridge), both the longest in each typology built in Poland. In addition to the detailed description of these two bridges, the authors highlight some of the main similarities and differences between these two cable-supported bridge typologies.

Finally, this issue also includes two book reviews performed by *Bridge Engineering* Editorial Advisory Panel Members. Collings (2016b) reviews Christianson and Marston's (2015) book entitled *Covered Bridges and the Birth of American Engineering*, whereas Cooke (2016) reviews the second edition of *Bridge Deck Analysis* by OBrien, Keogh and O'Connor (2014).

I would like to thank all the authors for their papers and contributions to this issue of *Bridge Engineering*. We hope they are of interest to our readership. As you know, all of these papers are open for discussion. If you wish to submit a contribution discussing any of these papers, please follow the instructions which are included at the bottom of the last page of each

paper. Manuscripts for future issues are very welcome and can be submitted online at www.editorialmanager.com/bridge

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