the second oldest polytechnic in the country (following the Regent Street Polytechnic). Around 1995 the Royal Navy vacated Greenwich, and the glorious Wren building now houses the University of Greenwich, founded in 1992, a new university—the former polytechnic rebadged.

Finally in the book there is one chapter on the creation of a museum of mathematical instruments at Greenwich, and another detailing the sights a visitor can see in connection with this famous landmark.

Each chapter is prefaced by a table of contents, and the chronological organization contributes to the clarity and flow. Throughout there is a plentiful supply of images (though I failed to identify Hirst in the class photo of 1873 where the image is somewhat indistinct). This book is a welcome addition to the literature on the history of the British Isles, and to the history of mathematics. Like any good book it should act as a spur to further research, and should not be considered just as the last word, or a monument.

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Republic of numbers by David Lindsay Roberts, pp. 244, £22, ISBN 978-1-42143-308-0, Johns Hopkins University Press (2019)

There are several books extant that are built around chapter-length mini-biographies of famous mathematicians, people who have contributed to the history and development of our subject. One recent one is Ian Stewart's *Significant Figures* (reviewed in the *Gazette* in November 2018), and another, published about fifteen years before that one, is *Remarkable Mathematicians* by James. Even before this, there was *Calculus Gems* by Simmons, the first half of which is devoted to biographical sketches (and the second half of which consists of mathematical vignettes).

One thing that is clear from looking at the people surveyed in these books is that comparatively few of them are Americans. This is not surprising, because the United States is a relatively young country and therefore most of the "big names" in the history of mathematics come either from Europe or from non-Western countries. Nevertheless, I do have a certain amount of nationalistic pride, and I also teach courses in the history of mathematics every now and again, so when I saw that this book was described by the author as containing capsule biographies of '23 Americans who interacted significantly with mathematics' (or, to quote the publisher's dust jacket, individuals who were 'integral to the evolution of mathematics'), I couldn't resist accepting this column's editor's invitation to review it.

The book is divided into 20 chapters, each one covering, in chronological order, a decade of the 19th and 20th centuries. Each chapter focuses on one (or, in three cases, two) people who lived during that decade, starting with Nathaniel Bowditch and ending with John Nash.

As previously noted, I approached this book from the standpoint of somebody interested in learning and teaching the history of mathematics. From that perspective, I found the book disappointing. The author writes well, but the selection of the biography subjects struck me as rather odd. One of the 23 people discussed, for example, is Abraham Lincoln; I turned to that chapter immediately, because I wondered in what ways Lincoln could be thought of as anyone resembling a mathematician. Having read that chapter, I am still wondering. We learn, for example, that Lincoln kept a "cyphering book", could solve proportion problems like $3/17 = 16/x$, and studied Euclid—but the same can be said for a great many other

people, and these hardly constitute "significant interactions" with mathematics. Although Lincoln had an extraordinary impact on American history, it seems pretty obvious that the "evolution of mathematics" was not influenced by him in the slightest, and the chapter gives no reason to think otherwise.

Why, then, include him? The author states in the preface to the book that his selections, some of which he acknowledges 'will doubtless appear idiosyncratic', were based in part on his 'background, knowledge, and interests'. People familiar with an earlier book by Roberts (*American Mathematicians as Educators*, 1893-1923: *Historical Roots of the Math Wars*) will know that one of his interests is mathematics education. Another is evidently social reform; most of the chapters here involve the subject of the chapter dealing with such things as slavery, race relations, women's rights, etc.

Fair enough, but at times it seemed to me that, as in the case of Lincoln, the author strained to the breaking point to find some mathematical connections so as to shoehorn an individual into the book. Another chapter, for example, concerns Kelly Miller, who was a civil rights activist, but whose mathematical significance is not substantial. He was, to be sure, the first African-American to attend graduate school in mathematics, but he did not obtain a degree, made no significant contributions to mathematics, and, although he taught some mathematics at the high school and college levels, eventually wound up teaching sociology courses. (In this connection, I must mention that I found it a little strange that Katherine Johnson, a female African-American who actually was a mathematician, did not make the cut.)

Three chapters in the book discuss people (Josiah Willard Gibbs, E.H. Moore, and John Nash) who were, by anybody's yardstick, unquestionably significant mathematicians. Here, too, questions of social justice are raised, though not to the extent they appear with some other people. The author describes, for example, how Gibbs's father (also a professor at Yale) was concerned with issues of slavery, but Gibbs himself demonstrated an 'apparent failure to … take any stand on social questions'. And in the chapter on Nash, there is an extensive discussion of how Nash had to overcome the impediment of mental illness. At least in these chapters, though, the author did not have to strain to find some mathematical connections.

I previously expressed some disappointment with this book, at least from the perspective of somebody interested in the history of mathematics. Nevertheless, it is not without its pleasures. Precisely because many of the people portrayed here are not very well known, a reader, even a mathematically sophisticated one, is likely to learn some new and interesting things. In addition, the author of the book is a mathematician, and, accordingly, a reasonable amount of actual mathematics finds its way into these pages (the chapter on Lincoln, for example, talks a little about non-Euclidean geometry); laypeople might find these discussions interesting. And there is always some benefit in realizing that you don't have to be an Euler or Gauss to make some meaningful contributions to mathematics.

So, to summarize and conclude: an interesting book, but marred somewhat by the author's not-always-successful attempts to use mathematics as a unifying theme.

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