Books

Progress in Nuclear Physics. Volume 2. Edited by O. R. Frisch. 295 pp. Pergamon Press Ltd., London, England; Academic Press Inc., New York, 1952. $9.25.
Annual Review of Nuclear Science. Volume 2. Edited by C. D. Coryell, L. F. Curtiss, L. I. Schiff, E. Segrè, and R. E. Zirkle. 429 pp. Annual Reviews, Inc., Stanford, California, 1953. $6.00.

There is good reason for reviewing these collections at the same time. They are not in competition with regard to subject matter, for even those articles in which there is an overlap present enough difference in approach to warrant attention to both.

Research physics still strives to remain a single science, to the mounting dismay of its graduate students. The two subject volumes are significant contributions to that effort. They present results and techniques of a variety of researches in nuclear physics for the edification of those in other fields and they record and evaluate the literature to the benefit of those actively engaged in particular subjects. In both volumes the articles present an average of one hundred references each. Thus, despite the universal tendency to 'quote only one's friends' the reference lists, as well as the contexts in which they arise, should provide valuable aids to those who are starting an exhaustive survey on a particular subject.

In trying to keep abreast of developments in a number of specialties it is necessary to call upon a large number of contributors. This brings with it a wide range in experience, perspective and writing ability among the authors. It is quite clear that the readability, and hence general usefulness, of the volumes could be improved by a more vigorous editorial policy. This is not meant as a criticism of the current editors who have many other things to do. In fact, those articles contributed by members of the editorial committee are among the best organized and carefully written. But there is room for improvement in some of these matters needed to bring the standard for all papers up to that exemplified by the reference lists.

As to differences between the two volumes we note that *Progress* presents eight titles in 295 pages and *Annual Review* sixteen titles in 410 pages. Moreover, the pages in *Progress* are several percent wider, for the same number of words, and are therefore considerably easier on the eye. Another difference is that over half the authors in the *Annual Review* are theoretical physicists whereas the contributors to *Progress* are predominantly experimentalists. This does not produce as much disparity in mathematical content as one might think. In short, the technical level of the two is about the same and very acceptable to readers for whom the volumes are meant.

Charles Critchfield
University of Minnesota

Nuclear Physics. By W. Heisenberg. 225 pp. Philosophical Library, New York, 1953. $4.75.

This short volume, based on a series of lectures delivered during the past war before the Association of German Electrical Engineers and last revised in 1948, serves as an excellent introduction to the subject for the technically trained nonphysicist. Especially noteworthy are the first two chapters, dealing with the historical background and with the basic ideas of quantum theory, which aid greatly in understanding the following portions. Although the physicist reader will not find in this volume the same wealth of insight and new ideas which still makes the reading of the author's little volume on *Quantum Theory* such a rewarding experience, there are, nevertheless, many original and useful pedagogical devices which should interest those faced with the problems of teaching nuclear physics on an elementary level.

As a scientific work, the volume is marred by the appendix. Here the author gives a highly personal history of the German war efforts in the field of atomic energy. The article adds little to the technical information already published on the subject and, as an historical document, leaves one with the impression of having viewed history through the wrong end of a telescope. (Readers interested in this aspect of the subject are referred to *ALSOS* by S. A. Goudsmit.)

The translation is excellent. Indeed, it is only rarely evident that the book was not originally written in English.

Bernard T. Feld
Massachusetts Institute of Technology

Introduction to Solid State Physics. By Charles Kittel. 396 pp. John Wiley & Sons, Inc., New York, 1953. $7.00.

Professor Kittel has succeeded admirably in his purpose, announced in the preface, of producing a textbook suitable for an introductory course in the subject of solid state physics for seniors and graduate students. This book covers most, but not all, of the important topics of the field of the solid state. There are separate chapters on superconductivity, semiconductors (including transistors), ferro- and antiferromagnetism, ferroelectric crystals, diamagnetism, paramagnetism, and the band theory of metals; and two chapters on imperfections in solids. These are in addition to the expected chapters on crystal structure, lattice energy, lattice vibrations, thermal properties, dielectric properties, and the free-electron theory.

The topic of each chapter is developed in terms of both description and theory; the emphasis in general is on theoretical treatment of simple or idealized models.