Editorial

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Current available papers outlining projections of UK government expenditure on infrastructure in the medium term suggest that the trend is on the up. The obvious inclusions in this are the substantial spend on extension of the high-speed railway network, as well as substantial expenditure in the road network throughout Britain. This suggests some very exciting times ahead for our profession with many new challenges. In addition, we have recently seen the successful opening of two very large cable-stayed road bridges in the UK, testament to our profession and the UK teams that delivered design.

We all, as professionals, now see the challenges of the continuing focus on ways to improve quality of design, reduce cost of design, design in collaborative environments and the desire to speed up the design process. We are privileged in the UK to have this journal, which offers us the opportunity to exchange our experiences in design and enable those with developing methods to publish them for consideration by peers, which can only help us respond to the challenges made to our profession. This edition of *Bridge Engineering* includes a number of papers that do exactly that, with many focussing on the assessment and reliability of existing structures.

In their paper, Hendy *et al.* (2018) present the findings of a study examining the impact of reducing partial factors in the UK assessment standards. Their study was undertaken for Highways England and was implemented on the back of adoption of a similar method in the Netherlands. They argue that adoption of such a method could be applied, ensuring appropriate structural reliability levels are maintained for existing infrastructure while the cost of strengthening existing infrastructure is reduced in comparison with the status quo.

Hanley *et al.* (2018) present their study, which determines the reliability of three bridges by applying live load prescribed in old UK loading standards and in contemporary standards. They demonstrate that the older bridge stock is less reliable when assessed to more modern standards. They also quantify the increase in reliability that can be gained when assessing using real traffic loads.

Proske *et al.* (2018) present their research into the transverse forces generated on masonry arch bridges by debris flow. Their study also encompasses the behaviour of this type of bridge under this dynamic force. Their study highlights the shortfall

of research into transverse debris loading on bridges in comparison to the vertical loading generated by this event.

An interesting comparison of predicted scour depths using US Federal Highway Administration scour analysis methods with laboratory studies is made by Latifi *et al.* (2018). Their paper applies these methods to the very substantial 300 m long, 33 span double-deck stone arch Sio-Se-Pol Bridge in Iran. In this comparison, the authors found a good comparison between the methods that they employed.

Imam and Salter (2018) present their study into the accumulation of fatigue damage in riveted plate girder railway bridge decks resulting from historical loading. Their study proposes three load models to account for historical loading to estimate historical fatigue damage. They conclude that, while historic fatigue damage is not insignificant, the accumulation of fatigue damage in short-span riveted plate girders is largely attributable to more recent loading. They suggest that planning of remedial works to extend the fatigue life of the existing rail bridge stock takes account of historical fatigue damage to prioritise the work effectively.

We finish this edition with a paper by Saeed and Kwan (2018), who present a method for the determination of the relationship between cable force and cable length for a cable-stayed bridge. Their method is relatively direct and is correlated to the trials that they undertook.

I hope the readership find these papers as interesting and informative as I have in editing this journal. We would encourage readers to submit discussion pieces on these articles through the regular channel. We also would encourage the entire readership to share their experiences in the profession by way of submitting an article to the journal in our regular editions.

REFERENCES

- Hanley C, Frangopol DM, Kelliher D and Pakrashi V (2018) Reliability index and parameter importance for bridge traffic loading definition changes. *Proceedings of the Institution of Civil Engineers – Bridge Engineering* **171**(1): 13–24, <https://doi.org/10.1680/jbren.15.00049>.
- Hendy CR, Man LS, Mitchell RP and Takano H (2018) Reduced partial factors in UK standards for assessment of bridges and structures. *Proceedings of the Institution of Civil Engineers – Bridge Engineering* **171**(1): 3–12, <https://doi.org/10.1680/jbren.17.00008>.

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- Imam B and Salter PA (2018) Historical load effects on fatigue of metallic railway bridges. *Proceedings of the Institution of Civil Engineers – Bridge Engineering* **171(1)**: 49–62, <https://doi.org/10.1680/jbren.15.00046>.
- Latifi M, Chamani MR, Halabian AM and Jafari MR (2018) Potential scour evaluation around piers of historical masonry arch bridges: a case study. *Proceedings of the Institution of Civil Engineers – Bridge Engineering* **171(1)**: 37–48, <https://doi.org/10.1680/jbren.16.00023>.
- Proske D, Krawtschuk A, Zeman O, Scheidl C and Chiari M (2018) Debris flow impacts on masonry arch bridges. *Proceedings of the Institution of Civil Engineers – Bridge Engineering* **171(1)**: 25–36, <https://doi.org/10.1680/jbren.16.00005>.
- Saeed NM and Kwan ASK (2018) Displacement and internal force control in cable-stayed bridges. *Proceedings of the Institution of Civil Engineers – Bridge Engineering* **171(1)**: 63–76, <https://doi.org/10.1680/jbren.16.00010>.