

Book review of *The Mending of Broken Bones*

Anna McGann¹

Everyone who engages with mathematics, as a hobby or career, has inevitably been accosted with comments such as: ‘In all my forty years, I have never needed to solve a quadratic equation - why did we learn that at school?’, ‘I was never any good at maths’, ‘So, what’s 364 times 91?’ or my personal favourite ‘So you must be really smart’ - a sure-fire way to destroy conversation.

I relived these old interaction fragments as I read Paul Lockhart’s book *The Mending of Broken Bones* [1], so wishing I could return to these awkward social moments and recommend this book, or smoothly quote Lockhart to communicate the awe that mathematics inspires. He begins by making clear that, if we simply want a quick answer to a real-world maths problem, then, most of the time, estimation and trial and error will suffice. It is when we demand beauty, general solutions and understanding that algebra comes to the fore.

Each chapter cast me back to the wonder of learning algebra for the first time. From building up the idea of numbers, to solving systems of equations and working with polynomials, Lockhart guides you into the ‘Mathematical Jungle’, showing you the magnificence of the entities that reside there and what we can deduce from them. He casts the development of algebra and algebraic techniques as organic developments arising from natural questions. Demonstrating just how extraordinary it is to find patterns, especially ones which are beautiful.

Lockhart brings the world of mathematics to life with both humour and deference. He speaks of numbers as our creations, but creations that take on a life and logic of their own, similar to Frankenstein’s monster (or children). He writes that numbers are ‘out there doing stuff... We’ve been investigating these creatures for over five thousand years, and we still barely know anything about them.’

Throughout the book is Lockhart’s analogy of mathematics to any other creative medium. He compares mathematical appreciation to ballet, as well as showing how the development in mathematics follows a similar path to literature, music and art. Writing ‘The era of the late nineteenth and early twentieth centuries saw the breakdown of the classical viewpoint across the board, including mathematics. Just as impressionists and cubists were breaking with the objective depiction of reality, mathematicians were also dispensing with the physical universe as a necessary reference point.’

Lockhart has had a career as both a research mathematician (at Brown University and the University of California, Santa Cruz) and a school algebra teacher. This résumé informs his writing, providing many core proofs of modern algebra in an informal way, ensuring they’re as accessible to a senior high-school student as a seasoned

¹Anna McGann is a Assistant Chief Editor for *Parabola* and Lecturer at UNSW Sydney.

mathematician. This style of presentation also makes the book an excellent addition to the toolkit of a mathematics educator.

There is something to be gained from this book for everyone. For a young mathematics enthusiast, it opens up new ways of thinking about mathematical ideas, and for mathematicians with more experience, it recaptures the joy of mathematics. I would even suggest that my maths-sceptic friends take a squiz, in the hopes that they discover the art and creativity that lives inside our mathematical world.

References

- [1] P. Lockhart, *The Mending of Broken Bones: A Modern Guide to Classical Algebra*, Belknap Press, 2025.