

Criegee's lead tetraacetate cleavage of 1,2-glycols, the Dem'janov rearrangement, the Wagner-Meerwein rearrangement, the Thorpe reaction, etc. On the other hand, the author apparently has a predilection for reactions used to synthesize quinoline and quinoline derivatives, a relatively large percentage being of this type. The author expresses the hope that the index "will be of value to the research chemist in searching for types of reactions pertinent to his immediate problems." This hope would more likely be realized, had the text been expanded to include more of not only the better known but also the less familiar reactions. Although the investigator will doubtlessly at times find the examination of this little volume fruitful, he will turn in a systematic search for suggestions obviously to a wider coverage of organic reactions than is to be found in a text designedly limited to name reactions chosen "on the basis of general interest" and "recurrence in the literature."

The text should be helpful to the graduate student preparing for preliminary examinations in that it provides him with concise discussions of a large number of organic reactions with which he should be familiar. The author has rendered a service in supplying biographical information which is not as conveniently obtainable elsewhere, and which serves "to convert a name into a person." The up-to-date references provide useful leads to the chemist wishing to keep abreast of developments involving the name reactions discussed in the text. These references will be especially welcome to him, if he finds articles in a foreign language a somewhat difficult hurdle to take in stride.

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The Alkaloids: Chemistry and Physiology, Volume IV.

Edited by R. H. F. MANSKE, Dominion Rubber Research Laboratory, Guelph, Ontario, and H. L. HOLMES, Cambridge, Massachusetts. Academic Press, Inc., Publishers, 125 East 23rd Street, New York 10, N. Y. 1954. x + 357 pp. 16 × 23 cm. Price, \$8.50.

Volume four of the contemplated five volumes of this series completes the volumes devoted for the most part to the chemistry of the alkaloids except for a chapter on miscellaneous alkaloids which is to appear in the last volume along with chapters on pharmacology. As in the previous volumes, the editors have maintained, for the most part, the principle of having experts who have done experimental work in the field write the various chapters. The result is authoritative, complete, and well-written reviews by authors from Argentina, Canada, Czechoslovakia, Scotland and the United States.

This volume consists of thirteen chapters: Biosynthesis of Isoquinolines (R. H. F. Manske), Simple Isoquinoline Alkaloids (L. Reti), Cactus Alkaloids (Reti), Benzylisoquinoline Alkaloids (A. Burger), Protoberberine Alkaloids (Manske and W. R. Ashford), Aporphine Alkaloids (Manske), Protopine Alkaloids (Manske), Phthalideisoquinoline Alkaloids (J. Stanek and Manske), Bisbenzylisoquinoline Alkaloids (M. Kulka), Cularine Alkaloids (Manske), α -Naphthaphenanthridine Alkaloids (Manske), Erythropleum Alkaloids (G. Dalma) and Aconitum and Delphinium Alkaloids (E. S. Stern). In addition to Manske's chapter on biosynthesis there is frequent reference to this subject throughout the book, particularly in the chapter by Burger which also has a good treatment of the pharmacology of the benzylisoquinoline alkaloids. In the chapter on aconitum and delphinium alkaloids, Stern has performed a very useful service in a thorough and critical review of a still unsettled subject. The book is well indexed and singularly free of typographical errors (the only one the reviewer noticed was in the structure of compound XLIX, p. 53).

Although for the most part there has been little recent activity in many of the fields reviewed (e.g., of a total of approximately fourteen hundred references, only 4% are to work later than 1950) the chapters do furnish up to date and complete summaries, and this volume is thus a helpful addition to alkaloid literature.

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Quantum Chemistry. By KENNETH S. PITZER, Professor of Chemistry, University of California. Prentice-Hall, Inc., 70 Fifth Avenue, New York 11, N. Y. 1953. x + 529 pp. 15 × 22 cm. Price, \$10.00.

This book, similar in name only to the well-known text by Eyring, Walter and Kimball, is primarily an introduction to nearly all phases of modern physical chemistry. (The choice of title, therefore, seems unfortunate.) Beginning with a brief but good introduction to quantum mechanics, there are treatments of atomic structure, molecular structure and valence, kinetic theory and statistical mechanics, molecular spectra, the crystalline state with emphasis on metals and semi-conductors, gas and liquid imperfections and intermolecular forces, electric and magnetic moments, chemical kinetics, and nuclear phenomena. Twenty-four appendices are used to lighten the mathematical development within the text proper, and allow the use of the book as a text on different levels of mathematical rigor. The appendices also include tables useful for calculating such things as thermodynamic functions for harmonic oscillation and even restricted internal rotation, together with miscellaneous information, such as the relation of magnetic quadrupole coupling energy to ionic and hybrid character of bonds.

To compress this material into a book of just over 500 pages an author must tread a narrow line between superficiality and cryptic imponderability. Dean Pitzer's highly original and scholarly contributions to nearly all the fields he covers have prepared him to walk the line with great skill. Fundamentals are presented with insight; examples, necessarily limited, are well chosen; and the selection of material to be covered is, in my opinion, excellent. The author uses the "live" nature of the subject to provide interest and inspiration.

Of course there are sacrifices to brevity. The chapter, "Kinetic Theory and Statistics," is almost too brief to be worthwhile, and the nine pages devoted to rate processes can give only a hint as to the method. Undoubtedly, most students need to combine a great deal of descriptive material with the section on valence before this can become a working part of their chemical training.

For the many chemists who do not specialize in theoretical chemistry, spectroscopy and molecular structure, Pitzer's book should provide a rewarding background, and for those who intend to specialize in these fields it should provide a valuable introduction.

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Méthodes et Réactions de l'Analyse Organique. Volume III. Réactions Colorées et Fluorescences. Edited by LÉON VELLUZ, Docteur ès Sciences physiques. Masson et Cie, Éditeurs, Libraires de l'Académie de Médecine, 120 Boulevard Saint-Germain, Paris VI, France. 1954. 296 pp. 17 × 25 cm. Price, 2,750 fr.

This volume describes useful colorimetric and fluorescent reactions of organic compounds. The material is organized according to types of reactions; e.g., oxidation-reduction reactions, reactions with metals and metal ions, diazotization and coupling, imine formation, indophenols, aryl methane formation, formation of certain heterocyclic compounds from aminocarbonyl compounds and α -amino acids, active methylene condensations, and halochromism of steroids.

Each chapter has a good discussion of the chemistry of the reactions, followed by notes on functional groups and behavior of certain specific compounds. Brief procedures for the tests, and tables showing the compounds, reagents and results are given. Where data are available, the tables not only indicate the colors produced but also show λ -maximum. The complete references to the original literature, organized and arranged under both the discussions and tables, constitute a valuable time saving literature survey. Three indices are provided: an author index, compound index and reagent index. The Table of Contents is at the end of the book.

This volume, edited by Léon Velluz, was written by Maurice Pesetz and Pierre Poirier with the help of J. Mathieu, A Petit and J. Wohlgemuth. It constitutes an excellent source of information not only for useful color reactions but