

BOOK REVIEWS

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Problems for Metagrobologists: A Collection of Puzzles With Real Mathematical, Logical or Scientific Content by David Singmaster

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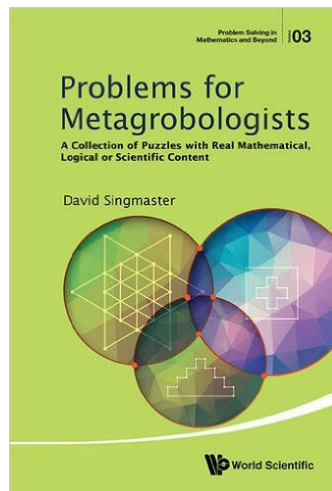
David Singmaster is an American/British mathematician known for studying the Rubik's cube and devising the notation to do so. He specializes in number theory, combinatorics and recreational mathematics. This book is an anthology of published and unpublished problems. The title is based on a 16th century English verb "metagrobolize", meaning to puzzle over. The subtitle, "A collection of puzzles with real mathematical, logical or scientific content", is a claim we will explore later in the review.

The book is split into two parts. The first contains 221 problems spread out over 100 pages and organized into the following 15 chapters : General arithmetic puzzles, Properties of digits, Magic figures, Monetary problems, Diophantine recreations, Alphametics, Sequence puzzles, Logic puzzles, Geometrical puzzles, Geographic problems, Calendrical problems, Clock problems, Physical problems, Combinatorial problems and Some verbal puzzles. The second part of the book contains complete solutions to the problems. They are written in an informal manner, more as sketches of solutions or proofs rather than rigorous proofs.

The problems in the book seem to have been written to avoid mathematical notation as much as possible, ergo be as textual as possible, sometimes at the cost of brevity and clarity. But that is the cost of publishing in mass market media (BBC, CBC, Focus, L.A. Times, etc). This probably gives the slightly wrong impression that the puzzles only need elementary mathematics to be solved. The more complex solutions need a bit of algebra, some knowledge of geometry, a smidgen of sequences or some knowledge of combinatorics. A few problems end with an open question widening its scope or generalizing in some fashion, for example :

74. Doubling up.

Jessica and Sophie were playing poker with matchsticks. Each time, they bet as much as possible, namely as much as the poorer one had. Jessica won first, then Sophie, then alternatively through six hands all together. At this point, they were amazed to notice that they had the



same number of matchsticks. What are the least number of matchsticks they could have had at the beginning? [If that's too easy, solve the problem for n hands.]

A few of the problems seem like rewritings of classics with a personal twist by the author, but a good part are original problems. In fact, the cultural clash which Singmaster lived through when he moved to London in the 1970's is at the heart of some of the problems proposed in his book. For example,

60. No Change.

I recently wanted to pay someone for an item that cost less than £5, so I offered him a £5 note. He said he couldn't give me the right change. So I jestingly offered him two £5 notes and was surprised when he said that would do nicely. How can this happen? Can this happen in America?

All in all, having been hooked on problem solving for quite a while, I found quite a few of the problems to be original or at the least presented in an original manner. I do admit to having had some difficulty with the wording of some of the problems. It is this book's weakness and forte at the same time, since it will appeal to a wider audience, namely the non-scientific puzzlers in your midst who seek out challenging entertainment. As such, I definitely recommend you consider this book as a gift idea. Naturally, you shouldn't deprive yourself of an opportunity to amuse yourself either. Good reading!

