same configuration and identical bond lengths and angles within experimental error (0.02 Å and 0.3°). There is a double bond between C-8 and C-9. Me-13 and the hydrogen attached to C-3a are trans disposed while the Br and OH are cis to each other. All bond distances and angles agree with generally accepted values within experimental error.[11] The only short intermolecular contact is a hydrogen bond between the hydroxyls of the two independent molecules in the asymmetric unit of 2.92 (2) Å.

In addition to this unique metabolite, we have found that *L. subopposita* also contains new compounds similar to some of those previously isolated from other *Laurencia* species.

Acknowledgment. We wish to thank Dr. William Fenical for valuable discussions. This research was supported by a grant from the National Oceanic and Atmospheric Administration office of Sea Grant, Department of Commerce, and gifts from Abbott Laboratories and Hoffmann-La Roche, Inc.

Supplementary Material Available. A listing of fractional coordinates and the nmr and mass spectra of oppositol will appear following these pages in the microfilm edition of this volume of the journal. Photocopies of the supplementary material from this paper only or microfiche (105 × 148 mm, 20× reduction, negatives) containing all of the supplementary material for the papers in this issue may be obtained from the Journals Department, American Chemical Society, 1155 16th St., N.W., Washington, D. C. 20036. Remit check or money order for $3.00 for photocopy or $2.00 for microfiche, referring to code number JACS-73-7187.

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(11) O. Kennard and D. G. Watson, "Molecular Structures and Dimensions," Crystallographic Data Centre, Cambridge, England, 1970.

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*Book Reviews**

Atlas of Spectral Data and Physical Constants for Organic Compounds. Edited by J. G. GRASELLI (The Standard Oil Co., Ohio). CRC Press, Cleveland, Ohio. 1973. 1695 pp. $125.00.

This is an impressive work. Some two-thirds of it is an enormous table, in which about 8000 compounds are listed in alphabetical order, with melting and boiling points, density, specific rotation, solubility, infrared, ultraviolet, and nmr absorption, and mass spectrographic peaks. The spectrographic data, which are given in numerical form out of practical necessity, have been compiled from a number of major collections and form as a result a more comprehensive set than has been available heretofore, even though there are extensive gaps. Anyone who has had to face the task of tracing down a specific spectrum from the scattered published (and unpublished) sources will greatly appreciate this feature, which is the principal (and sufficient) justification for this Atlas.

The considerable problem of access to a specific datum in such a large collection has been met by providing a multifaceted set of keys. In recognition of difficulties of nomenclature, an extensive exposition of the naming system used precedes the table, which uses IUPAC and *Chemical Abstracts* names, usually inverted. There is also a comprehensive name/synonym directory, and a section showing structural formulas alphanumerically keyed to the table entries.

Nearly one-third of the atlas consists of a versatile set of indexes: Formula Index (general), Formula (hydrates), Formula (halide salts), Formula (other salts), Molecular Weight, Melting Point, Boiling Point, Infrared Band, Ultraviolet Band, NMR Shift, Mass Spectrum Molecular Weight, and Chemical Structure and Substructure Index. This last makes use of the Wiswesser Line Notation, as has been described in our review of the *Chemical Substructure Index* (Institute for Scientific Information). The great value of this index is that, by use of the permuted index technique, it allows one to locate compounds having specified structural features, independently of general size and structure. Since this index (and all the others) is keyed by alphanumeric serial number to specific entries in the table, one can retrieve spectral data for compounds of closely related structure, even if the specific compound one has in hand is not listed.

It is hardly necessary to point out that a compilation of this nature would not have been feasible without the aid of computers, which have been used not only to collate the extensive indexes, but also to convert spectral data to consistent units. The table unfortunately reports infrared absorptions either in microns or in reciprocal centimeters, according to the source, but in the infrared band index all data have been converted to wavelength (a pity the choice was not made to use wave numbers instead). The Atlas thus becomes a surrogate for a computer bank of the same information. It will take no little effort to use the Atlas for certain types of retrieval that would be almost trivial with a computer, but the cost of this resource is but a small fraction of the cost of a computer bank, and that of its operation and maintenance is nearly zero.

Lastly, a 105-page section at the beginning of the Atlas, entitled Spectroscopic Aids, is full of useful practical information, from definitions of terms to correlation tables and lists of characteristic frequencies. A short discourse on "Tracking Down Spurious Bands in Infrared Analysis," by P. J. Launer (reprinted from Perkin-Elmer "Instrument News") is a handy and useful feature, as are the many tabulations of nmr constants, reprinted from scattered sources.

