

# Table of Contents

	<i>page</i>
INTRODUCTION . . . . .	I
1. LETTERS AND NUMBERS . . . . .	9
2. ANIMALS . . . . .	15
3. MANKIND . . . . .	25
4. AROUND THE HOUSE . . . . .	35
5. BOATS AND BRIDGES . . . . .	39
6. STORIES AND PICTURES . . . . .	43
7. A LITTLE MATHEMATICS . . . . .	53
8. CHINOISERIE . . . . .	59
9. PARADOXES AND ILLUSIONS . . . . .	69
10. DOUBLE TANGRAMS . . . . .	77
11. THE FIFTEEN-PIECE PUZZLE . . . . .	81
SOLUTIONS . . . . .	93

## *Introduction*

THE seven-piece puzzle, or tangram as it is usually known in the West, has come to us from China. It is in all probability the original “Chinese puzzle”—the proverbial prototype of all that is perplexing and tricky. This puzzle resembles the familiar jigsaw puzzle in that it is concerned with the fitting together of geometrical shapes, yet in all other respects the two puzzles are completely different; for whereas the jigsaw puzzle consists of a large number of pieces of rather complicated shapes, which have to be fitted together in a unique way, the tangram consists of only seven pieces of simple shapes, and the whole charm of the puzzle lies in the extraordinary variety of ways in which these pieces can be put together.

The seven pieces which make up the tangram can be cut from a single square, as shown in Figure 1. There are thus two small triangles, one medium-sized triangle, and two large triangles, in addition to a square and a lozenge-shaped piece.

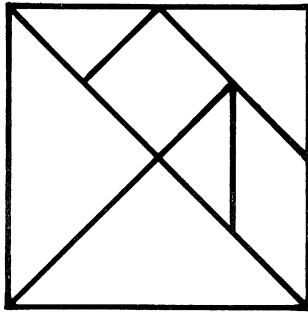


FIGURE 1

The medium-sized triangle and the square and the rhomboid are all twice the area of one of the small triangles; each of the

large triangles is four times the area of a small triangle. All the angles in these pieces are either right angles or angles of  $45^\circ$  or  $135^\circ$ . A set of tangram pieces can easily be made from cardboard. However, the enthusiast will probably want to make his set from wood, plastic or some other more durable material.

With a set of seven tangram pieces, the reader can make (if he tries hard enough) all the outlines that are to be found in the following pages except those of the last two chapters, and a quick glance through these pages will reveal the surprisingly large number of different outlines that can be constructed from such a small number of pieces. This is what has made the tangram popular in the country of its origin and also in the West. From time to time it has been revived on both sides of the Atlantic and has enjoyed a certain vogue, even though it has never achieved the status of such established pastimes as checkers or tic-tac-toe.

The tangram has a reputation for being very old, and this may well be, though one should beware the common tendency to ascribe exaggerated age to all things Chinese. I have in my possession two books of tangrams printed in China in 1813 and 1823. In the preface to one of these the author says that "the origin of the seven-piece puzzle is not known . . ." This would suggest that the puzzle was even then regarded as old, though just how old is a matter for conjecture. Despite this, I have been quite unable to find any Chinese books on tangrams, or even any reference to this kind of puzzle, dating earlier than the beginning of the nineteenth century, at which time a large number of books on the subject seem to have been published.

There was, apparently, a resurgence of interest in the tangram in China around this time, resulting in the publication in book form of what may previously have been handed down only by word of mouth. It should be mentioned here that the Chinese have always regarded the seven-piece puzzle as predominantly a game for children and women, and therefore perhaps hardly a worthy subject for books. I venture to hope that this is not true of the present book, which contains many

