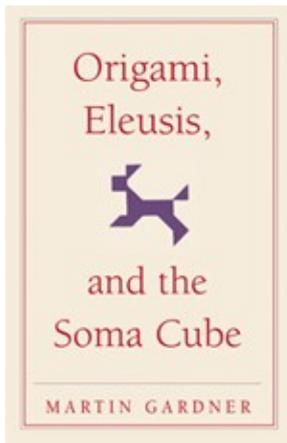December 2008
Reviews

'Origami, Eleusis and the Soma Cube'

reviewed by Charlotte Mulcare

Origami, Eleusis and the Soma Cube: Martin Gardner's mathematical diversions

by Martin Gardner

I would guess that, even a decade ago, the phrase "mathematical recreation" would have been considered a contradiction in terms. Now, in the age of compulsive Sudoku puzzlers, and an increasing canon of popular mathematics books, this descriptor has become credible. Numerical teasers that would have once been considered painfully reminiscent of school are now found in Sunday supplements, and logic problems, once the bastion of IQ tests, are now mainstream publishing fodder. To anyone with a mathematical leaning, this redress of the age−old imbalance between arts and science in popular culture is nothing short of miraculous. As one of the long−standing advocates of mathematics for pleasure, Martin Gardner has contributed over 60 books encouraging readers to play with maths. *Origami, Eleusis and the Soma Cube* provides a respectable addition to this bibliography.

There are a few things worth−while knowing before approaching this book: first, it is a collection of stand−alone articles taken from the *Scientific American*. Martin Gardner provided a monthly supply of conundrums and explorations in mathematics over twenty−five years, and this book represents a carefully

selected smorgasbord of these pieces. In fact, this book is part of a new and updated edition of _Martin Gardner's mathematical library_, to be republished in part over the next year. The second thing worth noting is that, because of the book's structure, you may well wish to dip in and out rather than attempting (as I, perhaps foolishly, did) to read it from start to finish. A chapter entitled _Origami_ is curiously frustrating if you lack the requisite pieces of paper to experiment with, one has to be in the right mood for _tetraflexagons_, and the article on recreational logic should not be attempted with a hangover. Armed with this knowledge, I recommend you approach this book on a Sunday afternoon, with paper and pen, a few biscuits for brain–power and a good hour to spare for puzzling. It is worth it.

The book spans the usual suspects for a collection of mathematical problems: a chapter on mazes relates Hampton Court Palace to the intricacies of human psychology and computer design. Magic squares, probability and the golden ratio also undergo a thorough investigation. What makes the author's approach different is the level he writes to: these puzzles are aimed at readers with a deeper understanding of maths rather than a dabbler. As with many popular maths writers, Gardner places his puzzles in context, referencing both historical background and speculating as to current and future developments in the field. However, unlike most writers, Gardner's asides are ruthlessly succinct, and the main focus remains, rightly, on the maths itself. The sums are notably harder a chapter describing the works of "England's Greatest Puzzler" deserves its title, and an article on _nine problems_ was satisfyingly problematic. Answers are helpfully given at the end of each chapter, with workings shown, so it is both possible and enjoyable to give yourself the challenge of solving each puzzle without worrying that spoilers will emerge in the main text, or that you'll be left missing the point. The bibliography at the end of each chapter is not merely a reference list to support the text, but a well–considered introductory reading list for readers particularly enthused by a given topic.

There are several repercussions to collating articles for a book rather than starting with a blank slate: one of the downsides is that the writing style differs significantly between them. This is understandable, given that the time frame for article selection spans 25 years, but it can be disorientating. When picking up a collection of short stories, you would nevertheless expect some theme to unite them, and many popular mathematics books maintain a cohesive flow, despite disparate topics in each chapter. Further editing may have enabled more read–across between chapters, and perhaps a better order for content, but this may well be a matter of personal preference.

On the positive side, retrospective publication enables Gardner to add addenda to each chapter, in which he relates some of the feedback received from his readers. There is something incredibly likable about an author who is prepared to reveal when his audience proposes a new angle he hasn't considered, and the maths is invariably enriched by his responses. Also, the intended readership of _Scientific American_ means that the orientation is towards a scientifically minded audience; although popularising maths can only be a wonderful thing, it is also good to see a book pitched at those already convinced.

Gardner has certainly justified his position as a proponent of recreational maths the emphasis of the book is clearly audience participation, and maths fiends will find the level stimulating, and the choice of topic broad.

Book details:

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Charlotte Mulcare read biological anthropology at Cambridge, and has recently completed a PhD at University College London in human genetics. The project used DNA samples from modern populations to trace the migration and selection patterns in Neolithic farmers. She currently works as a science writer (fact and fiction!) and lives in Oxford.

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