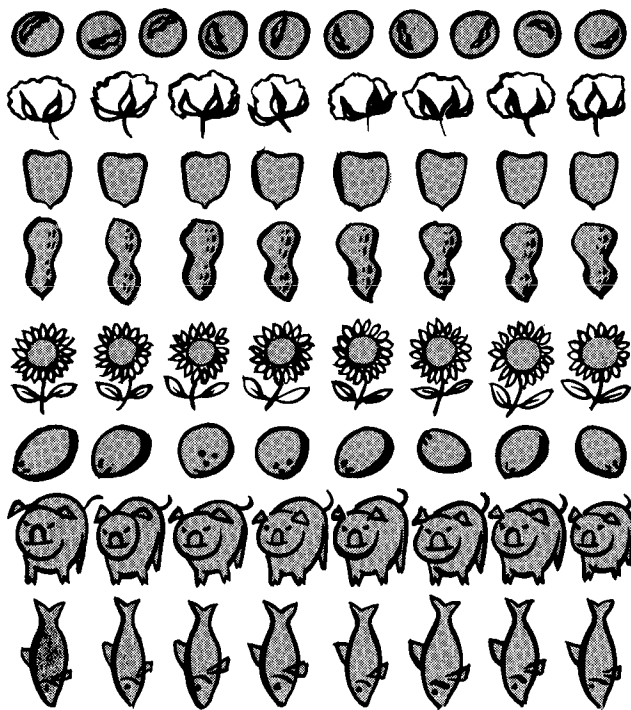


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# NEW BOOKS

ESSENTIALS OF MODERN ORGANIC CHEMISTRY, by W. A. Bonner and A. J. Castro (Reinhold Publishing Corporation, 645 pp., 1965, \$8.95).

This rather attractive text is divided into sixteen chapters. In addition to the usual classic chapters dealing with Alkanes, Alkenes, Alkynes, Alcohols, Aldehydes and Ketones, etc., the authors have included a very extensive chapter on Natural Products. Under this heading they discuss sugars, amino acids, proteins, steroids, alkaloids and terpenes. The first six chapters of the book are devoted to fundamental concepts of bonding, methods of purifying and isolating organic compounds and physical methods of identification. Elementary points of organic theory are introduced early (chapters five and six) with discussions of resonance, molecular orbital theory and properties of free radicals, carbonium ions and carbanions.

Gathered together at the end of the text are questions appropriate to each chapter in the book. The questions are numerous enough to permit a latitude of choice and penetrating enough to challenge most students. Following each chapter is a list of supplementary reading material drawn largely from the *Journal of Chemical Education*.

This is not a large book compared to other modern textbooks at the same level. There are only 589 pages of actual text material, the remaining pages being devoted to the chapter questions and the index. Despite its brevity (an attribute many undergraduate students will appreciate) it is amazingly thorough and concisely written. Many topics of current interest are included, such as carbenes, enamines, benzyne intermediate, "FBI" strain, non-benzenoid aromatics and the Hückel rule. Obviously very few of the numerous topics presented can be covered in depth, but the book provides an excellent background for the instructor to pick and choose those topics he deems most important and to elaborate on these in his lecture. Indeed, the authors state in their preface that this was their intention and it is this reviewer's opinion that they have succeeded admirably. When appropriately supplemented by material from a lecturer, this text will appeal to the most sophisticated undergraduate.

The only reservation this reviewer has about the presentation of the material is a pedagogical one. The first 118 pages (20% of the entire text) are devoted to theory, instrumentation and laboratory techniques (all very well presented). One wonders how valuable this material will be to the student when presented at this early stage when he has had very little organic chemical experience with which to relate it. It might have been better to weave at least some of this very valuable material into the various chemical discussions which follow in later chapters. It would be hoped that at this time the student's chemical knowledge and intuitions would have sharpened to the point that he could appreciate these more subtle concepts to a greater degree.

Apart from my own personal prejudices about the order of presentation, this is an excellent text. It is well written, nicely illustrated, accurate and modern in its approach. It is the kind of book both student and instructor will like to have for his bookshelf.

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THE CHEMICAL FORMULARY, Vol. XII, Edited by H. Bennett (Chemical Publishing Company, Incorporated, New York, 502 pp, 1964, \$8).

This is a new volume of a series which started with Volume I in 1933. All the material and formulae are claimed to be new with the exception of the introduction (Chapter I). This volume contains formulations for compounding chemical specialties based on pigments, gums, resins, solvents, oils, greases, fats, waxes, emulsifying agents, dyestuffs, perfumes, water and other chemicals.

Chapters are included on Adhesives, Ceramics and Glass, Cosmetics and Drugs, Disinfectants and Deodorants, Emulsions, Farm and Garden Specialties, Food Products, Inks and Carbon Paper, Lubricants, Metals, Paint and Varnish. Also are included Tables of Abbreviations, Conversion Factors, Trademark Chemicals, Chemicals and Supplies, Sellers of Chemicals and Index.

The book is similar to the previous volumes in the series. The formulae have been supplied by various contributors and assembled by the author; thus, there is no standard style. Units of measure vary widely. Some formulae are by volume, others are by weight and others have no units. No technical data on the performance of the products are given.