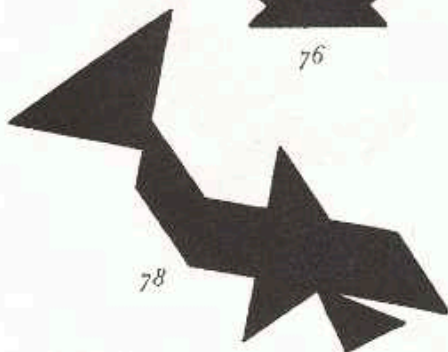
## SEA CREATURES



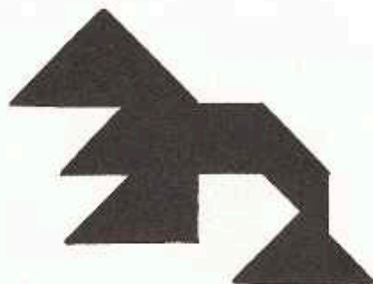
76



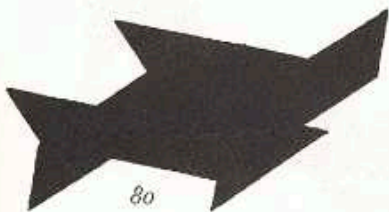
77



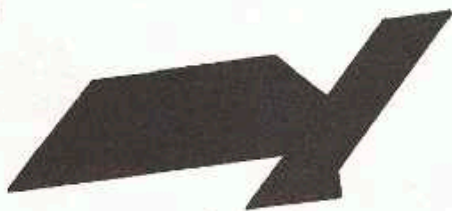
78



79 Lobster



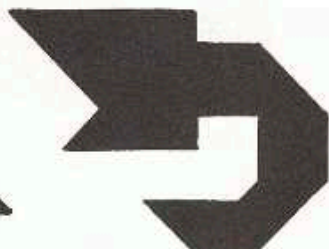
80



81 Turtle

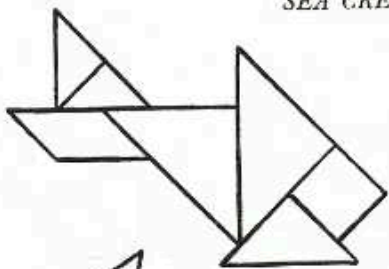


82 Seal

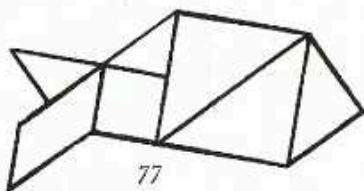


83 Shrimp

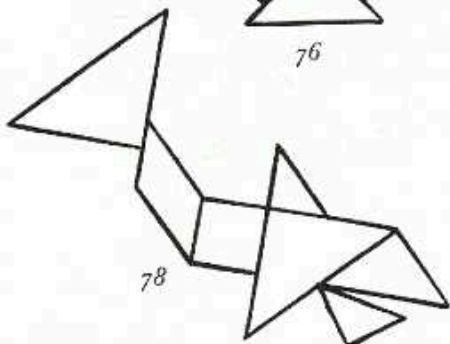
## SEA CREATURES



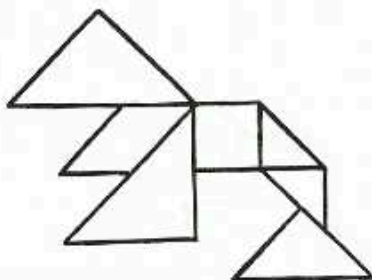
76



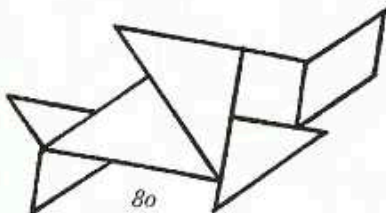
77



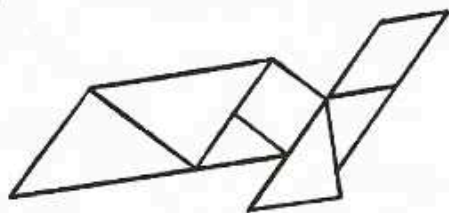
78



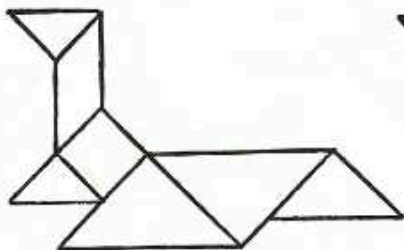
79 Lobster



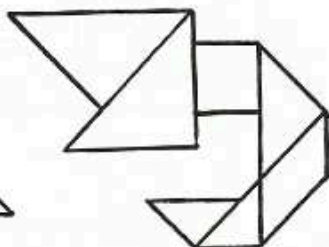
80



81 Turtle



82 Seal



83 Shrimp