begins to bite, since not everything can be proved or discussed in detail. However, the author is judicious in his use of the phrase ‘it can be shown that’ without shying away from doing proper mathematics where possible: the so-called ‘Burnside's Lemma’ is merely described, but we get a full proof of Hall's marriage theorem. The chapter on tiling and polyhedra demonstrates another great strength of the book: a wealth of lovely illustrations. I suspect that in putting this book together it must have been tempting to cut diagrams to make space for more words, but this temptation seems to have been wisely resisted. Next we come to graph theory which, unsurprisingly, builds up to a discussion of the four-colour theorem. Euler's result that $F = E - V + 2$ is used to prove the six-colour theorem as well as the non-planarity of K5 and K33. I was therefore sorry to find it stated rather proved, but this was the only decision in book which was not to my taste. The pair of chapters on 'square arrays’ and ‘designs and geometry’ provide a beautiful sense of the interconnected nature of the subject with nearly every example carefully chosen so it can be used to illustrate multiple ideas. These chapters also fulfil a promise made in the introduction by supplying plenty of problems which are easy to state but frustratingly hard to solve, including some which are still unresolved. Finally there is chapter on partitions which is independent of the others but allows the book to finish with a roll on the drums by giving Hardy and Ramanujan's formula for the number of partitions of n. This ensures that, while we may have learned a lot from this introduction, we are left with no illusions about how much more there is to learn.

This book will indeed appeal to a wide audience. It is carefully constructed, substantial and beautifully illustrated. I recommend it very highly indeed.

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The model thinker by Scott E. Page, pp. 410, $19.99 (paper), ISBN 978-0-465-09463-9, also available as e-book, Basic Books (2018).

This is not really a mathematics book but it is worth a short notice here. It is in the first instance a course book for an on-line course on modelling aimed mainly at social scientists. The first three chapters make a case for mathematical modelling of real-life scenarios in a data-heavy age, and in particular for the use of different models for the same scenario as alternatives, or in parallel. There follow 26 chapters describing a large number of models, starting with simple ones such as the normal distribution and including Lyapunov functions and game theory models that incorporate altruism. Each general scenario is discussed informally and then the model is summarised in a highlighted box, the summaries ranging from verbal principles to plain formulae. The writing is populist in style and most formulae are given without explanation, although there is some limited mathematics in end-notes. For those not taking the course I think that the book could be useful as a resource of informal descriptions for quick reference.

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Applied Mathematics, a very short introduction by Alain Goriely, pp. 141, £7.99 (paper), ISBN 978-0-19875-404-6, Oxford University Press (2018).

This is one in the series of ‘very short introductions’ from the Oxford University Press. It is certainly short! Its 140 pages are small, many of them taken up with

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