

Book Reviews

Elementary Particles. By David H. Frisch and Alan M. Thorndike. D. Van Nostrand Co., Inc., Princeton, N. J., (1964). 152 pages, 42 drawings, 9 plates, index, bibliography. \$1.75.

Elementary Particles is a simple, nonmathematical exposition of the current state of elementary particle research intended for readers familiar with general physics. The authors say in their preface that familiarity with quantum mechanics is not necessary for understanding their book, but I think prospective readers should at least be acquainted with the notions of quantum mechanics. Physicists and chemists, regardless of their specialty, will have little difficulty reading this book, but other scientists may not be completely at home in the milieu of elementary-particle physics. The book should nevertheless have a very wide appeal: I recommend it to physicists trying to keep up with current events in their field as well as to students looking for an introduction to a new and rapidly evolving field and to scientific dilettantes in general.

The book has ten chapters. The first introduces the "unseen world" of the elementary particles and briefly summarizes the main features of atomic and nuclear structure. The second and fourth introduce the elementary particles themselves, giving their properties and their relations to one another. The third and fifth chapters deal respectively with the detection of elementary particles and the means for identifying them and measuring their properties. The sixth chapter is a short one dealing with elementary-particle reactions and mainly leading up to the phenomenon of "associated production." The seventh chapter describes the discovery of the antiproton. Chapter 8, in some ways the weakest, but by no means bad, deals with what may be learned from scattering experiments. Chapter 9 explains the conservation laws used in elementary particle physics, advancing from the better known laws of conservation of energy and momentum to the more esoteric laws of conservation of baryons, leptons, isotopic spin, and strangeness. The subject matter of this chapter is difficult and the authors are to be congratulated for their very clear and understandable text. The last chapter, Chapter 10, is entitled "Order

Out of Chaos?"; but lest the reader be misled by this title into believing that he will find out in the last chapter "who-dun-it," let him, in the authors' words, "be forewarned that in the end we won't be able to give any real explanation of why these particles exist or why they behave the way they do. We are at the farthest frontier of knowledge, and as yet no unifying theory is known."

The book is written in a lively, informal style that is a refreshing breath of wind in the stifling atmosphere of today's scientific prose. It is also well printed. The type is large and clear, and the major divisions of the book are clearly marked. The drawings are appropriate and well drawn, and the plates are interesting and give the reader a chance to examine the raw data of elementary-particle physics. The book has a soft cover, but I think one cannot expect more for \$1.75.

In sum, an excellent book that I heartily recommend.

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About the Author: Lawrence Dresner has been a physicist at the Oak Ridge National Laboratory since 1954. His work, until recently, has been in the fields of reactor and nuclear physics. He is currently working on the problem of purifying salt water.

Production and Use of Short-Lived Radioisotopes from Reactors, Volumes I and II. Proceedings of a Seminar, Vienna, (5-9 November, 1962). Vol. I, 433 pp; \$8.50. Vol. II, 272 pp; \$5.50.

While the title of these proceedings might suggest that the information is only of importance to users of short-lived isotopes, the extensive discussion of applications is in no way limited by the life-time of the isotope. As a result, these proceedings will be of value to anyone interested in isotope applications because they contain both excellent review papers and papers that report