Geschichte der Mathematik. Teil I: Von den Anfängen bis zum Auftreten von Fermat und Descartes. By Joseph E. Hofmann. (Sammlung Göschen Band 226/226a) 2., verbesserte und vermehrte Auflage. Walter de Gruyter and Co., Berlin, 1963. 251 pages. 5.80 DM.

This second edition of part I of Prof. Hofmann's successful History of Mathematics has been augmented, apart from minor corrections and additions, by the incorporation of new results of historical research on the discovery of irrational numbers and on Babylonian, Chinese, Arabic and Byzantine mathematics.

The unmatched 50-page index of mathematicians (stating the dates, major publications and editions of each as well as secondary reference sources) has been brought up to date; the subject index, enlarged from 2 to 10 pages, guides very well when information on any particular topic is sought.

The text of the first edition had been published in an English translation, but the indispensable bibliographies and indices had been omitted. It is to be hoped that the second German edition will soon be made available in a complete English translation which does not suppress these very essential parts that make the little volume a mine of information for the student as well as for the research worker in the history of mathematics.

C. J. Scriba, Oxford

Interpolation and Approximation, by Philip J. Davis. Blaisdell Publishing Company, New York-Toronto-London, 1963. xiv + 393 pages. $12.50.

This is an introductory book on approximation, which appears in Blaisdell's series of text, "designed for use in upper undergraduate courses and in the early years of graduate study". The selection of material shows a good taste. A wide field is covered, functions of real and of complex variables are treated. Considerable attention is paid to the point of view of Functional Analysis. In spite of the author's distinguished carrier in Computation, questions of numerical analysis are not discussed. The style is leisurely; the author does not spare effort to make the details clear to the reader. Of course, not all important subjects could be represented. This is not always a loss, for things like the inverse theorems of approximation, divergence and convergence of interpolation processes for functions of a real variable, may be found elsewhere. A comparison with another excellent introductory book, I. P. Natanson, Konstruktive Funktionentheorie, Berlin, 1955 (Russian edition 1949) presents itself at this place. The book of Davis covers a wider field, has a great number of problems and examples on fewer pages. There is a price which he has to pay for this. He cannot take the reader to the border of present day knowledge. But within its scope, it would be hardly possible to write a better book. The summary of contents (with my comments in brackets) follows.

Chapter I. Introduction (Properties of functions). II. Interpolation (Lagrange, Newton formulas). III. Remainder theory (Formulas with contour integrals, Peano's formula, convex functions, divided differences). IV. Convergence theorems for interpolatory processes (for analytic functions). V. Some problems of infinite interpolation (Pólya's theorem about infinite systems of equations, interpolation of entire functions. Here the author follows the bad tradition in the literature, and does not mention the paper of Eidelheit with necessary and sufficient conditions, which preceeded Pólya's). VI. Uniform approximation (Theorem of Weierstrass, Bernstein polynomials, Féjer's proof, the theorem of Stone). VII. Best approximation (linear normed spaces, existence and uniqueness; Chebychev's theorem for polynomials). VIII. Least square approximation (Hilbert spaces, orthogonal systems, Gram determinants). IX. Hilbert space (Riesz-Fischer theorem, spaces of analytic functions, bounded linear functionals). X. Orthogonal polynomials (Properties of real and complex orthogonal polynomials, Jacobi polynomials). XI. The theory of closure and completeness (Hahn-Banach theorem, completeness of the trigonometric functions, Müntz's theorem, Runge's theorem, complete sequences in a Hilbert space). XII. Expansion theorems for orthogonal functions (Classical results about Fourier series, series for functions analytic in a strip, reproducing kernel functions). XIII. Degree of approximation (Bernstein's theorem for Banach spaces, Jackson's theorem). XIV. Approximation of linear functionals (Gauss' formula of approximate integration, equidistributed sequences, weak * convergence).

G. G. Lorentz, Syracuse

<u>An Introduction to Probability and Mathematical Statistics</u>, by Howard G. Tucker. Academic Press, New York, 1962. 228 pages. $5.75.

This book is designed for the undergraduate university student majoring in mathematics. The emphasis is on the development of statistical theory through abstraction and the student hardly will get a feeling for the main subject "mathematical statistics and probability". While the author admits that the book is designed only for those students who love mathematics, it seems to the reviewer that this is no excuse for bringing together topics in the realm of probability theory and mathematical statistics with the sole purpose of proving them with