mate capability of these systems, programmed, but no longer limited, by humans! His citation of U. S. and other Western literature is generous, and perhaps his book is too strongly influenced by some of our own "automation addicts" whose philosophies are: "if one can count the bits involved, one can mechanize the process" or "it's just a matter of 'zeros' and 'ones', what could be simpler?" In Russia, as in the U. S., the tendency to confuse some of the simpler facts of information theory with the far less understood theory of knowledge and brain functions is thus apparent. The book, then, is useful, not only for what it says explicitly but also for what it implies—that the blue sky knows no iron curtain!

HERBERT ERNST

Applied Mathematics Laboratory
David Taylor Model Basin
Washington, D. C.

67[Z].—THEODORE E. HARRIS, *The Theory of Branching Processes*, Prentice-Hall, Inc., Englewood Cliffs, N. J., 1963, xiv + 230 pp., 24 cm. Price $9.00.

This book presents a systematic and thorough treatment of a class of Markov processes called "branching processes." The simplest example is the Galton-Watson process $\mathfrak{Z} = \{Z_n : n = 0, 1, 2, \cdots\}$, where $Z_0 = 1$ and the conditional distribution of Z_n, given $Z_{n-1} = k$, is that of the sum of k independent, identically distributed non-negative integer-valued random variables. In the classical interpretation, Z_n is the number of descendants in the nth generation of the progenitor ($Z_0 = 1$). The chapter headings are:

Chapter I.	The Galton-Watson branching process
Chapter II.	Processes with a finite number of types
Chapter III.	The general branching process
Chapter IV.	Neutron branching processes (one-group theory, isotropic case)
Chapter V.	Markov branching processes (continuous time)
Chapter VI.	Age-dependent branching processes
Chapter VII.	Branching processes in the theory of cosmic rays (electron-photon cascades)

The mathematical level required to read this book is about that of Feller, although there is frequent use of material that is found in books such as those by Doob and Loève. A large number of theorems, remarks, and examples are given without proof. Since there are no problems, these "loose ends" provide a perfect opportunity for the reader to check his comprehension of the material.

This book is highly recommended as an authorative and well written exposition by a significant contributor to this field.

ALAN G. KONHEIM

IBM Corporation
Yorktown Heights, New York

68[Z].—H. D. HUSKEY & G. A. KORN, editors, *Computer Handbook*, McGraw-Hill Book Company, Inc., New York, 1962, xviii + 21 (individually numbered) sections, 24 cm. Price $25.00.

The *Computer Handbook* presents the general principles of the design and utilization of both analog and digital computers. Sufficient detail is presented in both

fields so that a computer could be constructed or, if one had a computer, it could be used efficiently.

Sections 1 through 9 cover analog computers, while sections 10 through 21 are concerned with digital computers.

Covered under the subject of analog computers are terminology, design of analog-computer building blocks and systems, and the organization and maintenance of analog computers. Also covered are the applications of analog computers to control systems (such as process-control), random-process studies, and their application to mathematical solutions (such as algebraic-equation solvers), the solution of partial differential equations, and linear programming methods.

There is also a section devoted to solid-state analog computer components, which describes many new solid-state circuits.

The author describes many techniques that are not too familiar to many engineers, such as network-type analogies for fields and structures. These are illustrated by mechanical, electro-mechanical, hydrodynamic, and heat-transfer problems.

The remainder of the book deals with digital computers, the solid-state components used with computers and typical circuits such as emitter followers, shift registers, and adders. Also, input-output devices such as magnetic drums and tape handlers are covered thoroughly.

The only omission noted in the book was in the section dealing with logical elements. The use of stroke functions [1] in the reduction of logical systems was not mentioned as a means of determining minimal nets corresponding to a given set of logic functions.

The section covering programming and coding is thorough—indeed, probably too detailed in its description of ALGOL-60, in contrast to its abbreviated discussion of other languages.

The last section covers special-purpose computers, with particular emphasis on the digital differential analyzer, which the author states can be substituted in many cases for an analog computer in the solution of ordinary differential equations. The former provides a higher order of accuracy, since the precision of operations is limited only by a register size rather than by the tolerance of components of an analog computer. This type of special-purpose computer could be used to generate and supply continuous-control variables or other functions to a general-purpose computer.

In the opinion of the reviewer, this handbook offers much valuable information, even to the most experienced computer personnel.

WILLIAM SEALS

Applied Mathematics Laboratory
David Taylor Model Basin
Washington, D. C.

1. N. T. GRISAMORE, "Logical design using stroke functions," IRE *Transactions on Electronic Computers*, Vol. EC-7, No. 2, June 1958.

69[Z].—ALLEN NEWELL, ET AL., *Information Processing Language-V Manual*, Second Edition, Prentice-Hall, Inc., Englewood Cliffs, N. J., 1964, xxxvi + 267 pp., 27 cm. Price $7.95 (paperbound).

The size of this book needs to be somewhat discounted because most of it is set in pica type, at four lines per vertical inch, and the pages are provided with generous