This is an expensive book, but nevertheless good value for the money. One can foresee heavy use for library copies; its popularity will attest to its practical value. It is, indeed, many books in one.

Heterocyclic Chemistry. By J. A. JOULE and G. F. SMITH (University of Manchester). Van Nostrand-Reinhold, London and New York. 1972. ix + 362 pp. £6.25 (cloth); £2.75 (paper).

The last decade has seen a number of brave attempts to condense the vast and expanding bulk of heterocyclic chemistry between the covers of one volume. Some have taken the path of generalization, setting out general principles embracing a variety of different rings, whereas others have restricted their scope to a select number of ring systems, in order to give more detail. The present work is organized in the latter way, yet is suffused with a substantial amount of generalization and a constant plugging at principles; the result is a happy one.

This is a textbook and not a reference book; it is written in the main for graduate students but could also serve well for others wishing to become familiar with or to brush up on the subject. The authors lay heavy emphasis on the aromatic five- and six-membered

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* Unsigned book reviews are by the Book Review Editor.

rings, rightly recognizing that nonaromatic heterocyclic systems generally resemble their more familiar noncyclic counterparts. Short lists of sources for further reading, and citations from a list of general references, come at the end of the chapters, but such pedagogic appurtenances as problems and exercises are absent.

There are no less than 29 chapters, but some of them are only *one* page long. Most of them are devoted to a specific ring system: reactions and synthesis. A substantial introductory chapter deals with structure and main physical properties.

The selection of what to include and exclude has been done quite well on the whole; even a useful but not excessive sprinkling of observations on natural occurrence or uses, and history, is present. The many equations frequently include yields.

A shortcoming is that the authors do not generally succeed in giving the reader a feel for properties of the basic ring systems. It is not until the second chapter on pyridines that one is told that pyridine stinks and is soluble in water, and nothing is said about the solubility behavior of pyrrole, for example. The writing is pleasant and generally quite satisfactory, but the authors occasionally burst out into crescendoes of turgidity. An example should suffice: "The above concepts help one to understand why it is that in pyrroles and indoles although hydrogen exchange at N occurs very much more rapidly than at carbon (indeed, over a relatively wide range of pH around neutrality where rapid N–H exchange occurs, C–H exchange is not observable), at pH values where the equilibrium concentration of the protonated species allows it to be observed spectrally it is found to be C-protonated (in pyrroles, mainly 5)." There are also some odd, although understandable, abbreviations, such as "Pr^n" for "normal propyl," and "ylide" is spelled in the German fashion (without the terminal e).

The substantial index (12 pages) is a fitting closing to a well-done work, which will probably earn a considerable amount of deserved acclaim.

Oxidation in Organic Chemistry. Part B. Edited by WALTER S. TRAHANOVSKY (Iowa State University). Academic Press, New York, N. Y. xi + 248 pp. $15.00.

This is another volume in the series of Monographs on organic Chemistry under the overall editorship of Blomquist and Wasserman. It continues from Part A (edited by Wiberg), which, like Part B, has some chapters devoted to specific oxidizing agents, and some devoted to a specific functional group. Two of the chapters in Part B cover relatively new oxidizing agents: Thallium(III), by R. J. Ouellette, and Ruthenium Tetroxide, by D. G. Lee and M. van den Engh.

The thallium chapter is necessarily very limited in scope, owing to the as yet quite incomplete experimental development of the subject. Most of the chapter is concerned with oxidations of olefins, cyclopropanes, and carbonyl compounds; it is pointed out that it is not correct to make the generalization that thallic compounds stand between mercuric and plumbic compounds in oxidizing effect on organic compounds, and that, in fact, there are significant individual characteristics that set thallium apart. In the chapter on ruthenium tetroxide, it is pointed out that this reagent has important advantages over the more familiar osmium tetroxide: it is less volatile, less toxic, less expensive, and more vigorous.

By contrast, the chapter by W. G. Nigh deals with one of the oldest oxidizing agents in organic chemistry, cupric ion. The versatility of copper(II) is illustrated by a table of oxidation potentials of various copper-containing species; the values range from -1.28 to $+0.360$. The types of oxidation accomplished by copper compounds are similarly varied. The remaining chapter, by McDonald and Hamilton, is devoted to oxidative coupling of phenols, with emphasis on mechanism and a special concern for biological oxidation.

