

52 [W, Z].—ANDREAS DIERMER, *Das Wesen der automatisierten elektronischen Datenverarbeitung und ihre Bedeutung für die Unternehmensleitung*, Walter De Gruyter & Co., Berlin, 1962, 240 p., 24 cm. Price DM 28.00.

This book belongs to the increasing number of works intended to introduce a certain group of readers to computers and their use. In one way, however, this book is rather unusual in that it is not clear, at least to this reviewer, what audience is actually being addressed. The title suggests that the work is directed towards readers in business management. In his foreword the author specifies this by stating as the aim of this book a presentation of the fundamental principles, technical aspects and use of computers in all phases of automatic business-data-processing. He qualifies this by subdividing this aim as follows: to present a thorough account of the logical and technical principles of computers in a manner understandable to business-oriented professionals; to investigate to what extent qualitatively given economic facts can be quantitized; to see which problems in the business area can be solved by the use of automatic high-speed computer systems.

With this program in mind the reader soon becomes disappointed, since the book concerns itself almost exclusively with the first point only, namely, the logical and technical fundamentals of computers. In fact, there are two parts, entitled, respectively, *The Fundamentals of Automatic Electronic Data-processing*, and *The Methods of Automatic Electronic Data-processing as Means for the Ordering and Determination of Business Processes*. The first part comprises almost 180 pages out of a total of 240. It is subdivided into three chapters which, in free translation, have the following headings: *Historical Development*; *The Fundamentals of Electronic Data-processing*; and *the Interrelation of the Elements in Automatic Data-processing*. Chapter 1 presents a very readable account of the history of computers and includes the European efforts in this field over the past 30 years. Chapter 2 should actually be entitled "The Building-elements of Electronic Computers." It first describes with surprising technical detail the functioning of vacuum tubes, germanium diodes, transistors, magnetic cores, etc., and then enters into a description of number systems, codes for the binary representation of decimals, etc. The chapter ends with a very general and not very enlightening philosophical discussion about the relation between mathematics and business-data-processing. Chapter 3 deals with the intercorrelation of the elements within a computer. Again the author goes into surprisingly technical details, which are rather out of place here, in view of the aim of the book and the intended readers. For example, while describing the decoding process of the instruction word, he discusses in great detail the working of a bistable multivibrator. Chapter 3 continues with a discussion of conditional-transfer instructions and fixed-point arithmetic. Floating-point representation is mentioned briefly.

The second part of the book has a very promising title, but it does not present very much substantial material. The author enters into a very general discussion of the processes fundamental to any business undertaking. Then, in equally general terms, he points to the necessity of business-data-processing, including a few words about programming problems and the Simplex method. This reviewer fails to see the aim in these discussions, which are presented in such generalities that they border on platitudes. In fact, it is here rather than in the earlier part that more specific in-

formation and greater attention to technical detail are needed in order to substantiate the numerous generalizations made.

In this reviewer's opinion, the book misses the mark and does not even meet its own aims. The largest part of the work deals with the principles of computer-building, and appears to be too technical for the business-oriented reader, while not being technical enough for the professional engineer or scientist. The rest of the book is simply too general to be useful.

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53 [X].—P. G. GUEST, *Numerical Methods of Curve Fitting*, Cambridge University Press, New York, 1961, xiv + 422 p., 23 cm. Price \$15.00.

This book offers a solid treatment of curve fitting or, if preferred, regression analysis. It is intended primarily for students and graduates in Physics. Chapters 1 through 4 constitute a quick course in requisite statistical inference; Chapters 5 and 6 introduce regression theory and the fitting of a straight line; Chapters 7 through 12 cover a range of topics, including polynomial regression, standard deviations of estimates, grouping of observations, special functions regression, and multiple regression.

The emphasis is certainly on the practical side, although "it is intended that the book should cover the theoretical aspects of curve fitting and full derivations of all formulae are given." For these aspects, a knowledge of calculus is assumed.

The book is quite complete in its treatment of the problems under consideration. Calculating schemes are given (primarily for a desk machine) and great care is taken in the carrying out of specific problems drawn from physics. Chapter 12 contains a guide to the more important calculating schemes for the problems considered and provides extra illustrations of commonly occurring problems. These traits should be greatly appreciated by the worker who seeks procedural method.

Some minor comments seem appropriate. Although the accomplishment of all derivations is commendable, while the stress is laid on practicality, the usual problems arise. Thus on page 3, the statement "it will often be true that the value obtained for η does not depend on the value x of ξ " launches the reader into the notion of statistical independence. More generally, it may be expected that considerable difficulty will be met in reading through the book, unless the reader has more maturity than is indicated by the background expected. For dealing with specific sections this difficulty should be considerably reduced, especially with the aid of the guide in Chapter 12.

Some notation and terminology is disturbing to a statistician. For example, this reader would prefer some stress on the linearity of estimators in the statements of Gauss-Markov theorems.

These are small criticisms of what appears to be an excellent storehouse of information for the practical curve fitter.

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