



## AN INTRODUCTION TO COMPUTING

*Title* Computers and Their Uses

*Author* William H. Desmonde

*Publisher* Prentice-Hall, Inc., 1964

*Pages* xi plus 285

*Price* \$10.00

*Contains index and numerous charts*

*Reviewer* Ward Sangren

This book is a pleasant and informative introduction to the computer field. The author has a style which is easy to read and comprehend. The numerous examples with pictures and graphs generally illustrate effectively the subjects under discussion. This is not a book for the computer specialist or someone who desires deeper knowledge of a particular aspect of computing. Rather, the well-attained objective of the book is to expose the uninitiated person to a general knowledge of computers and their use.

The first seven chapters are concerned mainly with describing machines and their associated components. Although the discussion would hardly satisfy a design engineer, the discussion does appear to answer the customary questions of intelligent novices. Included in the discussion are comments concerning the evolution of data processing, punched-card machines, information representation, machine logic, electronic circuits, machine arithmetic and the algebra of automata.

The next three chapters deal with the programming of computers. Again, although this is not a sufficient introduction for a future programmer, it does cover the elements and techniques of programming, including the use of tapes in an adequate manner for the layman.

Chapters 11, 12, 13 and 14 are concerned with the numerous and varied applications of computers. It has become difficult even to classify all the applications of computers, although the author has attempted with some success to mention the present major uses. Here, as elsewhere, the predominance of an IBM exposure and background is apparent.

The final two chapters deal with the theory of automata and intelligence in the cosmos. The comments dealing with entropy and living beings (or society) should cause even the social scientist considerable thought.

One of the desirable aspects of this book is that the chapters can be read independently and in almost any order. This book can be recommended to a broad audience of

both technical and non-technical people as an introduction to computing.

*Ward Sangren, a Vice President of Computer Applications, Inc., is, himself, the author of a book on computers: Digital Computers and Nuclear Reactor Calculations (Wiley, 1960). Prior to his present position he served as a mathematician with General Atomic, Curtiss-Wright, and Oak Ridge National Laboratory, and was an Assistant Professor of mathematics at Miami University. His Ph.D. (mathematics, 1950) and M.A. degrees were received from the University of Michigan and his A.B. degree from Princeton. Active in the ANS Mathematics and Computations Division since its founding, he was its chairman in 1964.*

## IN THE WORLD OF POLYMERS

*Title* The Nature and Chemistry of High Polymers

*Author* K. F. O'Driscoll

*Publisher* Reinhold Publishing Corp., 1964

*Pages* 123

*Price* \$1.95

*Reviewer* Donald J. Metz

The audience to which this book is directed—" . . . those chemists, student or graduate, who may be interested in polymers, but have not had formal training in the subject . . ." should benefit from this brief, concise and illuminating introduction to the subject. The author has succeeded in presenting the elements of the nature, preparation, properties and some uses of polymers in a readable and enjoyable fashion.

The selected readings given at the end of the book afford a reasonably good basic bibliography. I feel that several works are omitted that are just as important as some of those listed, but admit that this may be merely a reflection of personal prejudices. Since, however, the reader of this review will probably be interested in the effects of high-energy radiation on both the polymerization process and the physical properties of formed polymers in nuclear applications, I must point out that the reader of this book will have to search elsewhere for this type of information. The one reference to radiation modification of polymers by graft copolymerization in Chapter 2 deals specifically with a sensitized ultraviolet light reaction.

There are several technical points that can be raised. In his treatment of kinetics of polycondensation reactions in Chapter 1, the author gives a distribution curve in Figure 1-2, showing the expected distribution of molecular weight

(number average) as a function of degree of polymerization. This particular distribution is obtained in one very special type of polycondensation process, no examples of which are presented in the discussion prior to this.

Secondly, although it is true that certain very specific systems exist in which both the change in enthalpy and entropy are positive for the propagation reaction, this type of system is extremely specific, perhaps too specific for a work such as this. In fact, in a more general sense, the failure of most monomers to propagate below some temperature is more a question of activation energy than anything else.

Thirdly, the differentiation between thermoplastic and thermosetting polymers in Chapter 4 gives a false impression. Historically, the term thermosetting was originally applied to such systems as phenol-formaldehyde polymers which, because of the presence of still unreacted sites, would cure further instead of melting upon application of heat. Although a highly crosslinked polymer network does not exhibit a "liquid" state on heating, due to the crosslinks, I do not consider such a system as a thermosetting polymer.

Finally, the reference to the book *International Symposium on Inorganic Polymers* (Nottingham, 1961), Chemical Society, London, 1961, is cited incorrectly in this book as 1962. This is probably a misprint, and I mention it only because it is an excellent reference and I would like to save a little time for anyone who attempts to find it. I spent a reasonable amount of time looking for it with the wrong year.

In summary, despite the several points of disagreement which exist between the author and the reviewer, I consider this to be a fine book for the audience to which it is addressed. In particular, I would like to commend the author on his inclusion of a chapter on inorganic polymers, until recently a much discounted area. The author's words about the study of inorganic polymers ". . . being given an added urgency by the material requirements of the space age, which have already pushed beyond the temperature limits of most organic polymers. . ." are of timely significance.

This book is well worth the nominal price (\$1.95) for anyone interested in a brief introduction to the world of polymers.

*Donald J. Metz is a member of the Radiation Research Section at Brookhaven National Laboratory where for the past ten years he has studied the radiation chemistry of organic compounds, radiation polymerization, and graft copolymerization. He received his M.S. and Ph.D. degrees in 1949 and 1955, from the Polytechnic Institute of Brooklyn,*

*majoring in physical chemistry. Since 1947 he has also been on the faculty of St. Francis College (New York), at present as a Professor in Chemistry and Physics.*

## WHOLE-BODY COUNTING

*Title* Directory of Whole-body Radioactivity Monitors  
*Author* IAEA  
*Publisher* International Atomic Energy Agency/1964  
*Pages* 704  
*includes 450 diagrams and figures; 37 tables.*

*Reviewer* Stanton H. Cohn

This book consists of a compilation of data on 111 whole-body counters in the world. The information was obtained by the IAEA, using a standardized questionnaire, with the object of permitting an intercomparison of data on the many whole-body counters now in existence. Data are tabulated on counting methods, detectors, shielding, auxiliary equipment and calibration techniques. Some 600 pages of data in tabular form, along with numerous diagrams of installations and graphs of spectral data of the various whole-body counters, make up the bulk of the book. A large bibliography of articles on all phases of whole-body counting is also included.

To eliminate the many minor variations in counter design and to analyse basic differences in operation and performance in terms of design variables, it is necessary that a critical intercomparison be made. While an intercomparison is provided in the final section, in tabular form, it is wholly factual and presents no critical analysis. The reader thus is left free to draw his own conclusions as to the merits of the various techniques and instrumentation.

The book makes a large contribution to the rapidly developing field of whole-body counting by compiling, for the first time, data on the rapidly proliferating breed of whole-body counters. It is of primary interest to specialists in the field, and to those who contemplate construction and operation of a whole-body counter; it is of limited interest to all others.

*Dr. Stanton H. Cohn has been a Scientist in the Medical Physics Division at Brookhaven National Laboratory since 1958. Born in 1920, he received his Ph.D. in physiology and radiobiology in 1952 from the University of California. He has held posts at Argonne National Laboratory (University of Chicago), Crocker Radiation Laboratory (University of California), and the U.S. Naval Radiological Defense Laboratory. His chief interests lie in the chemical dynamics of the mineral metabolism of bone, the distribution and biological effects of internally deposited radioisotopes, and the inhalation hazards of radioactive material.*