

The book should obviously be in any library connected with neutron research facilities. However, its heavy dependence upon theoretical evaluations (including perturbations therefrom) for various models, its rather fuzzy treatment of theoretical-experimental correlations, and what appears to be a rather general disdain for clearly describing experimental methods and their actual attainments appear to limit its usefulness to other than those working in fields related to its specific topic.

Hugh F. Henry, professor and head of the Department of Physics at DePauw University, graduated from Emory and Henry College and received his PhD degree in Physics from the University of Virginia. His work in nuclear energy dates back to 1949 when he became involved in the fields of criticality control and radiation protection at the Oak Ridge Gaseous Diffusion Plant. He has been with DePauw University since 1961 where he has originated courses and research involving radiation. His book, Fundamentals of Radiation Protection, was published by Wiley-Interscience in 1969, and he spent his sabbatical leave during the school year 1968-1969 making neutron absorption studies at the NRTS at Idaho Falls, Idaho.

Title Physics, Concepts and Consequences

Authors Raymond L. Murray and Grover C. Cobb

Publishers Prentice-Hall, Inc.

Pages 713

Price \$12.95

Reviewer Thomas O. Passell

This book is intended by the authors as a text book for students in liberal arts colleges. It reads as one would expect a lecturer to speak. Interpretative paragraphs abound, answering common questions a beginning student might have about each subtopic subject. The authors have done well to use MKS units throughout, except for some notable lapses—the Section 1-5 on “Earth and the Universe” where miles become the

prime unit. Frequent problems are given at the end of each chapter involving the conversion among various sets of units. These are presumably for the purpose of teaching a translation mode between the more familiar English units and the less familiar metric units. Since most of the magnitude range is not familiar to the student, this reviewer feels such persistent exercise in continual conversion of units is a non-productive use of the student's time—time which could be better spent learning fundamental principles. In the astronomical realm, a student has as difficult a time visualizing 10^8 miles as he does 1.6×10^{11} meters. I conclude that this book could be significantly and usefully shortened by deleting the numerous references to and problems involving the English system of units.

The units question is important because it is the acknowledged source of many students' feeling that physics is difficult. The authors' aim of clarifying the subject to nonspecialists is not served by teaching them to simultaneously learn two or three languages in which the subject may be expressed.

The authors have made a largely successful effort at improving the logical connectivity between various sub-branches of physics. Doubtless there are yet other ways to do it, a challenge for authors of future text books. The authors' idea of dealing in parallel with all sorts of forces and motions from the atomic to the astronomical scale is basically a sound one. It should appeal even more to advanced students who have a background of information in just one part of the size range.

The authors' stated goal is to keep the book to a compact size. Some additional features which should improve even further the compactness of the text are:

1. The use of more tables showing the analogies among various topics.

2. A more rigorous exclusion of the English system of units once the general problem of converting from one set of units to the other has been explained, as it has been in Chapter 2.

I heartily commend the book to those wishing a clear presentation on a moderately sophisticated level of the basic physics principles needed for interpretation and use of modern technology. For students of liberal

arts colleges, the book will be a partial step towards convincing them that physics is something other than a frustrating maze in which 90% of the total time is spent converting from one set of units to another.

Thomas O. Passell is a senior physicist at Physics International Company, San Leandro, California. His current interests are in the field of diagnostic measurements in matter at very high energy density. He has published papers in the areas of beta-ray spectroscopy, fast-neutron-activation cross sections, upstream diffusion, elastic proton scattering, plasma calorimetry, radiative transfer, and x-ray technology. He has been active in the fields of nuclear reactor coolant technology, controlled thermonuclear fusion research, the effects of nuclear explosions, neutron dosimetry, and x-ray fluorescence. Passell received his BS degree at Oklahoma State University (formerly Oklahoma A & M) in 1951, and his PhD at the University of California, Berkeley, in 1954.

Title Nuclear Reactions

Author Daphne F. Jackson

Publisher Barnes and Noble, Inc., 1970

Pages 260

Price \$10.50

Reviewer E. Linn Draper, Jr.

This book originated as a series of lectures for graduate students at the University of Surrey. Its stated aim as set forth in the Preface “is to provide an introduction to the study of nuclear reactions at a level suitable for first year research students. At the same time it is hoped that selected sections of the book could serve as suitable background reading for an advanced undergraduate course in nuclear physics.” While the book has a number of admirable qualities which will be mentioned below, it is this reviewer's opinion that the level of difficulty is is too great to achieve the aim.

It is necessary that the student have a foundation in quantum mechanics at the level of the books by