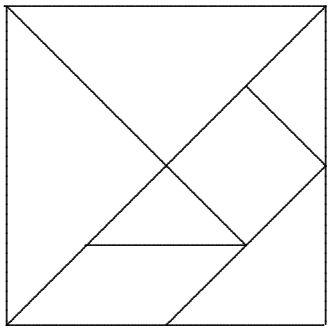
BOOK REVIEW

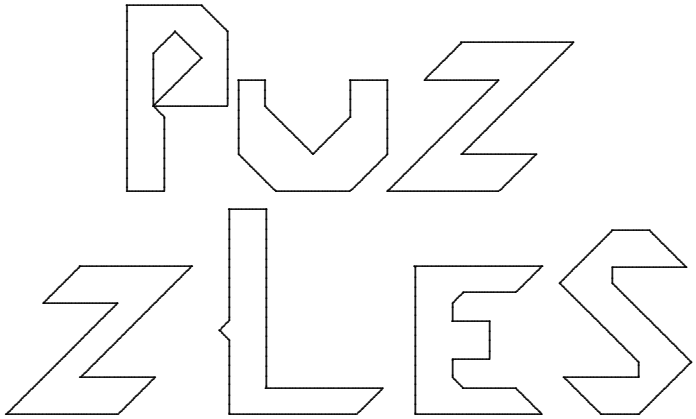
John Grant McLoughlin

The Tangram Book
By Jerry Slocum with Jack Botermans, Dieter Gebhardt, Monica Ma, Xiaohe Ma, Harold Raizer, Dic Sonneveld, and Carla van Splunteren, published by Sterling, New York, 2004
ISBN 1-4027-1688-5, paperback, 192 pages, US$14.95 (CDN$21.95).
Reviewed by ***Andy Liu****, University of Alberta, Edmonton, AB.*

When people are asked to name just one puzzle, it is more than likely that Tangram will be the one mentioned. It is intuitively appealing, and offers endless challenges. By comparison, Ernő Rubik's magic cube is too sophisticated, and Sam Loyd's **14–15** puzzle is too limited in scope. Thus, Tangram is a worthy representative of popular puzzles.

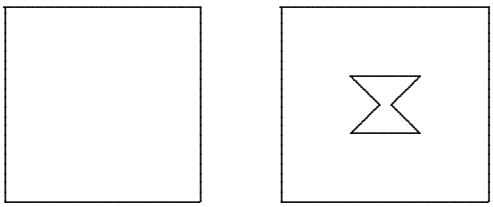


The puzzle consists of seven polygonal pieces which can be assembled into a square, as shown in the diagram above. The challenge is to construct other given figures using these seven pieces. To whet the reader's appetite, construct each of the letters in the diagram below using a complete set of Tangram pieces. This puzzle is taken from the business card of Jerry Slocum, the author of the book under review.



There are many books on Tangram, notably that by Sam Loyd [4]. However, with the publication of this definitive treatise by Jerry Slocum, there is no need to look any further for other references. Jerry is one of the three wise men in the puzzle world (the other two were the late Edward Hordern of the United Kingdom and the late Nobiyuki Yoshigahara of Japan). He is the founder of the International Puzzle Party, an annual gathering of some of the most original minds and the best puzzle designers. Jerry is also the President of the Slocum Puzzle Foundation, an organization which promotes mathematics education via puzzles. He is the author of many other puzzle books, the best known being [5], [6], and [7], which were co-authored by Jack Botermans.

The current volume is beautifully illustrated with striking colours. A quick scan of the book would draw immediate attention to the thousands of puzzles from pages 100 to 173. Those on page 100 are especially appealing. The puzzles come in pairs that are almost identical, but apparently with something missing from one member of the pair. An example is shown in the diagram below.



It could not be further from the truth to think of this book as a mere catalogue of puzzles. It is a scholarly work by a noted historian on the subject, going back far in time and spreading wide in geography—a comprehensive research of the origin of Tangram and its name, its twisted history, and its many manifestations. The six pages of bibliographical references alone are a most valuable treasure.

Sterling must be congratulated for publishing such a wonderful volume. This publisher is usually known for its line of books on crossword puzzles, but in the past decade it has ventured into books on mathematical puzzles. Two excellent examples are [2] and [3]. Mathematicians may find many of the other puzzle books wanting, since the puzzles are at a fairly low level, more along the line of I.Q. tests and Mensa stuff. However, if they can arouse the interest of young minds to look further for better puzzle books, they have served their purpose.

Addendum

Tangram is a put-together puzzle, a mathematical version of a jigsaw puzzle without the twisted edges. There are many other similar polygonal puzzles, but none have the enduring popularity of Tangram. Perhaps the main reason is that the Tangram pieces are all members of a family. Martin

Gardner called them polyaboloes in [1] (Chapter 11). However, the pieces formed of half-squares joined edge-to-edge and diagonal-to-diagonal are more commonly known as polytans. There is only one monotan, but there are three ditans and four tritans. These are illustrated in the diagram below.

Kate Jones of Kadon Enterprises has constructed a square consisting of two copies of the monotan, the three ditans and all of the tetratans. She has a larger square consisting of the four tritans and all of the pentatans. Finally, she has an even larger square consisting of the three ditans and all of the hexatans. Visit her website at `http://gamepuzzles.com`.

Bill Ritchie of Binary Arts/Think Fun has marketed a puzzle consisting of two copies of each of the ditans and the tritans. It is called *Shape by Shape*. Visit his website at `http://www.puzzles.com`. This particular puzzle is designed by Nobiyuki Yoshigahara, inventor of numerous intriguing puzzles. He had also authored many wonderful puzzle books, in Japanese. One of them has recently appeared in English [8].

Bibliography

[1] Martin Gardner, *Mathematical Magic Show*, Mathematical Association of America, Washington, 1990.

[2] Martin Gardner, *Classic Brainteasers*, Sterling, New York, 1995.

[3] Rodolfo Kurchan, *Mesmerizing Math Puzzles*, Sterling, New York, 2000.

[4] Sam Loyd, *The Eighth Book of Tan, Part I*, Dover Publications Inc., Mineola, 1968.

[5] Jerry Slocum and Jack Botermans, *Puzzles Old and New*, University of Washington Press, Seattle, 1986.

[6] Jerry Slocum and Jack Botermans, *New Book of Puzzles*, W.H. Freeman and Company, New York, 1992.

[7] Jerry Slocum and Jack Botermans, *The Book of Ingenious & Diabolical Puzzles*, Times Books, New York, 1994.

[8] Nobiyuki Yoshigahara, *Puzzles 101: A Puzzlemaster's Challenge*, A.K. Peters, Natick, 2004.