The first chapter deals with the theory of x-ray generation and the properties of x-rays; this is followed by a chapter on x-ray detectors. The succeeding chapters deal with specialized fields of interest, including absorptiometry, film thickness determination, and x-ray emission spectrography. There is a chapter containing excellent descriptions of presently available equipment, and one on the elementary statistics of x-ray measurements. The final chapter deals with special topics which are closely related to the general field—for example, gamma-ray absorption and emission, x-ray point sources, and applications in the biological sciences.

The book is very clearly written and readable, and it will provide the analytical chemist with a considerable amount of the information necessary for entering the field. Especially useful are the discussions of sample preparation and sample handling.

The book's value is further enhanced by the tables of wavelengths and constants given in the appendixes as well as by a bibliography of element determinations.

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Physical Methods of Organic Chemistry. vol. 1, part 1 of *Technique of Organic Chemistry*. Arnold Weissberger, Ed. Interscience, New York, ed. 3, 1960. xii + 918 pp. $24.50.

The expansion of volume 1 of this excellent series on the technique of organic chemistry reflects both the volume's popularity and the editor's awareness of the need to include additional chapters on physical methods. The general excellence of format and printing has been retained, but I believe that fewer monographs should be included in each volume. The cost is high, but it is commensurate with the value of the monographs.

Part 1 has gained four new chapters and has lost five by transfer to Part 2. The new chapters are "Automatic control" by J. M. Sturtevant; "Automatic recording" by D. R. Simonsen; "Weighing" by A. Corwin; and "Determination of particle size and molecular weight" by G. B. Beyer. The first is a very concise introduction to the general principles of automatic control and includes most of the essential parts of the chapter on temperature control (by J. M. Sturtevant) which was included in the previous edition. The chapter on automatic recording presents a brief introduction to the general characteristics of various types of recorders. These two chapters, although they contain a judicious selection of material, are too brief to be of great practical value to the majority of chemists. The excellent chapter on weighing fills an evident gap in the earlier editions. The author has packed into 57 pages a great amount of valuable information on the design and testing of balances and on the procedures of weighing. Beyer's chapter on particle size and molecular weight fills in admirable fashion the need for a concise and systematic account of the methods used to characterize systems having broad distributions of particle size, as well as the need for a résumé of the type of results most characteristic of these methods.

Chapters retained from part 1 of the second edition are: "Density" by N. Bauer and S. F. Lewin; "Temperature measurement" by J. M. Sturtevant; "Determination of melting and freezing temperatures" by E. L. Skau, J. C. Arthur, Jr., and H. Wakeham; "Determination of boiling and condensation temperatures" by W. Swietoslawski and J. R. Anderson; "Determination of vapor pressure" by G. W. Thomson; "Calorimetry" by J. M. Sturtevant; "Determination of solubility" by W. J. Mader, R. D. Vold, and M. J. Vold; "Determination of viscosity" by J. F. Swindells, R. Ullman, and H. Mark; "Determination of properties of insoluble monolayers at mobile interfaces" by A. E. Alexander; "Determination of surface and interfacial tension" by W. D. Harkins, revised by A. E. Alexander; "Determination of osmotic pressure" by R. H. Wagner and L. D. Moore, Jr. Although these chapters are retained from the previous edition, the following are new contributors to them: Lewin, Arthur, Mader, Swindells, and Ullman. The chapter on viscosity is essentially new and is a much more satisfactory presentation than that of the previous edition. Alexander's chapter on insoluble monolayers at mobile interfaces replaces "Properties of monolayers and duplex films" by W. D. Harkins. It is limited to a presentation of the properties of monolayers at air-water and oil-water interfaces and a discussion of the use of the former to investigate processes taking place at interfaces.

The remaining chapters, although they incorporate new topics, tables, figures, examples, and some new discussion of theory, are essentially unchanged. The average increase in number of references is 25 percent, and the same increase holds for the length of the chapters. The authors are to be commended for bringing their work up to date.

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Statistical Theory of Communication. Y. W. Lee. Wiley, New York, 1960. xvii + 509 pp. Illus. $16.75.

The modern curriculum in electrical engineering is distinguished from its predecessors by an emphasis on fundamental theory rather than on the details of "hardware." This is as it should be; fashions in electronic circuitry change so quickly that a concentration on detail rather than on principle would render any engineering education obsolete within a very few years. One of the major basic subjects to receive attention recently is the theory of communication. While there have been several texts on modulation theory, theory of noise, and information theory, all except Middleton's weighty volume are fairly specialized and are not suitable for a general introduction to the subject. In many ways this book fills the need for such an introductory text.

This book begins with an account of Wiener's theory of generalized harmonic analysis. The account, though heuristic, is well written and shows the author's thorough mastery of the subject. Good motivating arguments are given for the introduction of the autocorrelation function, spectral density, and related functions. The discussions are accompanied by numerous illustrative examples. The chapters on harmonic analysis are followed by several chapters on the theory of probability, but the latter are less well written than the former. With the current emphasis on the formulation of engineering problems in probabilistic terms, little less than a complete course in the subject can adequately cover the basic concepts.

The next several chapters, an excellent feature of Lee's book, are devoted to discussions of a number of the practical problems encountered in adapting "hardware" to make use of theory. The many pictures of experimental correlograms lend interest to the theoretical