This volume maintains the style and the high standard of usefulness of previous members of the series. References are plentiful, and much information is collected in tables. Practical and experimental material is included where appropriate. The author index is long and the subject index short, although adequate.

Transition Metal Hydrides: The Hydrogen Series. Volume 1. Edited by EARL L. MUETTERTIES. Marcel Dekker, Inc., New York, N. Y. 1971. 342 pp. $14.50.

The present book, "Transition Metal Hydrides," is the first volume of a new series which is to "ultimately present . . . a definitive treatment of hydrogen" with the theme being a "hydrogen view" of chemistry. This first volume of the series is devoted to molecular transition metal hydride chemistry with only a brief treatment of solid-state transition metal hydride chemistry, hydrogen chemisorption, and heterogeneous catalysis in a very short Chapter 2 which was written by the editor. However, here, references are given to the more extensive reviews and specialized monographs. In Chapter 1 (9 pp) the editor describes some of the physical properties of hydrogen, deuterium, and tritium, including the unstable isotopes and nuclear spin isomers, and the properties of the solid, liquid, and gaseous states.

The remaining four chapters of the book are basically detailed reviews of the literature with numerous references and several tables, principally of spectral data and parameters. In Chapter 3, B. A. Frenz and J. A. Ibers present short descriptions of the approximately 60 known (up to January 1971) crystal structures of transition metal hydride complexes which have been determined by X-ray and/or neutron diffraction. The authors highlight some of the problems encountered in the detection of the hydrogen atom by diffraction techniques and summarize the structural characteristics of transition metal hydride complexes. The chapter is thoroughly illustrated largely by reproductions of figures from the original publications. It is evident from the structural data discussed in this chapter that the hydrogen ligand exerts a considerable stereochemical influence in its complexes.

The stereochemistry of transition metal hydride complexes in solution is the subject of Chapter 4 by J. P. Jesson. This chapter surveys methods used for the determination of stereochemistry, classifies most known hydrides giving appropriate references, and discusses the stereochemical nonrigidity, principally of five-, six-, and seven-coordinated complexes. The coverage is thorough and the author has successfully presented a critical summary of a vast quantity of information. One minor complaint, however: the old "nonbonded" forms for molecular structures are used consistently. Figures having bold and dashed lines for equatorial metal–ligand bonds are much more desirable.

In Chapter 5, R. A. Schunn systematically summarizes the various reaction types encountered in the formation and transformation of transition metal to hydrogen bonds in molecular complexes. As in Chapter 4, there is some overlap here, especially in the section dealing with spectroscopic characterizations, but the major part of this chapter, which will be of especial interest to preparative chemists, deals with reaction types and conditions.

The final chapter in the book by C. A. Tolman is entitled "Role of Transition Metal Hydrides in Homogeneous Catalysis." Emphasized here are the two important roles of transition metal–hydrogen bonds in catalytic systems. These are the modifications of the properties of other ligands bound to the metal and the interactions of metal–hydrogen bonds with unsaturated organic molecules, especially olefins. Tolman has identified several problems with accepted mechanisms in homogeneous catalysis which will stimulate research efforts and perhaps lead to a better understanding of these important processes.

The book was produced by the offset printing process from a typewritten manuscript. By clever selection of the kinds of type the typist was able in most instances to clearly delineate the various subdivisions of the chapters. Only a small number of typographical errors and other shortcomings were noted. In no way do these minor oversights demean the usefulness of this book. It should prove to be very valuable to research chemists concerned with transition metal–hydride complexes.

William E. Hatfield, *University of North Carolina*

Structure and Bonding. Volume 12. Edited by J. D. DUNITZ (Zürich). Springer-Verlag, Berlin. 1972. 295 pp. $22.90.

The series Structure and Bonding contains articles of review character dealing with various problems in theoretical and general chemistry. Volume 12 consists of six papers. The first one by P. v. Herigonte with the title "Electron Correlation in the Seventies" reviews some of the material discussed at the Ischia Symposium on Electron Correlation in 1970. Herigonte's article gives several examples where a conventional self-consistent-field treatment is sufficient and where it is not.

The second article by D. W. Smith treats the ligand-field splittings in copper(II) compounds. The paper discusses the theoretical models presently used, especially the empirical models based on the angular overlap model with crystal field corrections. In the third paper, U. Mayer and V. Gutermann discuss a phenomenological approach to cation–solvent interactions. In view of the lack of thermodynamical data in this area, the semiquantitative approach described seems rewarding.

