

Book review

BRUNEL: AN ENGINEERING BIOGRAPHY

Adrian Vaughan. Ian Allan Publishing, Hersham, 2006.
ISBN 0-7110-3078-2, 160 pp., £19.99

Adrian Vaughan is a leading authority on Brunel as well as an acknowledged railway historian, and this book fully lives up to expectations. In it the author has made good use of original material, particularly the Brunel collection held at Bristol University Library, the National Archive and, it is pleasing to note, the Institution of Civil Engineers' own archive. The author's list of secondary sources is equally impressive, and the use of illustrations is first class. Engineers will like the extensive use of contract drawings, engineering sketches and contemporary prints. There is a good selection of photographs from different periods, including those from the 1970s taken by the author. Throughout the book there is extensive use of contemporary correspondence, which adds authority to Mr Vaughan's account.

The book gives a good insight into Brunel the man, and he is described as 'bursting with energy, optimism and courage, with a desire above all to be the first engineer and example to all others'. For those less familiar with his range of work, from buildings to steam engines, and from bridges to ships, this book is an excellent introduction, covering the full range of Brunel's immense activities including his failures as well as his great successes. The 16 short chapters are lavishly illustrated, allowing the reader to dip in and out of selected projects as well as work logically through Brunel's career. For the more knowledgeable this is also a worthy addition to a 'Brunel' library with its new material and thoroughly researched foundation.

The book covers both people and projects, with chapters devoted to his assistants (many of whom became famous engineers in their own right), to his relationships with contractors and his attitude to the construction navvies. The author's dedication of the book to 'over a hundred workmen who died for Brunel's glory on Box tunnel, names unrecorded, graves unmarked' is a sobering reminder of the great human cost of engineering works in the 19th century. The book contains interesting insights into Brunel's hard attitude to his contractors, often

causing financial distress even when work had been legitimately done to his specification. In one case a dispute extended over 23 years, and resulted in a court case not resolved until five years after his death. However, as the author points out, in that period it was 'a well known trait of 'gentlemen' not to pay their tradesmen'.

The book devotes several chapters to the Great Western Railway, from Brunel's early lobbying to become its Engineer, through surveying and designing the line, obtaining legal powers and, of course, the gauge question, which as the author points out was not one of Brunel's most logical decisions. The rigid design of broad-gauge track is well described, and although a failure, it is set in the context of the 'rock hard rail-road' then prevailing, from which perhaps only Joseph Locke correctly took a different path, developing the more flexible track familiar to us today. Brunel's unsuccessful attempts at locomotive and carriage design are also covered, an aberration from which he was rescued by Daniel Gooch.

The development of Brunel's expertise with bridges is a recurring theme throughout the book, from his early appointment as engineer for the Clifton bridge, to his extensive portfolio of masonry bridges and viaducts, and the innovative iron bridges at Chepstow and Saltash. The book concludes with a description of the Cornish timber viaducts.

Brunel's amazing contribution to modern shipping is also well documented, including his development of the screw propeller and the design of the modern liner through the SS *Great Western*, the SS *Great Britain* and of course ultimately the SS *Great Eastern*, a vessel arguably 50 years ahead of its time.

Perhaps the lasting impression of Mr Vaughan's book is not just Brunel's engineering success (and the failures), but the breadth, scale and innovation of his activities. If you have only one book on Brunel in your library then this must be a very strong contender.

M. CARTER