Editorial

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Having taken over from Bill Addis as Chair of the Editorial Advisory Panel for this journal, I am looking back over my own career and using my own experience to understand how papers we publish serve the needs of my fellow members of the Institution of Civil Engineers (ICE). I am reflecting on the aims of the journal, as set out and implemented by my predecessor and, in doing so, I am looking forward to how we should develop and strengthen the content in our rapidly changing environment.

My own career began with a BSc in Civil Engineering from the University of Bristol. It was the late 1960s, which is such a different age that we can look back on the period with the detachment of historical perspective. In the UK, we were fortunate to be separated from the harsh reality of the American civil rights and anti-Vietnam war movements, however the culture of protest was all around us. Just a few months after I began as an undergraduate, the university's Senate House was occupied by 800 students whose main demand was that the Arts and Technical College students be given equal rights to the use of the student union. Unlike the protests in other countries, the protest was peaceful and there was a sense that it was happening because there was change in the air and the UK needed to be part of it. Through the Council of Engineering Institution's 'The Engineer in Society' initiative, students were encouraged into broader study within civil engineering courses (Baxter, 1968). This included politics (lectures by the local MP Anthony Wedgewood Benn (later known as Tony Benn) and university politics lecturer Anthony Sampson). In 1969, the radical student leader Jack Straw was elected president of the National Union of Students. Within the Department of Civil Engineering, a group of students put forward a paper 'Towards reform of civil engineering', which included the radical suggestion that the course might include a study of the history of construction.

As I started working in the civil engineering industry, it was striking how many eminent engineers were advocating the study of engineering history (Addis, 2017; Pugsley *et al.*, 1974, 1975). I was working in civil engineering contracting with Kier, both in the UK and in Hong Kong, and I was probably typical of young civil engineers in knowing much about the ICE and its history (a requirement for the Professional Review, which I passed in 1977) but little about the history and heritage of civil engineering works. When I moved from civil engineering contracting to structural engineering consulting and joined Buro Happold in 1984, I met and worked with Ted Happold and the inspiring engineers he had gathered together in Bath, UK.

In his passion for engineering history, heritage and conservation, Ted Happold was typical of the leading engineers of the time.

He had chaired the task group that prepared the first (IStructE, 1980) and the second (IStructE, 1996) editions of the Institution of Structural Engineers' *Appraisal of Existing Structures*. In the introduction to the first edition, he had written that

The art of appraisal of structures is different from design. In design, forces follow the choice of form and the analysis follows that. In appraisal, the engineer is left face to face with an existing structure of definable qualities and must determine its condition and suitability of use. This is not an easy task. In defining the structure's qualities, the engineer may gain from the experience of other engineers' methods, available testing procedures and current developments in analytical techniques. (IStructE, 1980: p. 1)

Ted Happold was Professor of Architecture and Engineering Design at the University of Bath, where he introduced lectures on engineering history and heritage into the undergraduate curriculum, which he encouraged staff from Buro Happold to attend. I quickly gained an interest in history, heritage and conservation. Living in the World Heritage City of Bath, and with a developing specialism in timber engineering, I had plenty of opportunity to build knowledge and skills in the field.

In 2006, I was appointed Professor of Timber Engineering at the University of Bath. Initially this was a part-time appointment but in 2009 I left Buro Happold and worked full-time at the university until my retirement in 2016. During this time, I was able to draw on my many years of experience in civil and structural engineering and, with colleagues in the Department of Architecture and Civil Engineering, I contributed to the teaching of conservation engineering to both architects and engineers.

What a change since the 1960s. At that time, engineering history and heritage was only just gaining recognition as an important thread of knowledge, which is fundamental to the profession. In his time as Chair of the Editorial Panel, Bill Addis encouraged the journal to broaden its outlook in the areas of renovation, restoration and conservation. In his leadership of *Engineering History and Heritage* over many years, he added to both the quality and scope of papers. In common with all the ICE journals, *Engineering History and Heritage* is international in outlook and includes papers from authors and on topics from around the world. Bill contributed enormously to this. I have taken on a journal of the highest quality (as shown by recent prize-winning papers, which include the 2016 and 2010 Telford Gold Medals for the best papers of their year in the whole family of ICE journals).

Now we are looking ahead to how the journal may develop. We intend to continue to publish a diverse range of papers from philosophy, to engineering history and heritage construction. In judging suitability, there is an ambition that all papers published in the journal should have relevance to practicing engineers. I remember how little I knew, as a young engineer, about the ICE's important collection. The Editorial Panel has recently decided to draw on the ICE archives by re-publishing significant historic papers. The archive is now available in the ICE Virtual Library but in republishing them we highlight and draw attention to their quality and importance. In demonstrating the quality of this resource, we hope that it will encourage members to delve deeper. The first of these papers is published in this edition of the journal. It is 'Introduction to 'Steel Skeleton Construction in Chicago''; the original paper was written by Edward Clapp Shankland in 1987, and now it is accompanied by an introduction by Donald Friedman (Friedman, 2018).

In contrast to the Friedman paper, the other paper in this edition of the journal, 'Wrought iron bridges: Guinness Bridge, Ireland' by Nora Gyetvai, Linh Truong-Hong and Debra F. Laefer, shows how finite-element analysis of a model prepared from laser-scanning was used in the bridge assessment (Gyetvai *et al.*, 2018). Such methods could never have been imagined 40 years ago and the pairing of the two papers illustrates that it is now possible to draw on historical knowledge of construction and materials, as applying well modern techniques. It is sad that the analysis of the Guinness Bridge did not have a more positive outcome for the bridge, but the development of the knowledge and skills, shared with the wider community of engineers through this journal, will lead to further development and use of the techniques. I am sure that during my term in this role, I will return to reflect on the excitement there is in modern construction, particularly in the field of restoration and renovation.

This journal is the voice for the Institution in engineering history and heritage. The Panel for Historic Engineering Works (PHEW) is the group within the Institution that exists to bring together the expertise and knowledge of its specialists and, as its chair, Gordon Masterton, a past President of the ICE, continues the tradition of eminent engineers taking a lead in showing the significance of *Engineering History and Heritage* to the members. This demonstrates the Institution's continued strong commitment to

promoting our history and heritage, particularly in the year in which the ICE is celebrating its 200th anniversary.

The Editorial Panel would like to increase the number of papers submitted by ICE members, a great many of whom are both interested in and are practicing in the field. The range and quantity of material available in the field of engineering history and heritage is large. Peer-reviewed papers published in this journal become a record of best practice and knowledge available as a resource in perpetuity and the journal should be receiving more papers from members of the ICE. In this more enlightened age, when we realise the value and significance of sharing knowledge from the past as well as from current practice, I hope that more and more practicing engineers and academics will want to publish.

The largest infrastructure project in Europe, the Elizabeth Line, is nearing completion in London, UK, and, because of the obvious history and heritage of the London Underground, we would like to publish a themed issue on related topics. Please submit suitable abstracts on this or other topics to rebecca.rivers@icepublishing.com. We are always keen to consider submissions.

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