Editorial

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Bridge engineering is a challenging career. Social demands mean that bridges not only have to be longer, taller and wider, but also safer, more dazzling, more environmentally friendly and more durable. In order to do so, bridge engineers have to master not only traditional disciplines such as physics, or strength of materials and construction materials, but also have to develop aesthetic sensitivity in addition to static awareness. Moreover, a profound understanding of the relationship between the structure and the environment is also required; the viaduct has to be visually inserted in the landscape catastrophic effects from natural hazards have to be avoided, and any impact that the bridge can inflict on the local habitat either during construction or over its lifetime has to be minimised. In addition to this, bridge engineering has become, as any other human activity, globalised. This requires working in different cultures, with different techniques and technologies, and with international and interdisciplinary teams. As instructive as this can be, this Babel of standards, mentalities and work habits seems sometimes overwhelming. Besides, contrary to what a layman could think, the construction industry is a cutting-edge discipline that uses new construction materials, new construction methods, new managing systems and satisfies new demands. Avant-garde concepts such as resilience and sustainability, or new techniques like BIM have to be applied in design, construction and management. Innovation and research is the key, and engineers have to broaden constantly the borders of knowledge during their daily practice.

The journal of *Bridge Engineering* tries to ease the tasks of bridge engineers by gathering state-of-the-art and recent technical papers of practical significance. The current issue gives us, as structural engineers, the opportunity to increase our competence and knowledge on five different down-to-earth areas. This shows the wide range of topics our journal covers in order to do justice to the many different aspects of modern bridge engineering. Moreover, in this ever-changing world, our commitment is to make all the relevant information available as soon as possible. In order to do so, the journal publishes papers online ahead of print. These are available to subscribers on the ICE Virtual Library website at <http://www.icevirtuallibrary.com/toc/jbren/0/0>.

In this issue, the first authors, from Ireland, address the topic of decision making for infrastructure managers in a paper where the minimum level of confidence that is required in

order to make a rational intervention decision is studied, and how uncertainty can affect it (Hanley and Pakrashi, 2016). The second paper (Oliveira Pedro and Reis, 2016) emphasises the importance of mastering the state of the art before starting to design, to build or to exploit a given infrastructure. Oliveira Pedro and Reis from Portugal give us a thorough list of the main landmarks on steel–concrete composite cable-stayed bridges over the last 50 years by analysing their main features (Figure 1). Furthermore, a contribution from Malaysia and Iran (Ghazvinei *et al.*, 2016) deals with an interdisciplinary (hydrology, geotechnics and structures) threat to our bridges – abutment scour. This paper proposes a model that gives a reliable prediction of the scour of a protruding abutment for uniform sediment. Later in this issue, Pipinato (2016) shows the design steps and the outcome for an impressive 1.1-km-long multispan network arch bridge in Italy. A series of analyses of the different parameters that govern the solution has been done and the actual values of the final solution have been chosen in order to optimise the material grade, the structural shape and the structural detailing. The last paper presents a study by a team from India (Kulkarni *et al.*, 2016). The primary aim of this paper is to see the applicability of the response reduction factor prescribed in the seismic codes for bridges with tall piers. Finally, we end this issue with a book review by Iain Gibb (2016) on the book *Bridge Engineering Handbook, 2nd edition – Substructure Design* (Chen and Duan, 2014).

Figure 1. Arenas Viaduct, Spain

I would like to thank all the contributors for their efforts and for sharing with us the fruit of their endeavours. Bridge engineers are welcome to participate in the journal, either by sending original papers that address any aspect of the bridge engineering discipline, or commenting on and discussing the content of the published papers. If this is the case, a response may be sent to the journal; details on the procedure can be found at the end of each paper.

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