65[Z].—PAUL SIEGEL, *Understanding Digital Computers*, John Wiley & Sons, Inc., New York, 1961, ix + 403 p., 23 cm. Price $8.50.

This book is intended as a comprehensive introduction to digital computers and data processors for a reader with no previous knowledge of the field. The author does expect the reader to have a basic understanding of electronics such as that acquired by a "ham."

The material is presented in an introductory chapter and three sections: Section I is devoted to the basic logical elements; Section II summarizes the circuits which can be used as computer building blocks; Section III describes the functional parts of a computer, and culminates with the detailed description of a specimen computer and its use.

The author states that the introductory chapter, which describes the digital computer and its functions, "provides the reader with an appreciation—a feel—for digital computers and a craving to learn more about them." This reviewer is not as certain as the author seems to be of the reader's reaction, for he finds the style of the book condescending and the material presented in a superficial fashion.

The first example of a superficial discussion is the following: In the introduction addition is described in terms of counting, and multiplication is described in terms of repeated addition; however, in the second chapter addition tables and multiplication tables are given for binary numbers. The relation between the two descriptions of addition and multiplication is never given.

Another example has to do with complements of numbers which are discussed in the first section, where subtraction is done by addition of complements. However, the multiplication of negative numbers by means of the products of their complements is never treated or even mentioned. Thus, the use of signed absolute values for the representation of numbers in a computer is never motivated, and the discussion of multiplication in the specimen computer described in the final chapter is very unclear. Therein computer subtraction is carried out by use of complements and multiplication is done by repeated addition, but the numbers are represented in absolute-value form.

The final example is furnished by the author's discussion of instruction modification on pages 338 and 339. In this discussion the author states that an add-address instruction may be used "together with *one* add instruction to cause the computer to accumulate a long list of numbers." The reader is never warned about the confusion that may result when the same accumulator is used for address modification and the accumulation of the sum, nor is he told of the price that must be paid in red-tape orders. Thus, he has no notion of the price that may have to be paid in orders and speed of computation when address modification is used.

These examples convince the reviewer that the book under discussion does not answer the great need for a good introductory book on digital computers.

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