

BOOK REVIEWS

Edited by ANDY LIU

All the Math That's Fit to Print, by Keith Devlin, published by the Mathematical Association of America, 1994, ISBN 0-88385-515-1, paperbound, 330+ pages, US\$29.50.
Reviewed by **A. Sharma**, *University of Alberta*.

In the foreword to his famous book *Mathematical Snapshots*, Steinhaus says, "My purpose is neither to teach in the usual sense of the word, nor to amuse the reader with some charades. One fine day it happened that I was asked the question: 'You claim to be a mathematician, well what does one do all day when one is a mathematician?'" Steinhaus conceived the idea of his book as he tried to explain to his questioner a few geometric problems solved and unsolved while sitting on a bench in a public park. Keith Devlin's book is meant for a much wider audience in a completely different milieu. It is also not meant to teach or to amuse the reader with riddles, although it succeeds eminently in doing a bit of both. As he explains in the preface, it is meant for "anyone who regularly reads a serious newspaper and has some interest in matters scientific, mathematical or is just curious".

This very interesting book, with its catching title is a collection of 143 articles written by the author for the Manchester Guardian over a period of eight years from 1983 to 1990. From letters received by him, the author claims that his audience was a mixed bunch: "Students at schools in their early teens, retired people in their nineties, from prison inmates to executives in the computer industry, from truckers to school teachers, both men and women".

The articles in this book are chronologically arranged under fancy headings some of which we sample here: *Seven-up*, *A Farey Story*, *The Vertical Confusion*, *World's Most Wanted Number*, *Rabbit Pi*, *Biblical Fingers Get Stuck Into Pi*, *Rabbits Do It By Numbers*, and so on. Each article can be read and enjoyed independently of the others, although cross references to allied topics are given almost everywhere. It is a book which can be enjoyed at one's leisure and with a pencil and a piece of paper can give hours of delight and education.

Devlin follows the style of his mentor Martin Gardner. He is informal and states results when he chooses and sketches a proof if it is short and well within the reach of a layman (see Article 15). Article 19, *The measure of all things*, begins with the news about the discovery that a long standing conjecture in number theory called Merten's conjecture is false. The author slowly and carefully explains the Möbius function, and tells the reader what Merten's conjecture is, and who proved that it is false, while giving a bird's eye view of the result proved.

Article 25 is just half a page, but it tells about the Institute for Pi Research at Emporia University. The Institute, we learn, is campaigning for the value $\pi = 3$ to be given equal time with the more conventional value in state schools.

I personally found the Article 29, *Question Time*, very interesting, since I spent hours working out some of its problems, specially questions 11, 12, 13 and 15. I was particularly pleased to read in Article 99 about D.R. Kaprekar whom I knew while in India. There were no computers in those days, but I have witnessed his phenomenal abilities at doing long multiplication and other operations without pen and paper almost instantly at several meetings of the Indian Mathematical Society.

It would be surprising if a book of almost 320 pages had no misprints. I point out some minor ones which I came across:

- p. xi, line 2 from bottom — ready should be read;
- p. 27, column 2, line 6 from top — 33 should be 3;
- p. 46, column 1, line 15 from top — the should be to;
- p. 71, column 1, line 10 from top — 70-71 should be 72-73;
- p. 322, column 1, line 3 from bottom — savaged should be salvaged.

The range of topics covered in these articles is very impressive - Fermat Primes, Carmichael numbers, Palindromic numbers, information, artificial intelligence, Hilbert's tenth problem, Bieberbach's conjecture, Banach-Tarski paradox, cartography and many more. It is a book which should be read piecemeal — an article or two at a time, and as Devlin says, "it is a book for delving". I am sure this book will soon be in most libraries of schools and colleges for the benefit of both teachers and students.

Do you know the equation of this curve?

