62[Z].—H. N. LADEN & T. R. GILDERSLEEVE, *System Design for Computer Applications*, John Wiley & Sons, Inc., New York, 1963, v + 330 p., 24 cm. Price $7.50.

This book is concerned with the systems analysis and design aspects of computer utilization in business data processing systems. The reader is assumed to have a general understanding of programming business problems on conventional high-speed computers. The major emphasis has been placed on batched processing techniques for magnetic tape computers with fixed word length and word-addressed memory.

The book is divided into three parts. Part one deals with the conventional data processing procedures; namely, file-maintenance operations, conversion runs, sort-merge runs, editing runs, and computation runs. Part two discusses the principles in the design of input and output documents; subjects covered include form design of source documents, encoding of information, card design, paper tape design, and optimal utilization of printer. Part three delineates the major steps entailed in the design and installation of a computer data-processing system. A glossary and a list of references are given at the end of the book.

The authors have provided an excellent synthesis and elucidation of practical guidelines, techniques, and examples. Notwithstanding the profusion of literature on the subject of business systems, this book will be of inestimable use to anyone interested in applications programming.

MILTON SIEGEL

Applied Mathematics Laboratory
David Taylor Model Basin
Washington, D. C. 20007

63[Z].—D. M. MACKAY & M. E. FISHER, *Analogue Computing at Ultra-High Speed*, John Wiley & Sons, Inc., New York, 1962, xv + 395 p., 22 cm. Price $11.50.

Analogue Computing at Ultra-High Speed is a treatment of the development of a high-speed, iterative, analog computer. The use of analog computing machinery at very high repetitive rates provides fast solutions for partial differential equations and integral equations which, with more conventional computers, are laborious to obtain and require a great deal of time.

Part I of this book is a report on investigations which were pursued in an effort to show that the art of analog computation was only in its infancy rather than having its possibilities already exhausted. The design of these explorations was unique in that information-theory concepts were applied to a continuum, whereas the usual application of these theories is to a discrete system. Early in the report, the information content of existing analog computers was evaluated and compared with that of contemporary digital computers. The analog computers were found to be sadly lacking in information content; however, it was shown that theoretically it was possible for an analog computer to compare favorably with digital computers in information content. Requirements for such a computer were then advanced.

Part II of this report is devoted to descriptions of the characteristics and design of the computing elements, displays, and measurement techniques used in the experimental computer. Since communication across the man-machine interface is of