Further, no indications are given as to what happens if the concentration of one or more ingredients is changed. There are many formulae, and undoubtedly these can be used to advantage as a good starting point.

For oil chemists this book is a good reference volume to have on hand since many formulas contain products derived from oils, waxes, fats, etc. By using one or more of these formulae as a starting point or control, the oil chemist can evaluate his products for use in a formulated product—whether it be an adhesive, cosmetic, food, paint, varnish or other. This book would also be useful to compounders and formulators who use fats and oils in compounding their products.

This volume is of most value to those who are interested in practical applications of chemicals without concern for the theoretical. Theoretical chemists on the other hand will find the volume dull reading.

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**METABOLISM AND PHYSIOLOGICAL SIGNIFICANCE OF LIPIDS**, edited by R. M. C. Dawson and D. N. Rhodes (John Wiley and Sons Limited, London, New York, Sidney, 657 pp., 1964, \$21).

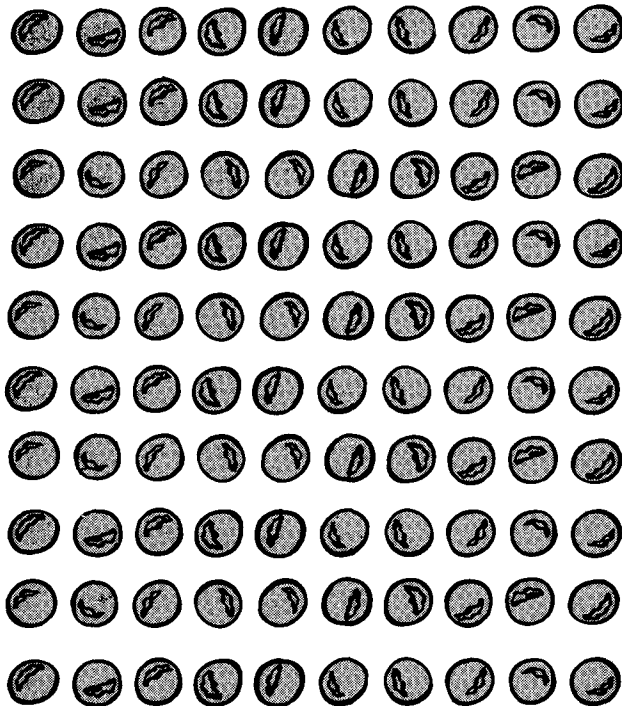
This volume represents the proceedings of an advanced study course held at Cambridge, England, September, 1963 under the auspices of the Scientific Affairs Division of NATO. While it is obvious that all the work reported and the references quoted must be at least two years old, even the expert reader will find the material presented remarkably timely and up-to-date. This is probably due to the fact that the authors of the papers and the contributors to the discussions are the world authorities in their subjects. In all cases, they not only presented their latest evidence, but often engaged in some speculation which has been more than justified during the intervening years. Thus the sum total of the contribution represents a review of many phases of lipid metabolism that is, at most, about a year behind the current literature, even in this rapidly moving field. It therefore represents a review for the expert in the field who wishes to keep abreast of recent developments in all areas and a starting point for the biochemist, physiologist, chemist, nutritionist or other scientist wishing to gain an overall view of a field in which he is not necessarily an expert.

Of particular value are the section on Physiological Significance, in which the role of lipids in many processes is considered and the discussions in which speculation is encouraged.

The section on Metabolism includes papers on biosynthesis of fatty acids by S. J. Wakil; J. Irwin and K. Bloch; J. Asselineau and P. Bennet; P. K. Stumpf; papers on biosynthesis of more complex lipids by B. Shapiro; G. Popjak; G. V. Marinetti, J. F. Erbland and M. Brassard; R. O. Brady; and papers on lipases and other phases of metabolism by P. Desnuelle and coauthors; L. L. M. Van Deenen; R. M. C. Dawson; J. N. Hawthorne and E. F. Hartree.

The section on Lipid Absorption includes papers by B. Borgstrom G. Hubscher and coauthors; A. M. Dawson and

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coauthors; and W. M. F. Leat and T. Gillman.

The section on Physiological Significance covers a variety of subjects which may be grouped roughly into papers on blood lipids (D. S. Robinson; E. F. Annison) lipids of subcellular structures (W. Bartley; J. A. Lucy and J. T. Dingle; M. G. Macfarlane), the fatty liver (C. R. C. Heard and B. S. Platt; K. R. Rees); regulation of lipid metabolism (N. Freinkel; G. B. Ansell); and several other aspects of lipid metabolism and function by R. G. Macfarlane; G. A. Garton; G. Peeters and M. Laurysen; A. D. Bangham and R. W. Horne; M. R. Hokin; L. E. Hokin; and M. L. Karnovsky.

A section on Lipids of the Nervous System has papers by R. J. Rossiter, A. N. Davison; R. H. S. Thompson; and S. Svennerholm; and a section on Lipids and Proteins has papers by F. R. N. Gurd and by D. E. Green and S. Fleischer.

