

presented in 58 pages of tables.

The aim of the book is to present design information for engineers who have to deal e.g. with concrete-filled caissons which are only partially submerged. For this purpose, the material contained in the tables and the theory pertaining thereto are well presented.

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An Introduction to Computer Programming, by Henry Mullish. Gordon and Breach, New York, 1966. x + 244 pages.

This book provides a detailed introduction to FORTRAN II programming presented through selected problems not requiring extensive mathematical knowledge. The choice of FORTRAN II as a programming language is difficult to appreciate since in most computer installations FORTRAN IV is now used and there are already available many books describing the latter language.

An appendix summarizing the FORTRAN language would have been most desirable for reference purposes.

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1965 Brandeis University Summer Institute in Theoretical Physics. M. Chretien, S. Deser, Editors. - Vol. I: Axiomatic Field Theory, xi + 516 pages, \$32.50. Vol. II: Particle Symmetries, xii + 691 pages, \$35.00. Gordon and Breach, Publ., New York, 1966.

These are lecture note volumes; however, this somewhat derogatory term should not be taken too seriously since the "notes" are in fact carefully prepared and highly polished. They contain material ranging from the phenomenology of the unstable particles of modern high energy physics, the mesons in particular, to axiomatic field theory. Much of the application of mathematics to modern physics may be divided into two broad fields both of which are well represented and discussed here with extensive references to the literature. One field is concerned with constructing theories of particles in accordance with observed symmetries. This is a program with a long tradition, exemplified by the characterization of atomic states according to the irreducible representations of a symmetry group, $O(3)$. Volume I, along with parts of Volume II, is largely devoted to recent attempts to perceive and make use of more subtle symmetries of nature which may lead to a useful classification of elementary particles according to the irreducible representations of some group, perhaps $SU(6)$. The other main thrust of mathematics in modern physics is in the direction of discovering the analyticity properties of the Green's functions, essentially, which describe scattering processes. This aspect is investigated in great depth, particularly in the axiomatic field theory lectures of Volume II. These are two most

important volumes for the library of the physicist; the mathematician who is interested in the application of mathematics to physical problems would also be well advised to include them among his reading.

T. M. Luke, University of Western Ontario

A Course in Algol Programming, by G. F. Schaeffler. MacMillan, Toronto, 1966. ix + 201 pages.

The primary purpose of the book is to introduce the reader to programming concepts using the language, ALGOL 60. The major portion of the book is devoted to the description of basic ALGOL but at the same time, by means of examples, the techniques for describing a computational process are explained. The "Revised Report on the Algorithmic Language ALGOL 60" by J. W. Backers et al. is included in the appendix, thus allowing the reader who has mastered the basic ideas to extend his knowledge to the full generality of ALGOL.

Like any language, ALGOL is concerned primarily with the communication of ideas and is not particularly concerned with computers. However the implementation of the language for communication with a computer introduces certain machine bound effects. Throughout the book those features which would require modification in most implementations are stressed; in particular, input and output requirements are shown schematically, and the Elliot-803 Algol is used to illustrate any machine dependent aspects.

ALGOL is a language designed for the accurate description of a computational process. It was interesting to note that occasionally, in order to describe the language and the process, the author reverted to describing the action of a computer. For example, in discussing the assignment statement he mentions that "... an identifier refers to a unique 'storage location' which contains the current value of this particular variable for immediate access and use." This is followed by a comment on erasing stored values and the efficient use of variables. It is the belief of this reviewer that programming cannot be taught solely at a language level, that some knowledge of a computer is required. Certainly, a brief comment on numbers and their representation would have clarified the difference between type real and type integer. By implication, integers are described as being exact whereas real numbers are not. This immediately raises the unanswered question why real variables which assume integral values cannot be exact.

According to the preface, no previous knowledge of computers or programming is assumed. Ideas are introduced at an elementary level and extended by numerous exercises at the end of each chapter. Answers and hints to selected exercises are given in the appendix. It is difficult to know how well the author has succeeded in this objective though it seems unlikely that someone with no knowledge of compilers would understand what is meant by dynamic store allocations without explana-