J. C. Speakman gives in the fourth paper a nice account of the acid salts of carboxy acids. The crucial role of the hydrogen bonds in these compounds is discussed in relation to the general theory of hydrogen bonds. The paper provides a good review of the present knowledge of hydrogen bonds of the type O···H···O in different surroundings.

The final two papers by S. E. Harnung and C. E. Schäffer are of a more specialized mathematical nature. The first one deals with the 3-Γ symbols and coupling coefficients for the point groups. In the second paper the authors discuss the use of real irreducible representations. Both of these problems are of interest in advanced ligand-field contexts.

The general impression after reading the articles is that the book has lost some value by treating such diverse areas. Each article by itself is quite valuable, but the whole volume would be more attractive if it were made homogeneous both in style and with regard to its content. This is, however, a problem shared by many compilations of review articles and not specific to the series Structure and Bonding.

Peter Lindner, *University of Uppsala*

Mass Spectrometry. Volume 2. By D. H. Williams (Cambridge University). The Chemical Society, London. 1973. xi + 356 pp. £ 8.

"Mass Spectrometry," Volume 2, is a volume of the Specialist Periodical Reports series published by The Chemical Society. The format is essentially the same as "Mass Spectrometry," Volume 1, and represents a summary of the mass spectrometry literature from July 1970 to June 1972. The volume is very well written and really goes beyond being just a literature survey in that enough background information has been added to allow the non mass spectroscopist an opportunity to understand state-of-the-art concepts. With the exception of Chapter One which covers alternate methods of ionization and analysis, the book does not treat advances in instrumentation in great detail. Rather, attention is focused on ion kinetics, reactions of functional groups, natural products, and organometallics. The chapter on ion kinetics and energetic studies is very well done. The last two chapters cover recent research on mass spectrometric data acquisition and analysis and the practical aspects of combining gas chromatography and mass spectrometry.

I strongly recommend this volume and its predecessor to all mass spectroscopists as well as to any chemist wishing to keep abreast of this broadly applicable research area.

Bruce R. Kowalski, *Colorado State University*

Instrumentation in Applied Nuclear Chemistry. Edited by Jan Krugers (IBM Corporation, Amsterdam). Plenum Press, New York and London. 1973. xiv + 383 pp. $25.00.

This book should be a valuable reference for those who wish to understand the basic instrumentation currently employed in research in nuclear chemistry. Very clear discussions of the operation of preamplifiers, amplifiers, single channel analyzers, timing circuits, and multichannel analyzers are included together with practical advice on choosing the proper instrument and obtaining optimum performance. A general discussion of the use of computers suggests various methods of effectively utilizing such systems. The chapter on detectors deals primarily with β and γ detectors and includes little information on the use of such detectors in fast timing experiments. Additional chapters on nuclear processes and application of nuclear processes have been included. These chapters may prove to be convenient for readers not already familiar with the concepts discussed.

Joseph B. Natowitz, *Texas A&M University*

Biochemistry and Methodology of Lipids. Edited by A. R. Johnson and J. B. Davenport (CSIRO Division of Food Research). Wiley-Interscience, New York, N. Y. 1971. xii + 578 pp. $29.50.

The stated purpose of this book is "to enable a worker, not versed in the field of lipids, to embark upon a program of experimental work." The authors have achieved this goal admirably by combining theoretical discussions of lipid structure, metabolism, and function with general descriptions of modern analytical methods.

Of the 25 chapters written by Australian lipid specialists, almost a third deal with the natural distribution and metabolism of lipids, three chapters describe chemical and physical properties, and the remainder treat various aspects of methodology. The techniques discussed range from physical chemical tools (*e.g.*, nmr and ir spectroscopy and mass spectrometry) to clinical applications. The chapters have been well integrated by the editors and are fairly well up to date, containing references through 1968, and in some cases into 1969.

This is indeed a book to provide a broad general background for the novice lipid chemist, but it offers little for the professional already working in the field. It does no more than mention some of the important minor compounds, such as sulfolipids, phosphonolipids, and alkyl ether glycerides. Aside from one short chapter outlining experimental procedures in detail, the reader is given only a summary of each analytical method and a reference to consult. For this reason, those desiring a practical laboratory manual to be used at the bench should look instead to Volume 14 of "Methods in Enzymology" or Volume 3 of "Laboratory Techniques in Biochemistry and Molecular Biology" (edited by Work and Work).