A final section contains two symposia—Fatty Acid Composition and Techniques—to which various participants contributed short additional but timely remarks.

The sum total of the papers represents a fairly inclusive review of important aspects of lipid metabolism and function. It should be a necessity to anyone in the field and of great benefit to those in many related fields.

Each chapter includes adequate numbers of literature references up to 1963 and the index for the total volume appears to be reasonably adequate. The book is well bound and appears to be printed on good quality paper. The printing, arrangement of the many tables and figures and clarity of the illustrations make for easy and rapid location of the desired information.

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NEWER METHODS OF PREPARATIVE ORGANIC CHEMISTRY, ed. W. Foerst, translated by H. Birnbaum (Academic Press, Inc., New York, Vol. III, xiv 544 pp., 1964, \$16).

This volume is a translation of a collection of eleven review articles which appeared originally in 1959 and 1960 in *Angewandte Chemie*. Like earlier volumes in this series, this work deals almost exclusively with synthetic procedures; reaction mechanisms are given only cursory attention.

Several chapters deal with the properties and reactions of specific reagents or a class of compound: 1) sulfur, 2) N-bromosuccinimide, 3) acid amides, particularly formamide, 4) chloramines, 5) pyrylium salts, and 6) diazoketones. Other chapters cover individual reactions or consider the preparation of a certain class of compound: 7) introduction of substituents into the pyridine ring, 8) Wittig reaction, 9) acyllactone rearrangement, 10) esters, amides and anhydrides of phosphoric acid, and 11) formation of the acetylenic bond.

The chapters are well written and generally provide a broad coverage of the literature. The chapter on syntheses with acid amides is an exception since it deals almost exclusively with work issuing from a single laboratory.

The most recent reference in 9 of the 11 chapters is taken from the literature of 1959. Consequently, several of the chapters, particularly the one dealing with the Wittig reaction, are out of date. The review on pyrylium salts is an exception because it has been rewritten and cites references as recent as 1963.

This volume should be available in every chemical library and synthetic organic chemists should be familiar with its contents. The reviewer does not recommend the purchase of such a specialized book to the individual organic chemist.

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CONFORMATIONAL ANALYSIS by E. L. Eliel, N. L. Allinger, S. J. Angyal and G. A. Morrison (Interscience Publishers, John Wiley and Sons, Inc., New York, xiii + 524 pp., 1965, \$15).

This book presents an authoritative and very comprehensive review of the principles of conformational analysis and of its applications in a variety of fields of organic chemistry. In the first chapter, discussion of the conformation of acyclic molecules serves to introduce the reader to the concepts of rotational arrangement of atoms about single bonds and the influence of such arrangements on reactivity. The second chapter, which is devoted to a detailed treatment of cyclohexane and its derivatives, provides understanding of basic conformational effects in a cyclic system. The third chapter presents a unique feature of the book—a compilation and analysis of the various physical methods that have been used to determine the conformation of organic molecules. The authors then discuss, in separate chapters, conformational analysis in ring systems other than cyclohexane; in steroids, triterpenoids and alkaloids; and in carbohydrates. The final chapter returns to physical chemical considerations, in particular to the calculation of conformational energies.

It is unfortunate that the authors decided to omit material on the conformational analysis of protein structure, an application that has rapidly increased in importance during recent years. This omission, as well as the absence of discussion of conformational effects in long chain aliphatic molecules, will detract somewhat from the value of the book to some readers of JAOCS. Nevertheless, the book provides all of the background needed by anyone interested in conformational topics not specifically covered in the text.

The book measures approximately 6 in. x 9 in. Printing and binding are excellent and no typographical errors were noted. The figures, many of which are quite complicated, are particularly well done. Both author and subject indexes are provided. More extensive cross-referencing and a more consistent basis for determining key words would have resulted in a more useful subject index.

Understanding of conformational analysis and appreciation of its contributions to explaining chemical behavior are essential to today's organic chemist. He will want to add this book to his library.

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## ASTM Soap and Detergent Committees Examine Methods At December Meeting

Committee D-12 on Soaps and Other Detergents of the American Society for Testing and Materials held its annual meeting Dec. 6-7, 1965, at the Barbizon Plaza Hotel, New York.

Under review were existing standards and tentatives, and action on newly proposed specifications and test methods.

Specific meetings included "Evaluation of Fabric Bleaches," led by J. H. Mallory; "Mechanical Dishwashing," R. F. Vance; "Test Methods for Drycleaning," J. B. Schapiro; "Analysis of Inorganic Alkaline Detergents," "Analysis of Metal Cleaners," "Specifications for Soaps and Synthetic Detergents," "Drycleaning," "Analysis of Soaps and Synthetic Detergents," "Physical Testing," "Specifications for Inorganic Alkaline Detergents."

At the final luncheon meeting, presentation of the Committee's special D-12 award was made to W. H. Joy.

Chairman of Committee D-12 is William Stericker; Vice-Chairman, E. W. Blank, Colgate-Palmolive Co.; Secretary, J. B. Schapiro, Dixo Co.