developments in acoustics. The many other developments include the development of semiconductor transducers and their use in measuring strains, accelerations, and displacements; phonon amplification, using paramagnetic crystals or piezoelectric semiconductors; improved, high-frequency, ultrasonic delay lines; and the applications of ultrasonics to cleaning, testing, machining, polymerization, and medical diagnosis. Considering the increasing number of workers in this field, and the vastly increased number of applications in the laboratory and in industry, this is an opportune time for the appearance of a series of books which attempts to summarize the present state of knowledge of physical acoustics. This volume is the first of a six-volume series, edited by W. P. Mason, whose professed aim is to provide a comprehensive introduction for those entering the field and for those interested in using its results. The first volume succeeds admirably in these purposes.

The present volume deals primarily with the tools and techniques of physical acoustics necessary for the measurement of stress waves in fluids and solids. The first two chapters, which are introductory in nature, constitute an excellent if succinct review of the classical theory of propagation of small amplitude waves in fluids and solids (Thurston) and of guided wave propagation in cylinders and plates (Meeker and Meitzler). Special attention is appropriately paid to topics that are important in current research—for example, mode coupling and wave propagation in strained elastic crystals. Recognizing that piezoelectric quartz transducers have been exhaustively discussed in many previous books (for example, both Cady and Mason), Berlincourt, Curran, and Jaffe restrict their discussion of transducers primarily to piezoelectric ceramics, together with a brief analysis of piezomagnetic transducers. This chapter presents a wealth of well-organized data (in tables and charts) on ceramic transducers. In a relatively brief chapter, McSkimin summarizes the extraordinarily varied methods used for measuring mechanical properties (primarily velocity and attenuation of stress waves) of liquids and solids. Accompanied as it is by 212 references, this chapter serves as an excellent guide to the literature. The applications of acoustical and mechanical waves in filters and oscillators are summarized in a chapter by Mason. The final two chapters discuss the uses of elastic waves in dispersive and nondispersive delay lines; both piezoelectric and magnetostrictive guided-wave delay lines are discussed in some detail by May, with a briefer treatment by Mason of the more conventional, multiple-reflection, ultrasonic delay lines.

This book may be recommended to physicists and others concerned with developments in the techniques of physical acoustics, with special emphasis on wave propagation in solids. In view of the number of contributors, there is remarkably little duplication, except in references. With respect to the latter, I appreciate the presentation (by Meeker and Meitzer alone) of general references separately from the literature references. But the omission of references to several standard works in the field should be noted: the book and two review articles of Hearmon (misspelled "Hearman") and the review article by Huntington. The author index is complete (and useful), but the subject index is not entirely adequate—for example, the entry under "velocity" is quite sketchy. The handsome format, excellent and plentiful graphs and illustrations, as well as the presence of cross-references among the chapters, are indicative of careful editing.

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Isotopes in Engineering

Radioactive Isotopes in Instrumentation and Control. N. N. Shumilovskii and L. V. Mel'ttser. Translated from the Russian edition (Moscow, 1959) by R. F. Kelleher. P. J. Blaetus, and G. A. Young, Eds. Pergamon, London; Macmillan, New York, 1964. xiv + 198 pp. Illus. $10.

This English translation of a volume originally issued by the Publishing House of the Academy of Sciences of the U.S.S.R. is a good example of cross-fertilization in the world scientific community and a very adequate addition to the International Series of Monographs on Nuclear Energy. The approach, a thorough treatment on a theoretical basis and one of the most rigorous available on the uses of isotopes in engineering practice, may have as many limitations as advantages for most American industrial practitioners. The mathematical treatment may be somewhat confusing because the symbolism is not that commonly used in American texts. The complexity of the mathematical treatment will probably surprise many workers who have considered applications of radioisotopes, such as gauging, an empirical science.

The introduction, which is intended as a summary and review, presents a minimal discussion of nuclear radiations and detectors and measuring circuits, using block diagrams, and includes a fairly detailed treatment of errors in measurements. The nine chapters cover a variety of applications of radioisotopes in instrumentation and control. The first and second chapters deal with the measurement of thickness and density by absorption and back scattering. Chapters 3, 4, and 5, treat relay devices used for control and the measurement of level and flow of liquids. Chapters 6 and 7 cover the measurement of flow of gases and gas pressure. Analysis and composition control are considered in chapter 8, and in the last chapter the determination of the minimum source activity for the particular dynamic properties of instruments is discussed.

Most of the 76 references cite Russian literature. There is a foreword by Paul C. Aebersold and a short index.

In general, the treatment is clear and concise, and the volume is not seriously impaired by a few small errors, such as the substitution of neutron for neutrino (p. 3) in the explanation of the continuous spectrum in beta decay. The book is recommended to any well-trained engineer seriously interested in applications of radioisotopes to instrumentation and control.

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Botany

Poisonous Plants of the United States and Canada. John M. Kingsbury. Prentice-Hall, Englewood Cliffs, N.J., 1964. xiv + 626 pp. Illus. $13.

Primarily, this book is a reference source for the physician and veterinarian and a textbook for the medical and veterinary student. For persons who wish to investigate poisonous