Editorial

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Spending my formative years as a teenager in Birmingham, the Chamberlain family has had a long association with the city and whilst Neville Chamberlain will be remembered as a former Prime Minister, his father Joseph was also a British Statesman. As I was contemplating writing this editorial some words of Joseph Chamberlain from a speech given in 1898 sprung to mind.

‘I think that you will all agree that we are living in most interesting times I never remember myself a time in which our history was so full, in which day by day brought us new objects of interest, and let me say also, new objects for anxiety’.

As I move into my final year as chair of the Institution of Civil Engineers’ *Maritime Engineering* Journal I was struck by all the challenges and opportunities facing both the engineering profession (industry and academia) as well as the UK as a whole and, to a lesser extent, this journal.

The issue you have with you is the last one to be published as a hard copy, with the journal moving to online-only publication in 2019 with an annual compendium of papers printed at the end of the year. This is due to the changing needs of readers and looking towards a more sustainable future. The move to online-only publication is a further part of the wider trends among practice and scientific journals and allows authors to use more complex formats to present their ideas and innovation. It also creates a more flexible and immediate environment for interaction between authors and their readers, strengthening the impact of scientific articles that is so highly desired nowadays. It is not only a realisation of efficiency but also of active trends to create communities of learners at every professional level.

It has been a privilege this year to have been a part of some of the events held to celebrate 200 years since the founding of the Institution of Civil Engineers. Whilst, some of these events have been celebrating past achievements, this bicentennial year has also been a focus for the future and how to create a sustainable world, enhancing the global quality of life.

As engineers and scientists working in marine (coastal and offshore) and estuarine environments we have much to contribute to

the future infrastructure challenges, whether related to energy security and the expanding offshore renewables sector or coastal flooding and climate change implications. In fact energy infrastructure and coastal flooding are often inter-related with essential components of energy infrastructure located along coastlines. With the increasing probability for storm damage the consequences of coastal flooding to land based energy infrastructure can be significant, ranging from small-scale local power outages to broader-scale power outages, which in turn may lead to economic stress, and associated effects to, critical infrastructure. These are global problems and ones that, as engineers and scientists we are challenged to tackle in an effective and sustainable manner.

Participating in a recent conference run by the Royal Academy of Engineering titled ‘Engineering and education at a time of transformative change’, I was struck by the challenges to equipping the next generation of engineers to a profession being more and more influenced by technology. The use of Artificial Intelligence (AI) techniques to provide methods to improve learning outcomes was particularly fascinating. Such techniques may also lead to learning tailored to an individual’s needs in the future.

The paper of Molina Serrano *et al.* (2018) in this issue looks at AI techniques (Bayesian networks) applied to the relationship between the variables that define the use of liquefied natural gas (LNG) for powering vessels used in Short Sea Shipping in Europe. LNG offers lower CO₂ emissions compared with conventional fuels enabling a reduction in pollution levels in densely populated coastal areas with high marine vessel traffic.

The paper of Polidoro *et al.* (2018) looks at the effect of double-peaked wave spectra (swell and wind wave) with respect to the response of gravel beaches. The paper presents a summary from a (2D) physical modelling study assessing gravel beach profile response under wave spectra characterised by swell-wave and wind-wave periods in various combinations. The results from this modelling were then compared with the parametric model Shingle and the numerical model XBeach-G. Based on this 2D physical model study, a new parametric model, Shingle-B, was proposed and an online tool developed. This new tool is now available on the website for

the National Network of Regional Coastal Monitoring Programmes of England (CCO, 2018).

The final paper in this issue looks at Orphan breakwaters. Allsop *et al.* (2018) investigate the issues related to the many breakwaters that remain the primary sea defences for small harbours but where there is insufficient or no longer any income available to support their essential maintenance/repair. The paper primarily aims to address two questions

- If these structures were to fail, to what height might they be reduced?
- How much wave protection would they provide in their collapsed form? – what protection is given when they collapse?

The paper presents the results from some simple exploratory tests aimed at reproducing many of the failure processes and compares these results against historical data.

I hope you find the papers in this issue of interest and I would like to take this opportunity as we approach the end of 2018, to wish you the very best for 2019.

REFERENCES

- Allsop NWH, Pearson AN and Bruce T (2018) Orphan breakwaters – what protection is given when they collapse? *Proceedings of the Institution of Civil Engineers – Maritime Engineering* **171**(4):167–183, <https://doi.org/10.1680/jmaen.2018.13>.
- CCO (Channel Coastal Observatory) (2018) *Shingle-B*. CCO, Southampton, UK. See <http://www.channelcoast.org/ccoresources/shingleb/> (accessed 05/12/2018).
- Molina Serrano B, González-Cancelas N and Soler-Flores F (2018) Sustainable short sea shipping: social component analysis through decision networks. *Proceedings of the Institution of Civil Engineers – Maritime Engineering* **171**(4): 135–144, <https://doi.org/10.1680/jmaen.2017.19>.
- Polidoro A, Pullen T, Eade J *et al.* (2018) Gravel beach profile response allowing for bimodal sea states. *Proceedings of the Institution of Civil Engineers – Maritime Engineering* **171**(4): 145–166, <https://doi.org/10.1680/jmaen.2018.11>.