

BOOK REVIEWS

Foundations of Probability by Alfred Rényi. Holden-Day, Inc., San Francisco, California, 1970, xvi + 366 pp.

Probability Theory by Alfred Rényi. American Elsevier Publishing Company, Inc., New York, 1970, 666 pp.

Mathematicians must have felt highly optimistic at the beginning of the twentieth century. The foundation of most branches of mathematics had recently achieved unprecedented rigor and prospects were bright for rapid and steady progress.

It was then that D. Hilbert asserted his leadership by proposing his famous list of unsolved problems. Among the unfinished business, none was more urgent a task than the quest for a “satisfactory” theory of probability. This formidable goal was not realized until 1933, when young N. Kolmogoroff presented a solution which gained universal acceptance. His theory not only provided mathematical models for the probabilistic topics of that time, but proved to be flexible and powerful enough to adjust to most new developments and applications since then.

Among the most commendable textbooks in mathematics are some of those which attempt to present Kolmogoroff’s theory to “beginners”. Often the authors are eminent specialists in the subject who respond, in a wide variety of ways, to a difficult challenge. This review deals with two of the very best such books. They have many features which make them different from other textbooks, and also from one another. Both were published shortly after Rényi’s untimely death which occurred on February 1, 1970.

Rényi’s *Probability Theory* is a thoroughly revised and somewhat enlarged English version of his textbook in probability, published in German in 1962, and also in French and Hungarian. Its basis consists of the author’s introductory lectures presented over a period of many years starting in 1948.

Foundations has a more recent origin, as Rényi explains in its preface, written in November, 1969. It started with material from a summer graduate course at Stanford University in 1966. From then on, the author decided to write a completely new book, which would have essentially no overlap with the previous one. The manuscript was completed in 1968 and is one of the most original and masterful works of its kind.

We shall proceed to review *Foundations* first. One should clarify the kind of “beginners” that Rényi had in mind. No previous knowledge of probability is assumed. However, it is essential, in order to appreciate the book, to possess a considerable amount of mathematical maturity, a