

The Carus Mathematical Monographs: MAA's First Books

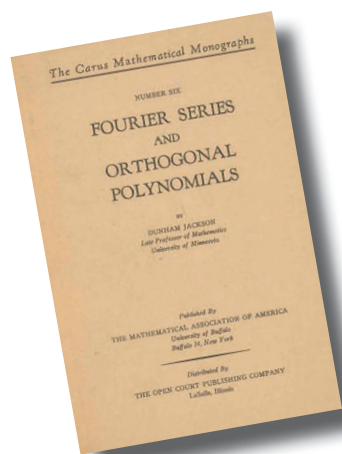
By Fernando Q. Gouvêa



The MAA was founded in 1915 to continue the publication of the *American Mathematical Monthly* and, in the spirit of the *Monthly's* mission, to focus on collegiate mathematics—between secondary school mathematics and pure research.

There were many ideas about what the MAA might do besides publishing its flagship journal. One committee considered publishing a mathematics dictionary, another creating a “great mathematical library.”

In 1920 Mary Hegeler Carus offered to give the association \$6,000 over five years to fund the publication



Carus 6.

The early Carus volumes were not particularly beautiful. They were small cloth-bound books, 7.5 inches tall and up to 250 pages, with light brown dust jackets. It was an austere look, but the books were well made and durable. The printing inside was clear and strikes the modern reader, used to computer typesetting, as elegant albeit old-fashioned.

of a series of mathematical monographs. The idea was to publish small books covering “the best thoughts and keenest researches in the field of mathematics.” The books were to be accessible to as broad an audience as possible and were to be sold at a low price. The funding arrangements were eventually modified, but the gift was accepted and the MAA’s publishing program launched.

Writing in 1965 in celebration of the MAA’s fiftieth birthday, Carl Boyer described the Carus monographs as “one of the conspicuously successful activities of the Association.” At that point, they pretty much *were* the association’s publications program. Apart from reports and the rare occasional publication, the MAA’s list in 1965 consisted of sixteen Carus volumes and three volumes of a Studies series.

For Thoughtful People

Mary Carus’s original intent was that books in the Carus series be accessible “not only to mathematicians but to scientific workers and others with a modest mathematical background.” H. E. Slaught, who probably encouraged Carus to make the original donation, hoped to reach “that still wider circle of thoughtful people who, having a moderate acquaintance with elementary mathematics, are quite willing and eager to extend that acquaintance indefinitely along informational lines, provided it can be done without prolonged and painful study of the mathematical treatises which abound in extreme rigor and endless detail.” That was a very ambitious goal indeed.

The editorial board created in 1921 decided that “a modest mathemati-

cal background” would, at least for the first two volumes, include an introductory course in calculus. At the time, calculus was not typically taught in the first year of college, so the audience envisioned would have had three or four college-level courses in mathematics.

The first two volumes were written by members of the editorial board: G. A. Bliss wrote on *The Calculus of Variations* (1925) and D. R. Curtiss on *Functions of a Complex Variable* (1926). The third volume, published in 1927, was a little more daring for the time: *Mathematical Statistics*, by H. L. Rietz.

The rate of publication was slowed by the Depression. Two more volumes appeared in the 1930s, including *A History of Mathematics in America Before 1900*, by D. E. Smith and Jekuthiel Ginsburg, and two in the 1940s, including C. C. MacDuffee’s *Vectors and Matrices*, which must have been one of the earliest books on linear algebra to be published in America.

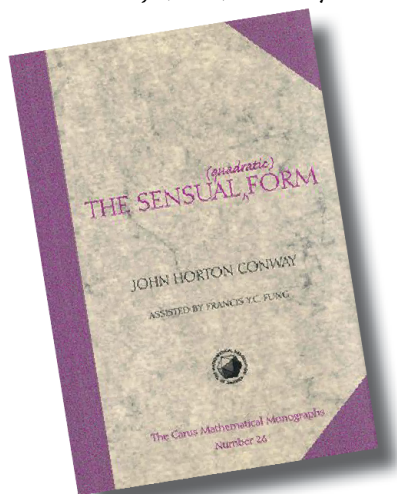
The 1950s saw some famous additions, including Pollard’s *The Theory of Algebraic Numbers*, for a long time the only accessible introduction to the subject, and Niven’s famous book on *Irrational Numbers*, still one of the best places to start learning that subject.

Advancing

As the MAA’s publications program grew, the Carus monographs seem to have become slightly more advanced. I. N. Herstein’s *Noncommutative Rings* (1968), for example, would fit early graduate students better than late undergraduates.

Other publishers were active with

books aimed for course work, so the topics grew more specific: Rademacher and Grosswald wrote on *Dedekind Sums* (1972), Livingston on *Knot Theory* (1993), Conway on *The*



Sensual (Quadratic) Form (1997). The most recent volumes were *A Tour of Mathematical Logic* (2005), by Robert Wolf, and *Randomness and Recurrence in Dynamical Systems* (2010), by Rodney Nillsen.

The rate of publication has not re-

ally changed: two to four volumes per decade. *Pauca sed matura*, as Gauss is supposed to have said.

Several Carus monographs must be considered classics. Ralph Boas's

A Primer of Real Functions is one of the most charming books on real analysis. It is not, perhaps, for the student who is taking a first course, but it would

Carus 26. The more recent volumes are still cloth-bound books and slightly larger, at 8.5 inches. The dust jacket has some color but remains austere, giving the books a distinctive look in these days of colored photos or bright colors. The typesetting is not quite as elegant as before, alas.

make wonderful reading *just after* that first course, to restore a vision of the forest after a semester of hacking through the brush.

Likewise, Charles Hadlock's *Field Theory and its Classical Problems* is very readable, as is Thomas Thomp-

son's *From Error-Correcting Codes through Sphere Packings to Simple Groups*. Steven Krantz's *Complex Analysis: The Geometric Viewpoint* and Conway's *The Sensual (Quadratic) Form* are among the best introductions to those topics.

As described on the MAA website, the Carus series still hopes to reach those "who wish to extend their knowledge without prolonged and critical study of the mathematical journals and treatises," though one notes the modern tendency to avoid the blunt honesty of the original description: "painful" is gone, as is the reference to "extreme rigor and endless detail."

In the case of some books, it might be worthwhile pain, and endless detail can be quite useful as well, but there remains a place for volumes that can be read with pleasure. May there be many more. 🍷

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Puzzle Solution

Here is the solution to the Tri-Futoshiki puzzle by Dan Katz that ran in the June/July 2012 issue. A Futoshiki is a Latin square completion puzzle with greater-than constraints. In each of the following three grids, numbers from 1 to 5 are placed into the squares (one number per square) so that no row or column contains a repeated number, and the given inequality symbols between pairs of adjacent numbers are satisfied. In addition, squares in the same position in different grids must contain different numbers.

4	5	1	2	<	3
3	2	5	4		1
2	1	3	5		4
1	4	2	3	5	
5	3	<	4	1	2

3	>	2	4	1	5	
4		5	1	3	2	
5		3	2	4	1	
2		1	3	5	4	
1		4	5	2	>	3

5	1	2	3	4	
2	3	4	1	5	
1	4	<	5	2	3
3	5	1	4	2	
4	2	3	5	1	