Mathematics Laboratory, David Taylor Model Basin, Washington 7, D. C., DTMB Report 1519, May 1961, iv + 355 p., 27 cm.

This book consists of twenty unclassified papers presented at a seminar at the Applied Mathematics Laboratory, David Taylor Model Basin, Carderock, Maryland, during 7–9 September 1960. Six additional papers classified "Secret" and one classified "Confidential" are not included in this volume.

The papers are oriented toward the use of high-speed computers in the solution of Naval Problems, with emphasis on applications drawn primarily from the Bureau of Ships activities. The general areas covered are: (1) engineering research, (2) management data analysis, (3) large-scale data processing, (4) operations research, and (5) tactical and strategic planning.

The text is double-spaced and easy to read; however, the quality of reproduction of the photographs leaves much to be desired.

There is not enough space to review each paper separately, so that the following statements may do some injustice to individual papers. Several authors report on their own practical experience, and do not give a perspective to the subject discussed. However, there are many excellent papers, especially "Computer Technology Outside the USA" by Dr. S. N. Alexander, "Nuclear Reactor Design Calculations" by Joanna Wood Schot, "Mathematical Calculation of Shiplines" by Dr. F. Theilheimer, "The Solution of Naval Problems on High-Speed Calculators" by Dr. H. Polachek, and several others. The paper, "On Teaching of Mathematics," by Dr. Francis D. Murnaghan, should be read by every mathematics teacher. All in all, the book offers valuable reading for both the beginner and the experienced computer specialist.

It is unfortunate that the remarks of the keynote speaker, Professor Howard H. Aiken were not recorded for this volume, since he is recognized as the father of modern computers.

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14[Z]. WILHELM KÄMMERER, *Ziffernrechenautomaten*, Akademie-Verlag, Berlin, 1960, viii + 303 p., 24 cm. Price DM 29.

This well-written book is based on a course of lectures given by the author at the Friedrich-Schiller University, in Jena. It discusses computer components, their organization into the various organs of a computer, the logical organization of computers, and the fundamentals of programming.

The first chapter discusses the binary number system and Boolean algebra. The second chapter is concerned with the nature of arithmetic operations and methods for realizing them by automatic devices.

Chapter three deals with the structure of an automatic computer and the requirements that must be imposed on it. It illustrates these requirements and methods by which they have been satisfied, by reference to various computers.

Chapter four discusses in some detail various well-known computer components and methods for organizing them into computer organs. The newer components are not treated.

The final chapter, Chapter five, is devoted to the principles of programming. Several illustrative problems are coded for an imaginary single-address machine. The problems of using a library of subroutines are discussed, as are the notions of relative addresses and floating addresses

The bibliography given at the end of the book is not an extensive one. The oldest references in it are dated 1951. This is somewhat unfortunate, for the reader cannot gain any impression therefrom of the historical development of the subject. The omission of any reference to the fundamental work of von Neumann on computers is, to the reviewer, a great oversight.

A. H. T.

15[Z]. HERBERT D. LEEDS & GERALD M. WEINBERG, *Computer Programming Fundamentals*, McGraw-Hill Book Company Inc., New York, 1961, ix + 368 p., 23 cm. Price $8.50.

Nominally an introductory textbook on digital computing techniques and applications, this book presents a readable account of the basic principles of programming and coding for a specific machine, namely, the IBM 7090 computer. No mathematical knowledge beyond elementary algebra is required. The first section delineates the fundamental characteristics and special capabilities of a computer and then highlights the preparatory steps required to obtain a machine solution. The longer second section is devoted to an exposition of flow-diagramming and coding for the IBM 7090 computer.

In view of the fact that the book is addressed to "students in business administration, economics, and other nontechnical fields as well as the physical sciences and mathematics courses", the authors are disappointingly vague on the subject of programming techniques and procedures for the solution of large-scale data processing problems. Such significant developments as business compilers (COBOL, IBM Commercial Translator, etc.), sort generators, and report generators are not even mentioned. The value of the book as a general text on computer fundamentals is further lessened by the omission of references and supplemental readings. Consequently, the reviewer believes that this volume will be primarily suitable as a general IBM 7090 programming manual for nontechnical readers. It is written in a lively, lucid style that can be easily comprehended by the layman.

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16[Z]. W. W. PETERSON, *Error-Correcting Codes*, The Technology Press and John Wiley & Sons, Inc., New York, 1961, x + 285 p., 24 cm. Price $7.75.

The journal literature on algebraic coding theory has become so extensive lately that a book has been needed to give perspective and order to the field. This excellent book not only fills this need but also improves greatly on the presentation in many of the journal articles. In conjunction with the literature on probabilistic schemes of coding and decoding, Peterson's book gives an essentially complete