

soil, the occasional floods that these rivers cause in years of heavy snowpack runoff and some unusually high rainfall. The reader interested in climatology and environmental issues will find these chapters of interest.

Interspersed with the water narrative are biographies of the men and women who were famous in along the rivers and lakes described in this book: the famed American author, Mark Twain, spent time in the mining camps of Nevada; explorers such as Alexander von Humboldt, Kit Carson (for whom Nevada's capitol, Carson City, is named) and John C. Fremont, a renowned native American basket maker, Dat Lo La Lee, Julia Bulette, a famed brothel owner, public servants such as William Sharon, Francis Newlands, and Paul Laxalt, all U.S. Senators from Nevada, and others, male and female, appear. The inclusion of these individuals adds a human dimension to the narrative.

The authors close with discussions of environmental issues, climate change and population growth, and what the future holds for these rivers and lakes. For many years Nevada has been a high population growth state, primarily in the Las Vegas area, but also in northern Nevada—the Reno-Sparks, Carson City and Lake Tahoe areas. Without more attention paid to the issues caused by excessive growth, the future for these rivers and lakes is not promising.

The authors clearly care about the state of Nevada and its water. The writing is easy to read, striking a balance between too much detail and not enough. The result is a surprisingly enjoyable and readable book about a seemingly narrow topic.

The authors themselves term this book, “multifaceted,” (4) and it certainly is that. Combining the history of Native Americans, exploration, economic

history, legal history, hydrology, and environmental concerns, this book is for students of the American west and of Nevada particularly.

Robert L. Shoop
Colorado Springs, Colorado

John McKay. *Sovereign of the Seas 1637: A Reconstruction of the Most Powerful Warship of its Day*. Barnsley, S. Yorks: Seaforth Publishing, www.pen-and-sword.co.uk, 2020. 296 pp., illustrations, notes, bibliography. US \$68.95, paper; ISBN 978-1-52676-629-8. (E-book available.)

This book describes the author's graphical reconstruction of the seventeenth-century English warship *Sovereign of the Seas*. The ship was remarkable in that it was the first to mount 100 guns, was the largest of its kind at the time, was lavishly decorated, and was also extraordinarily expensive. These attributes attracted great attention during the ship's life and after and this is certainly not the first attempt to render the vessel in graphic detail. The history and principal documentary and visual sources—often contradictory—are explained in the first three chapters before the author lays out the basis of his reconstruction more thoroughly. The following twelve chapters cover the hull design and construction, fittings and internal arrangements, decorations, masts, sails and rigging, ordnance and boats. Each of these chapters refers the reader to the appropriate plates showing the reconstruction and, while it is a big book, they are designed to be read concurrently. The graphical reconstruction itself is presented as 68 black and white plates taking up much of the latter half of the book and 10 full colour illustrations in a centre section. The drawings are superbly executed and demonstrate

a high degree of draughting expertise, as one might expect from this author. The principal visual sources are also included in generous full-page illustrations—two in colour and two others in black and white. The impression one gets from the book is fitting to the subject—large, detailed, lavishly decorated, and just a little controversial.

Some elements in McKay's reconstruction will be debated and the shape of the stern is the first that becomes obvious, quite literally, as it is clear on the cover art. McKay justifies his choice of a square tuck stern based on the only image available showing the ship from astern and acknowledges that this interpretation is at variance with other modern sources (21–22). The extension of the flat plane of the stern almost to the keel results in an awkward afterbody shape that would have been quite inefficient, where a more pinched or narrow shape, even with a square tuck, may have been more likely. Hydrodynamic modelling and testing of the proposed hull shape, along with visual evidence of the afterbody section below the waterline on other contemporary ships, would add further credibility to this element of the reconstruction. While this and other interpretations are clearly offered as conjecture, some stated as fact are equally disputable. McKay's claim that a round shot discharged from a smooth-bore gun by a powder charge "would travel at about a mile per second" (139)—a muzzle velocity over twice that achieved by modern rifled naval ordnance—serves as an example. Perhaps, in this case, feet were simply mistaken for yards or metres. Nevertheless, the potential for misinterpretation of dimensions is discussed (19–21), and McKay is careful to explain the sources for dimensions elsewhere.

The number and range of drawings are impressive and the linework is ex-

cellent. Outlining would have given a more three-dimensional aspect to the complex drawings, but McKay uses shading to good effect to represent the extensive decorations and carvings. The plates cover all external and internal aspects of the hull and rigging, and include detailed views of fittings, ordnance and boats. Scales are provided where appropriate, along with measurements in some large-scale views, and the drawings are conservatively but appropriately keyed. There are some smudges and scanning artefacts (e.g. plates 23 and 52), but they do not detract from the drawings in any way and lend delightfully authenticity to skilled draughtsmanship. Together, this graphical reconstruction could be used to make a complete model and will prove to be a valuable sourcebook for researchers.

All reconstructions of watercraft preserved in anything less than a pristine state are bound to be wrong, it is just a matter of how much so. If one acknowledges that notion, and McKay clearly accepts that some of his interpretations will be disputed (9), then this book may be enjoyed for its illustrative excellence and depth of research. The author should be commended for his meticulous approach to such a daunting subject, for justifying his choices and for offering up his interpretations for scrutiny in fine research tradition. Such comprehensive explanation of each element of a graphical reconstruction of this scope is indeed rare. The book is recommended for its extensive use of historical documentary and visual sources, as an important catalyst to debate and for the superb draughtsmanship. Enthusiasts and students of early modern warships will find this book thoroughly worthwhile.

Mick de Ruyter
Adelaide, South Australia