

Books

ASTRONOMY

by Fred Hoyle

Doubleday \$12.95

A lavish, oversized (8x11) pictorial history of astronomy by Fred Hoyle, the British astronomer who has served as part-time visiting professor at Caltech during the past five years. The illustrations are numerous and colorful; the text is lively, comprehensive, and understandable.

THE CHALLENGES OF SPACE

edited by Hugh Odishaw

University of Chicago Press \$6.95

A collection of 22 essays on the scientific aspects of space exploration, covering everything from space research and technology to national space programs and international space cooperation. The authors, all experts in their fields, include such men as Joshua Lederberg, John R. Pierce, James A. Van Allen, Lyman Spitzer, Jr., and George P. Sutton.

The material, which originally appeared in a special issue of the *Bulletin of the Atomic Scientists* (May-June 1961), has here been updated and expanded.

ILLUSTRATED GUIDE TO U. S. MISSILES AND ROCKETS

by Stanley M. Ulanoff

Doubleday \$3.95

A new revised edition of this useful quick-reference book.

SCIENCE WRITER'S GUIDE

by John Foster, Jr.

Columbia University Press \$6.00

This compact dictionary of scientific terms ought to prove useful not only to science writers but to readers of general scientific material as well. It may not have every scientific term in it, but it's a good start. Definitions are short and simple and they range all the way from abampere and

ACTH to magnetohydrodynamics, Mendel's laws, penis envy, phonon, zooplankton, and zygote.

THE SPACE INDUSTRY: America's Newest Giant

by the Editors of *Fortune*

Prentice-Hall \$4.95

A collection of tightly-written, informative articles from *Fortune* that touch on assorted aspects of space-technical, physiological, and commercial.

ALUMNI BOOKS

ELECTRIC CIRCUIT ANALOGIES FOR ELASTIC STRUCTURES

by Richard H. MacNeal, MS '47, PhD '49

John Wiley & Sons, Inc. \$11.50

DIGITAL PROCESSES FOR SAMPLED DATA SYSTEMS

by Alfred J. Monroe, MS '50

John Wiley & Sons, Inc. \$12.50

Coming Soon...

QUANTUM THEORY OF MOLECULES AND SOLIDS Volume 1—The Electronic Structure of Molecules

By JOHN C. SLATER, Massachusetts Institute of Technology. Available in January, 1963.

First volume of a series which will survey modern solid state theory. This series is in effect a continuation of Slater's two volumes on QUANTUM THEORY OF ATOMIC STRUCTURE. This text covers the theory of the relatively simple molecules for which fairly complete theoretical discussions are available. In connection with this, the author has developed general methods of handling molecular theory, including the nature of the chemical bond and the symmetry of molecules, including a thorough discussion of group theory. Intended for graduate level courses in solid state physics, and should also be of interest to people working in chemical physics, quantum chemistry and materials science.

INTRODUCTION TO STATISTICAL COMMUNICATION THEORY

By WILLIS W. HARMAN, Stanford University. McGraw-Hill Electrical and Electronic Engineering Series. Available in January, 1963.

A senior or first-year graduate text introducing the field of statistical communication theory. The text covers work in the study of random signals and probability theory, information and coding theory, and the processing of random signals. The purpose of the book is to prepare the student to read the literature in this field and to give him a reasonable amount of facility in setting up problems in statistical terms.

PLASMA PHYSICS AND MAGNETOFLUIDMECHANICS

By ALI BULENT CAMEL, Northwestern University. McGraw-Hill Series in Missile and Space Technology. Available in March, 1963.

The text indicates how the subject of cosmical electrodynamics may be utilized in developing various technological devices. It

coordinates the many aspects of magnetofluidmechanics into a systematic and clear approach. Although primarily an introductory textbook for the student of engineering, it will also prove to be a very useful source book for the practicing engineer. Considerable attention has been given to plasma physics because the engineering devices being developed will, by and large, utilize ionized gases as working media. Consequently, the viewpoint followed is primarily that of a thermodynamicist-fluidmechanician rather than that of a hydrodynamicist.

INTRODUCTION TO THE UTILIZATION OF SOLAR ENERGY

By A. M. ZAREM and DUANE D. ERWAY, both of Electro-Optical Systems, Inc. Available in March, 1963.

Provides a thorough treatment of the fundamental aspects of solar utilization, and timely information on the nature and problem areas which arise in attempts to utilize solar energy by a very wide variety of means — from the basic one of obtaining heat to the more sophisticated applications in space power systems. Analytical work is presented to determine the performance capabilities of various devices, and sufficient material is included to enable the reader to analyze new or novel approaches to the utilization of solar energy as they occur in the future. Comprehensive coverage makes it ideal for the beginner or for the graduate student or practicing engineer.

INTRODUCTION TO COMPUTER PROGRAMMING

By RICHARD V. ANDREE, University of Oklahoma. Available in February, 1963.

This brief book is intended to remove some of the mystery that has been created concerning computers and computer programming and to serve as a four lesson introduction to the art of writing instructions for a digital computer. The author considers the development of computers as "the world's most important advance since the beginning of the industrial revolution." The book is well illustrated and features a good variety of problem material.

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