Physical Sciences

Nuclear Radiation Detection. William J. Price. McGraw-Hill, New York, ed. 2, 1964. x + 430 pp. Illus. $12.75.

Nuclear Radiation Detectors. Jack Sharpe. Methuen, London; Wiley, New York, ed. 2, 1964. xii + 237 pp. Illus. $4.95.

The techniques of nuclear radiation detection are changing rapidly so books on the subject must be revised every few years. However, only books of excellent quality, like the two reviewed here, are brought out in new editions.

Nuclear Radiation Detection, by William J. Price, covers the field completely and comprehensively, with emphasis on devices that have widespread practical applications. All the methods of detection and energy measurement of fast charged particles, photons, neutrons, and neutrinos are included. There are individual chapters on ionization chambers, the Geiger-Mueller counter, proportional counters, scintillation detectors, semiconductor radiation detectors, neutron-detection methods, and photographic emulsions and other detection methods. The detailed and lucid descriptions of instruments include any necessary elementary mathematics. The diagrams are detailed but clear. There are sample problems with worked solutions in the text, and additional problems at the end of each chapter (although answers to the latter are not given). The book is well indexed, and the references are particularly comprehensive, although no book on semiconductor radiation detectors is mentioned.

The associated electronics is dealt with in the last chapter. This aspect is well treated throughout the book, but some discussion of elementary fault finding in equipment could have been included for the benefit of those who are not electronics experts. There is a chapter entitled "The properties of nuclear radiation" and another good one in which detection methods are surveyed. However, in the latter chapter Price does not indicate which detector is best for use in a particular situation. An all-important chapter on statistics is included.

Unfortunately, there is not much indication of historical perspective—for example, there is no mention of H. Becquerel, W. Bothe, or C. T. R. Wilson, and it is not made clear that the development of the cloud chamber and that of the bubble chamber, in close propinquity in the text, were separated in time by 40 years.

This book will continue to have a wide appeal, not only to nuclear physicists and students of physics, but to those in other disciplines who use radiation detectors. A third edition should deal more comprehensively with the very recent development of γ-ray spectrometry using Ge(Li) detectors.

Nuclear Radiation Detectors, by Jack Sharpe, is one of the first-class, inexpensive, and pocket-sized Methuen's Monographs on Physical Subjects, much beloved by British students. Although solid-state devices are only dealt with in a cursory fashion, the scintillation detector and gas-filled counters are dealt with very thoroughly. There are also chapters on the physics of the interaction of radiation with matter and the efficiency of detectors. This book is an erudite, highly technical, generalized treatise, especially written for the physicist and electronics specialist.

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Botany

Our Plant Resources. Plants and their economic importance. Frederick L. Fitzpatrick. Holt, Rinehart, and Winston, New York, 1964. 173 pp. Illus. Paper, $1.28; cloth, $2.50.

Presumably, *Our Plant Resources* is intended as introductory reading material on economic botany for readers at approximately the junior high school level. Surely no text intended for a more mature audience would contain such a precious device as that which refers to "early Europeans of the postglacial period" as "Mr. and Mrs. John Stonehatchet," or such outworn filler as the following:

> Today, we obtain fibers from a number of plants that we raise as crops, and also from a variety of forest trees. Some of these fibers are stiff, some are pliable, some are long, some are short, some are coarse, and others are fine; in fact, nature provides many different kinds of fibers which will satisfy all sorts of needs (p. 120).

Regardless of the class of reader to which the book is directed, two very serious drawbacks are immediately obvious: the volume is both dull and replete with errors.

Dullness is an almost inexplicable fault in a field that contains some of the most fascinating biological material available. The saga of the Smyrna fig wasps, for example, is dismissed in half a paragraph; the fascinating material on plant narcotics occupies less than three grey pages, within which can be found the moralizing (and inaccurate) statement that "the danger of using marijuana relates to the fact that the user may commit a crime while under its influence, and the possibility that he will 'graduate' to the use of heroin."

Dullness and sermons may perhaps be excusable in a work concerned with botany, but gross oversimplification and inaccuracy certainly are not. One can find, with only cursory examination, errors on about half of the pages of the book, and the rudimentary glossary is a veritable treasure trove of biological misinformation and error. Cellulose is defined, if that is the proper word, as "a compound commonly found in the walls of plant cells." An herbivore is "a plant eating mammal." Under the definition of *Perennial* there is the following cryptic statement: "Many tree species are perennials."

The term *tuber is* nowhere defined but is used in many senses. Sorghum is referred to the genus *Holcus*; gymnosperms are defined as plants that are evergreen and cone-producing, and have "seeds not enclosed in seed cases," while angiosperm seeds "are enclosed in seed cases." Lichens are called examples of symbiotic associations; the list is extensive.

The misspellings, some of which are no doubt typographical, are also prominent. Cotton is referred, in three places, to the genus "Glossypium" (*Gossypium*); *Castilloa* ends up as Castilla; *Elaeis guineensis* becomes E. quineensis, and so on.

In addition, many technical terms used without definition in the text are not included in the glossary; the bibliography is minute and composed of such immediately important references for futher study of economic plants as "How to grow house plants" and "Leaves—their place in life and legend."

The termination of the book is a half-hearted page and a half on conservation which thoroughly confuses conservation principles with those of economic production.

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