On the other hand, the latter two volumes assume a degree of sophistication not possessed by the beginning lipidologist. Therefore, I would highly recommend this book to those scientists desiring an introduction to the exciting world of modern lipid biochemistry.

Guy A. Thompson, Jr., *University of Texas—Austin*

Block Copolymers. Edited by D. C. Allport and W. H. Janes (Imperial Chemical Industries Ltd.). Wiley/Halsted, New York, N. Y. 1973. xxiii + 620 pp. $37.50.

This book exhaustively covers the scientific and patent literature on block copolymers into 1971. Graft copolymers are specifically not included. Roughly 60% of the book is devoted to polymer chemistry and the remainder to physical property and characterization studies. There are nine chapters, the first seven each dealing with a specific class of polymer synthesis. Separate chapters are given to the free radical, anionic and Ziegler-catalyzed polymerizations, mechanochemical reactions, step-growth polymerizations, polysiloxane containing polymers, and a short chapter on other methods. Chapter 8 reviews property–structure relationships in five sections. There is an introductory section and a section each on vinyl-diene polymers, polyurethanes, copolymers from Ziegler–Natta catalysts, and polyester and silicone copolymers. Chapter 8 is a particularly complete and well-referenced survey of structure–property relations in block polymers. The final chapter reviews the work done on solution properties and characterization of block copolymers.

The polymer synthesis chapters briefly review the chemistry involved, and each then goes on to give many examples of block copolymers that have been reported, and modifications which have been made to make them commercially attractive. For instance, the 96-page chapter on step-growth copolymers covers 587 references. While not a cookbook, much detail is given so that the reader may compare the various polymerization conditions and the resultant polymers. Various reactor configurations and other manipulations are shown to illustrate methods of producing block copolymers of desired architecture.

One of the features of the book is the large number of references to the patent literature. For example, the chapter on Ziegler–Natta-catalyzed block copolymers contains 37 tables listing relevant patents by company name. As a result, the book contains a great deal of practical information for industrial workers in the field. While the reader may sometimes feel overwhelmed by the voluminous data, and the many reactions described, he will find this book an excellent reference.

Anthony E. Allegrezza, Jr., Stuart L. Cooper
University of Wisconsin—Madison

Environmental Pollution. By Laurent Hodges (Iowa State University). Holt, Rinehart and Winston, Inc., New York, N. Y. 1973. xii + 370 pp. $7.95.

This is a book long needed by those in the field of science education. It is an excellent resource for all who want to relate theoretical science to the environmental problems of the day. The author has brought together vital information from many sources. In addition, he has included a large list of other possible sources of information.

The author has wisely chosen to introduce the various areas of pollution with a chapter on "The Growth of Population, Production and Consumption." He concludes with vital chapters concerning pollution in foreign countries, economics and legal questions, and legislation in the various areas of pollution. In addition to listing and discussing various sources of pollution, possible alternatives open to society are also included.

The use of SI (metric) units throughout the book is an interesting and timely innovation that permits useful comparison of data.

Every teacher of science should have this book for a reference. The book should be considered as a possible text for a general education course, as a text for an introductory course in environmental science, or as a supplement for the standard science courses. The use of the book as a text would be somewhat hampered by the absence of end-of-chapter questions and problems.

E. R. Gerlach
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Radiochemistry. Volume 1. Edited by G. W. A. NEWTON (University of Manchester). The Chemical Society, London. 1972. vii + 131 pp. £4.50.

This book, one of a series of volumes in which current developments in various subfields of chemistry are reviewed, is the first volume to be devoted to the field of radiochemistry. It contains three review articles based upon publications which appeared between July 1969 and August 1971. The first article, "Chemical Effects of Nuclear Transformations," by G. W. A. Newton, is predominantly a review of the research on nuclear transformation in solids. The second article, "Superheavy Elements," details both the theoretical and experimental explorations of the possibility of a new region of nuclear stability. This review by G. R. Gilmore is notable for combining a comprehensive survey of the literature with a careful evaluation of some of the more controversial experimental results. The final article, "Radiochemical Methods of Analysis," by J. D. Hemingway, includes a good summary of progress in the area of activation analysis. Each of the reviews is well written and the book should be very useful to those wishing to familiarize themselves with the current status of research in the three areas treated.

