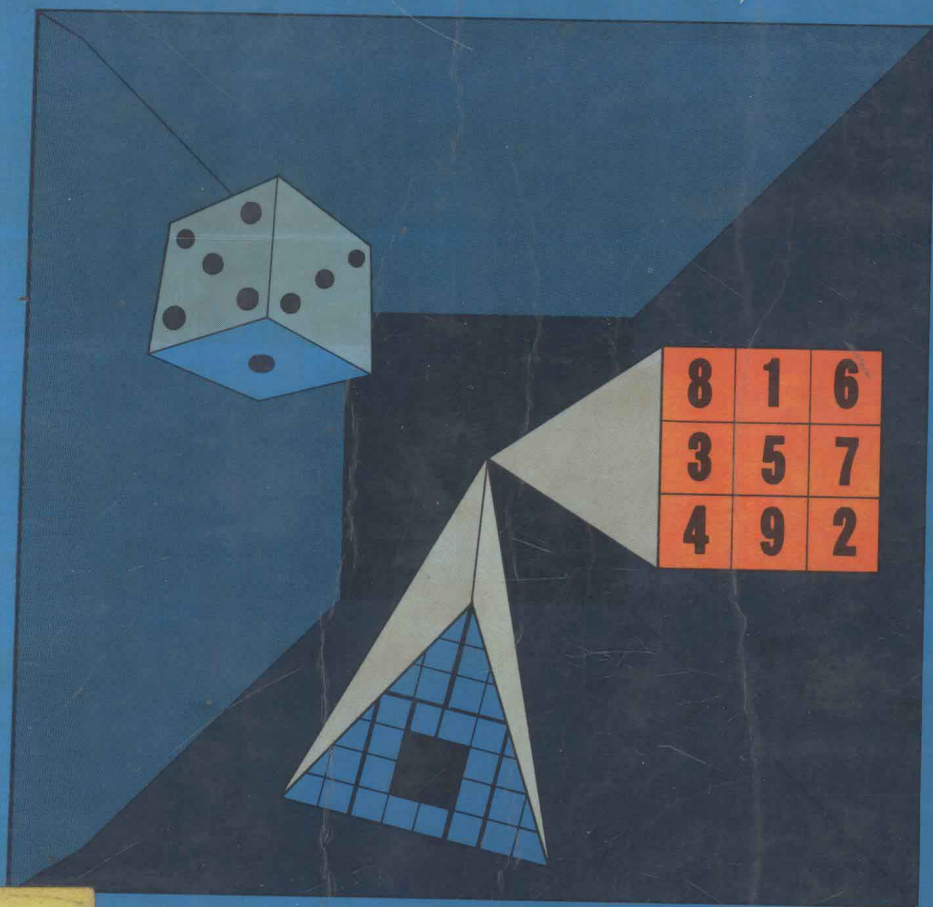


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# **Mathematics, Magic and Mystery**

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## Preface

Like many another hybrid subject matter, mathematical magic is often viewed with a double disdain. Mathematicians are inclined to regard it as trivial play, magicians to dismiss it as dull magic. Its practitioners, to rephrase an epigram about biophysicists, are apt to bore their mathematical friends with talk of magic, their magic friends with talk of mathematics, and each other with talk of politics. There is truth in all these animadversions. Mathematical magic is not—let us face it—the sort of magic with which one can hold spellbound an audience of nonmathematically minded people. Its tricks take too long and they have too little dramatic effect. Nor is one likely to obtain profound mathematical insights from contemplating tricks of a mathematical character.

Nevertheless, mathematical magic, like chess, has its own curious charms. Chess combines the beauty of mathematical structure with the recreational delights of a competitive game. Mathematical magic combines the beauty of mathematical structure with the entertainment value of a trick. It is not surprising, therefore, that the delights of mathematical magic are greatest for those who enjoy both conjuring and mathematical recreations.

W. W. Rouse Ball (1851–1925), a fellow in mathematics at Trinity College, Cambridge, and author of the well known *MATHEMATICAL RECREATIONS AND ESSAYS*, was such an individual. Throughout his life, he took an active interest in legerdemain. He founded and was the first president of The Pentacle Club, a Cambridge University magic society that continues to flourish today. His classic reference work contains many early examples of mathematical conjuring.

So far as I am aware, the chapters to follow represent the first attempt to survey the entire field of modern mathematical

magic. Most of the material has been drawn from the literature of conjuring and from personal contacts with amateur and professional magicians rather than from the literature of mathematical recreations. It is the magician, not the mathematician, who has been the most prolific in creating mathematical tricks during the past half-century. For this reason, students of recreational mathematics not familiar with modern conjuring are likely to find here a rich new field—a field of which they may well have been totally unaware.

It is a field in its infancy. It is a field in which dozens of startling new effects may be invented before this book has been a year on sale. Because its principles can be grasped quickly, without training in higher mathematics, perhaps you the reader may play some part in the rapid growth of this odd and delightful pastime.

I want to thank Professor Jekuthiel Ginsburg, editor of *Scripta Mathematica*, for permission to reprint material from four articles which I contributed to his excellent journal. Paul Curry, Stewart James, Mel Stover, and N. T. Gridgeman gave generously of their time and knowledge in reading the manuscript, correcting mistakes, and offering valuable suggestions. Other friends who supplied material and information are too numerous to mention. Finally, I owe a special debt to my wife for uninhibited and indispensable criticism, as well as tireless assistance in all phases of the book's preparation.

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