Editorial

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Each year the British group of The International Association for Bridge and Structural Engineering (IABSE) awards a medal to an individual engineer for excellence in structural design. In 2021, the Milne Medal was awarded to Margaret Cooke, a conservation engineer. In her lecture (Cooke, 2021) at the online acceptance event, she started by saying that the aim of her work was to do as little as possible to the buildings on which she was appointed. In conservation work, this is a driving philosophy but perhaps the time has come for minimalist intervention to be applied to the wider world.

The success of a country's economy is invariably judged by consideration of the annual increase in the size of its economy based on its Gross Domestic Product (GDP). This, together with an investment industry continually seeking growth, sets a culture of 'the more activity the better'. However, in a world struggling to control carbon dioxide emissions and the management of diminishing resources, 'do as little as possible' can be the best modern approach. Working on existing buildings and advocating reuse rather than demolish and re-build can considerably reduce the carbon count of a development. It can also reduce cost, but not necessarily so. If construction were to properly account for the cost of environmental impact, there would be more motivation for reuse. There is no choice, we must make the best use of what we have. In this journal, we can do little to improve the sustainability culture, but we can help to provide the information on how to make the most of our heritage.

It was the Institution of Civil Engineers' (ICE) Panel for Historical Engineering Works (PHEW) that first instigated the publication of this journal. The role of PHEW is to identify historical engineering works that are worthy of recording, promoting, and in some cases, preserving for posterity. *Engineering History and Heritage* has extended its brief well beyond consideration of history and the recording of heritage.

When selecting papers to publish, our first priority is for those that we think will be of interest to our readers, who we take to be engineers active in the full broad range of civil engineering. In choosing papers that we think will be useful, some have more historical (non-engineering) content than others. In such cases, we aim to publish only if the subject matter is buildings or infrastructure that continue to provide a modern use through their heritage significance and continuing use. Understanding how such existing buildings and infrastructure are altered and managed can help engineers with similar challenges now, or in the future.

Papers that track structural process of renovation are certainly among our best. A complex renovation or restoration project tells

a story. It starts with understanding history and significance, goes on to investigate the efficiency of performance, stability and safety, proceeds with choosing options for work to be carried out (if any) and concludes with reflection on what has been achieved.

Being published under the ICE Proceedings, the ICE Journals have the special position of a direct line of publication going back for nearly 200 years (Harris, 2021). Unlike some of the more specialist journals of the Proceedings, this journal has a very wide remit, covering the whole range of civil engineering topics. The nature of papers submitted evolves with time. In the present context of making better use of our existing infrastructure, we would like to see more papers on the modern topic of restoring/upgrading existing historic/heritage, of all types of civil engineering.

In the generic Call for Papers for this journal, we state that 'working on existing structures requires a different approach from designing and constructing new ones. It is essential to understand the current state of a structure, before proposing interventions and stabilisation.' Publishing papers that help engineers find this understanding in their projects is what we seek to do. Providing a paper is rooted in engineering, and contains engineering detail as its main subject matter, we can consider papers of quality from a broad range of topics, some of which we cannot foresee.

In this edition of the journal, we have three excellent papers that show the breadth. We start with a Briefing by Harry Wardill (Wardill, 2022), a former country director of a UK-based non-governmental organisation dedicated to reviving historic areas and traditional crafts, on the restoration of the Tourist Burma Building, Yangon, Myanmar. This short article indicates the remarkable level of achievement possible in building reuse. It outlines how these large derelict buildings were brought back into use. Having been empty for some years, they were suffering from damage and decay. They may well have been demolished to make way for new construction, but good engineering design has enabled them to be retained and upgraded for modern use. Originally designed with natural ventilation, they have dual aspect, high ceilings and thermal mass. Up-to-date modelling showed that the internal environment could be comfortable for nine months of the year, with air cooling only needed for the hottest three months. With a project structure that encouraged effective knowledge development and transfer, there was vocational training of craftspeople and professionals of over 500 people during the project.

The second paper is by Rui Cardoso from Portugal, with the title 'Haussmannian building repair, rehabilitation and strengthening: case study from France' (Cardoso, 2022). Haussmannian architecture defines much of the urban character of Paris, France.

The vast urban works programme, directed by Georges-Eugène Haussmann, prefect of Seine between 1853 and 1870, was carried out to improve the quality of life in the capital. To maintain its distinctiveness, conservation interventions must be carried out with care and sympathy for their significance. The paper shows good examples and best practice of rehabilitation and strengthening interventions that are presently being undertaken in Parisian Haussmannian buildings. Information for the paper comes from the author's on-site technical surveys that took place between 2015 and 2018, when he was project designer for the Stebat SAS design office based in Albertville, France. The buildings used a mixture of structural materials. Buildings constructed before 1840 do not have metal floors, and buildings constructed after 1860 rarely had timber floors and so a variety of repair techniques were employed, including the addition of strengthening concrete slabs. Techniques were employed that allowed the retention of important existing materials, with the principles of minimum intervention consistent with modern conservation practice. Insertion of basements, repair of staircases and renovation of roofs are all covered in this fascinating paper.

The third paper is written by Ayanangshu Dey (Dey, 2022). The author has contributed enormously to this journal over the past two years. He has been champion and guest editor for the very successful three special issues on Calcutta, India, which we have

Figure 1. John Rennie (1761–1821) painted by Sir Henry Raeburn

published in 2020 and 2021. Here he writes about the 'Challenges of retrofitting the world's biggest elevated water reservoir: Tala tank of Calcutta'. Raised on staging to a height of some 30 m, the tank is 91 × 91 m and 6 m deep. Commissioned in 1911, it was built to relieve the upstream supply pumps of stresses caused by fluctuating downstream demand and has been in continuous operation for 100 years. It is essential to the water supply of Kolkata and the paper not only provides engineering detail of its refurbishment, it also describes how the works were managed so that the use of tank was uninterrupted.

This issue concludes with a book review (Harris, 2022) of *Repair of Historic Timber Structures* by David Yeomans, who argues for building structure to be considered as 'a cultural artefact', as important as a building's stained glass or wall paintings. Here is someone else who could tell many stories about the challenges he has faced in speaking up for the significance of the historic, and heritage value of structure. The book is both a compellingly read and a useful work of reference.

In an age of great civil engineers, John Rennie (1761–1821) (Figure 1) was one of the greatest. In 2021, to commemorate the 200th anniversary of his death, the Institution of Civil Engineers' Archives and Historical Engineering Works created a website (<https://rbt.org.uk/john-rennie/>) dedicated to Rennie's works. It is clear that one cannot travel far in the UK without encountering Rennie's design or construction. The website includes a map featuring his projects and ideas for places to visit.

A range of heritage and community organisations collaborated on the creation of the website. It is intended to continue adding to it. For more information, please contact Carol Morgan (carol.morgan@ice.org.uk). A biography of John Rennie by Peter Cross-Rudin is due to be published by the Railway and Canal Historical Society later this year

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