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chapters (nonrelativistic quantum mechanics) entitled *Foundations of Quantum Mechanics*, but those who buy this will miss one of the best chapters in the book, that dealing with the exclusion principle.

American Institute of Physics Handbook. Edited by Dwight E. Gray with 8 section editors. 1524 pp. McGraw-Hill Book Co., Inc., New York, 1957. \$15.00. Reviewed by Henry Wise, Stanford Research Institute.

What scientific information does one seek in a reference work such as a handbook? Should it take the place of a research library? Should it serve as a source book of technical information? It is gratifying to find that the American Institute of Physics in the sponsorship of the *AIP Handbook* has provided the scientist with an all-inclusive reference work which contains more than a summary of physical data. In its listing of graphs and tables, this volume resembles the make-up of other scientific handbooks, but in addition, many chapters of the *AIP Handbook* contain concise summaries of the fundamental equations in the various branches of physics. Thus one finds in this book a number of useful formulas and derivations in many fields of physics. Because of its encyclopedic coverage, this information is limited in scope. However, numerous literature references placed at the end of each chapter enable the reader to supplement this information.

The *Handbook* is divided into 8 sections, each of which is the work of one or more specialists. In this manner authoritative information and references are made available to the reader. The wide scope of the *AIP Handbook* makes it impossible to list all the individual subjects assembled under one cover. However, it may be worthwhile to sample some of the information. The section in mechanics includes various physical properties of solids, liquids, and gases, including crystallographic data, meteorological data, information on liquid jets and shock waves. The section on acoustics contains an analysis of sound propagation in fluids, architectural acoustics, and a very instructive chapter on mobility and classical impedance analogies. The section on heat lists data for high-pressure effects and critical phenomena. The section on electricity and magnetism includes static-field formulas and dynamic-field equations, numerous tables on properties of dielectrics, semiconductors, and nonmetallic conductors; and the electric and magnetic properties of the earth and stars. The chapter on optics exhibits recent data for the optical constants of metals and a brief description of radio astronomy. As is to be expected, the section on atomic and molecular physics reflects the rapid expansion and growth of this specialized field of physics. Of particular interest is the large body of information on ionization of gases. The final section on nuclear physics is of particular value to the scientist engaged in applied physics and engineering. The detailed information available in this section extends from the energy levels of light nuclei to fission product yields and thermal cross sections. And for those interested in locating a particle accelera-

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Discovery of the Universe: An Outline of the History of Astronomy from the Origins to 1956. By Gérard de Vaucouleurs. 328 pp. The Macmillan Co., New York, 1957. \$6.00. Reviewed by C. C. Kiess, National Bureau of Standards.

It is only four centuries since the Ptolemaic universe, circumscribed by man's unaided vision and supported by hierarchical authority, began to give way to the ideas of Copernicus and Galileo. In this brief historical period the fixed, immobile Earth of the ancients, surrounded by the spheres of the planets and stars, all immersed in the boundless empyrean, has taken its proper place in a solar system, itself a minor member of a galactic system which, in turn, is but one among tens of thousands of similar systems. This vaster portrayal of the universe has reached its present state through the contributions of many scientists, some of them professionals, many of them amateurs, but all of them imbued with the desire to develop new aids to vision and understanding, and to use them to add new features to the picture.

The step-by-step story of how observation and analysis have united in developing this picture is the subject matter of this book. The first chapter acquaints the reader with the Ptolemaic universe. The following eight chapters cover the astronomical discoveries from the dawn of the 17th century to the present. For convenience this epoch is divided into eight eras of successively decreasing duration, but each of increasing productivity. Each era is characterized by a typical class of discoveries, beginning with the overthrow of the geocentric hypothesis and ending with the penetration of outer space by electronic techniques. Each new discovery, whether a new aid or method of observation, or a new insight into the sidereal system, is described and ascribed to its discoverer. Few if any biographical notes concerning these discoverers are given; rather, it is the impact of their discoveries on contemporary thought that is emphasized.

This book is a translation from, and an enlargement of, the French edition, which appeared in 1951 under a different title. In style and diction it apparently has lost very little in the process of translation. A set of twenty halftone plates of astronomical objects is distributed between chapters, thus giving the reader a better idea of what visual observers see only imperfectly through their telescopes. Accompanying each plate is an ample legend explaining its significance. Diagrams in clarification of the text are given where needed. Only a few typographical errors were noted; and the interchange in relationship between a well-known father-and-son team



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