

of the text, will help to clarify the technical aspects of the procedures for initiates in the field of steroid analysis. The many tables of data included and the excellent bibliographies found at the end of each chapter will ensure the usefulness and maintain the value of these books for the expert and the novice in the steroid field for many years to come.

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Ion Exchange. By FRIEDRICH HELFFERICH, Shell Development Company, Emeryville, California; Lecturer at the University of California, Berkeley. McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York 36, N. Y. 1962. ix + 624 pp. 16 × 23.5 cm. Price, \$16.00.

"Ion Exchange" is essentially a straightforward English version of "Ionenaustauscher," first published in German in 1959. Although the format and style of the original version have been preserved generally in the translation, the author has wisely taken the opportunity to revise, expand and polish the original treatise to a state very close to perfection. In particular, the author has tried to bring the reader completely abreast of recent developments in the expansive field of ion exchange and to render the contents of the book palatable even to the mathematically disinclined by separating the qualitative and quantitative treatments in such a manner that the more casual reader can skip all mathematical equations and deductions without loss in continuity. The most substantial revision has been wrought in Chapter 9, which deals with the practical and theoretical aspects of the operation of ion-exchange columns, by the addition of eleven figures, seventy-one references and thirty-five pages of text.

This new English edition of "Ion Exchange" is without a doubt the most complete, lucid and authoritative account of the intricacies of ion exchange which is available to students and workers in the ion-exchange field.

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Atomic Spectra. By H. G. KUHN, F. R. S. Academic Press, Inc., 111 Fifth Avenue, New York 3, N. Y., 1962. xvi + 436 pp. 16 × 23 cm. Price, \$13.00.

There has been a real need for a current book on atomic spectra suitable as an introductory text but extensive enough to serve as a reference work. Kuhn's book fulfills this need very well by maintaining a good balance between interpretation of spectra by means of the Bohr-Sommerfeld theory and quantum mechanics. Likewise, the mathematical portions have been well supplemented with descriptive material.

An introductory chapter on theoretical methods is used to present the formulas and techniques used in later chapters, which aids greatly in maintaining continuity in the text. This is not intended as a general introduction to quantum mechanical methods, and references to advanced works are given for the more complex treatments. The major deficiency in this chapter lies in the introduction of terms without clear definitions, and thus possibly confusing the beginning student. This reviewer would also have preferred a more complete section on dipole radiation and intensities. This is an important area in present studies on atomic spectra and unfortunately it is not always well understood by beginners in the field.

The principal sections in this book are simple spectra (136 pages), periodic table and X-ray spectra (27 pages), complex spectra (75 pages), hyperfine structure and isotope shift (59 pages) and width and shape of spectral lines (23 pages). The latter two sections are particularly good and serve as a review of the significant work done in these areas.

In general, the format of the book is good and the illustrations excellent. The subject index is rather short and could be improved. An excellent bibliography enhances the volume's usefulness as a reference work. This book is heartily recommended to all chemists and physicists interested in the origin and interpretation of atomic spectra.

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January 10, 1963–February 10, 1963

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