Joseph B. Natowitz, *Texas A&M University*

Chemical Quantitative Analysis. A New Approach. By SIBILLA E. KENNEDY, ESTHER B. SPARBERG, and FRANCES S. K. STERRETT (Hofstra University). Harper and Row Publishers, New York, N. Y. 1972. xviii + 362 pp. $6.00.

This is a soft-bound quantitative analysis lab book designed for either freshman chemistry or a one-semester sophomore quantitative analysis course. The volume contains fifteen experiments divided among the areas of gravimetric, volumetric, spectrophotometric, ion-exchange and electroanalytical analyses. Each experiment is prefaced by a series of questions that are to be answered before performing the experiment, a historical discussion of the procedure, and a series of concluding questions. The volume includes 170 pages of 5-mm quadrille pages for recording data and presentation of graphs.

For schools providing both an upper and lower level of freshman chemistry, this manual would be well suited for the more advanced course.

C. W. Schultz, *Glassboro State College*

Ether Lipids: Chemistry and Biology. Edited by FRED SNYDER (Oak Ridge). Academic Press, New York, N. Y. 1972. xix + 433 pp. $27.50.

Over the past two decades biochemists, chemists, and biologists have become increasingly aware of the existence of the two basic types of ether-linked aliphatic glycerolipids: the *O*-alkyl glyceryl ethers (*e.g.*, batyl and chimyl alcohols) and the *O*-alk-1-enyl glyceryl ethers, the ubiquitous plasmalogens (so named from the fact that they liberate aldehydes on acid treatment) found in every kind of animal and plant tissue examined.

The development of modern analytical tools in the 1961–1971 period has opened up an expanding field of research involving ether lipids in their chemical, biochemical, biological, and biomedical aspects, and this book, the first to be published on this topic, will therefore be welcomed by all workers engaged in lipid research since it brings together in one volume a concise review of the whole subject.

The book consists of 16 chapters, written by authors active in the particular area covered. An introductory section by Hildegard Debuch (herself a notable contributor to this field) and P. Seng reviews the history of the ether lipids up to 1960. D. J. Hanahan writes on chemical reactions, geometric and absolute configuration, and quantitative measurements. The chemical syntheses of alkoxylipids (W. J. Baumann) are effectively surveyed for the mono-, di- and trialkyl glycerol ethers, their acyl derivatives, and the corresponding phosphate, phosphorylcholine, and phosphorylethanolamine esters. Brief mention is made (C. Piantadosi) of *S*-alkyl and hydroxy and methoxy-*O*-alkyl glycerols, and of *O*-alkyl dihydroxyacetone derivatives, followed by an account (R. Gigg) of the complex problem of the chemical synthesis of the plasmalogens, emphasizing the dual difficulties due to the requirement for the *cis*-*O*-alk-1-enyl (or *cis*-vinyl ether) structure. Most synthetic procedures tended to lead either to a mixture (which then had to be resolved into its components) of the *cis*- and *trans*-*O*-alk-1-enyl compounds or to the acid-resistant isomeric *O*-alk-2-enyl (or allyl ether) products.

An authoritative chapter by F. Snyder discusses the enzymic pathways of *O*-alkyl- and *O*-alkenylglycerols. The discovery of a cell-free system (1968) made it possible to investigate the biosynthetic reactions involved in the formation of these compounds, culminating in the recent suggestion that the *O*-alk-1-enyl moiety originates from an *O*-alkyl precursor, similar to the cis-desaturation process of the stearic → oleic acid conversion. Biological and biomedical effects are next reviewed (H. K. Mangold), followed by the largest chapter (by L. A. Horrocks) devoted to the composition and metabolism of mammalian and avian ether lipids. F. Snyder next reviews the nature of the ether-linked lipids found in tumor cells, followed by chapters on the alkyl and alkenyl glycerolipids of marine animals (D. C. Malins and U. Varanasi), mollusks and protozoa (G. A. Thompson, Jr.), and bacteria (H. Goldfine and P. O. Hagen).

The ether lipids of halophilic bacteria (which grow optimally in 25–30% salt) are reviewed in a fascinating chapter by M. Kates, showing the identification of the 1,2-diphytanyl ether of glycerol in these organisms and its implications in their survival. The final chapter (H. K. Margold) deals with the search for alkoxylipids in plant tissue.

This is a useful, well-referenced book which will prove valuable not only to the workers in this field, but also as an introduction to biochemists and biologists interested in answering some of the questions it poses, *e.g.*, on the biological function of these compounds. There is an excellent author and subject index.

J. Cymerman Craig, *University of California, San Francisco*