portance of olefin complexes in industrially important reactions, such as hydroformylation, the Wacker process, or Ziegler–Natta polymerization of olefins.

The book is free from misprints, although on p. 9 the stability of $C_5H_6Fe(CO)_2P(C_6H_5)_3$ compared with $C_5H_6Fe(CO)_3$ is ascribed to weaker π-acceptor power of triphenylphosphine compared with CO, and on p. 31 to its stronger π-acceptor power compared with CO.

To summarize, the book will be a useful source of reference to workers in the field, but whether it will stimulate practising chemists, theoreticians, and X-ray crystallographers to become interested, is more doubtful. General readers will be better advised to study the article by Bennett in *Chemical Reviews*.

DEPARTMENT OF CHEMISTRY G. WILKINSON
IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY
LONDON, S.W.7, ENGLAND

Einführung der Äthinyl- und Alkinyl- Gruppe in organische Verbindungen. By DR. WILLI ZIEGENBEIN, Wissenschaftliches Laboratorium der Chemische Werke Hüls AG. Verlag Chemie, G.m.b.h., 694 Weinheim/Bergstr., Postfach 149, Germany. 1963. 187 pp. 23 × 15 cm. Price, DM 24.

This book is a review of the literature dealing with the introduction of acetylenic groupings into organic substances. The literature between 1955–1961, inclusive, is covered, although some key references to earlier work are given. Only reactions involving formation of a new bond with an acetylenic carbon atom in a preformed ethynyl compound are considered. Not included are methods for the actual formation of the acetylenic bond [which have already been reviewed by the author together with W. Franke and H. Meister, *Angew. Chem.*, **72**, 391 (1960)], the introduction of acetylenic groupings when a saturated carbon atom in the acetylenic component is involved in bond formation, or the introduction of alkoxy-acetylene functions.

The review is a very thorough one, within the rather narrow scope chosen by the author. Such a review is particularly useful, since many of the references are concerned with work originally published in patents and in Russian journals, which may not be generally available. A welcome feature is the inclusion of full details of typical experimental procedures, especially in those cases where the patent literature would have to be consulted for the original (a typical example is the description on p. 112 of the conversion of 19-norandrostenedione to 17α-ethynyl-19-nortestosterone in over 90% yield, taken from a German patent).

The book is divided into two main sections, one dealing with the introduction of acetylenic groupings *via* metal derivatives, and the other *via* Grignard derivatives. While this is logical, some of the other classifications used in the text, such as "Äthinierung," "Äthinylierung," "Alkinierung," and "Alkinylierung" seem to do little but confuse the reader. The only serious criticism, however, is the absence of any indexes. The presence of a subject index would doubtlessly have added considerably to the utility of the book.

The formulas are well presented, although occasionally "bent" acetylenes (*e.g.*, ) appear. The book seems to be accurate and free from errors. The only significant mistake noticed was the remark by the publishers on the page preceding the Preface to the effect that an extract from the book has been published previously in the above-mentioned *Angewandte Chemie* review. In fact none of the material covered in the present book appears there.

In summary, the book is a valuable one and can be recommended to all who take an interest in acetylene chemistry, both from an academic and an industrial point of view.

DANIEL SIEFF RESEARCH INSTITUTE FRANZ SONDHEIMER
WEIZMANN INSTITUTE OF SCIENCE
REHOVOTH, ISRAEL

Naturally Occurring Oxygen Ring Compounds. By F. M. DEAN, B.Sc., Ph.D., Senior Lecturer in Organic Chemistry, University of Liverpool. Butterworth, Inc., 7235 Wisconsin Ave., Washington 14, D. C. 1963. viii + 661 pp. 15.5 × 25.5 cm. Price, $24.95.

This very comprehensive discussion of the chemistry of naturally occurring oxygen heterocyclics can be regarded as a most important contribution to the literature of organic chemistry. Several textbooks have been published recently dealing with certain aspects of this class of natural products, but any overlap is fully justified since this is the first book to be published which provides a thorough survey of the field. It is a very easy book to read and the topics that are covered include epoxides, furans, lactones, lignans, pyrones, coumarins, chromans, xanthones, flavonoids, isoflavonoids, rotenoids, and depsidones. Writing a book covering this range of topics is a mammoth task, and in addition the author has successfully extended his terms of reference to include an appreciation of the importance of these compounds in medicine, agriculture, and genetics. The final chapter is a critical discussion of the current situation regarding the biosynthesis of natural phenolic and related compounds.

Dr. Dean is to be congratulated because the book, in spite of its extensive coverage, is nevertheless sufficiently detailed to make it of considerable value to the expert. It will also have general appeal because he has managed to emphasize those features of natural product chemistry which have provided a fundamental basis for the growth of organic chemistry.

The text contains many structural formulas, and the standard of presentation is excellent. The publication of specialist textbooks is often associated with such a high price that their wide purchase cannot be recommended. In this case, although the book is expensive, the price can be justified, and it is likely to serve as a standard textbook for a number of years.

DEPARTMENT OF CHEMISTRY W. D. OLLIS
THE UNIVERSITY
SHEFFIELD 10, ENGLAND

Inorganic Polymers. By D. N. HUNTER, The Houldsworth School of Applied Science, University of Leeds. John Wiley and Sons, Inc., 605 Third Ave., New York 16, N. Y. 1963. 110 pp. 14 × 22.5 cm. Price, $7.25.

This slim, well-manufactured volume presents a brief, unified treatment of the present-day *descriptive* chemistry of a wide range of inorganic macromolecules. Structural formulas for straight chains are given in abundance throughout the book. In accord with the type of information in much of the original literature cited, a large proportion of these structural formulas are said to be "suggested" or "thought to be" as given. However, in spite of this, the unwary reader may find it difficult to distinguish between the purely conjectural and the elegantly proven structures, since no details and insufficient references are presented for the latter.

The classification of the macromolecules into homopolymers (Chapter 2) based on sequences of like atoms and heteropolymers (Chapters 3 and 4) based on alternating atoms is well conceived, as is the grouping (Chapter 5) of organic derivatives of the inorganic polymers (substituted homo- and heteropolymers as well as "hybrid heteropolymers" of the type e-R-e-R-). The brief discussion of technology (Chapter 6) is also nicely organized.

This book will be of particular value in widening the horizons of the usual polymer chemist who works solely with carbon compounds and in directing the attention of inorganic chemists devoted to relatively narrow specialties to related areas of general chemistry. Two main faults with the over-all presentation, in the eyes of this reviewer, are (1) omission of any treatment of branching [*i.e.*, the structural formulas are usually given as straight chains even in cases, such as $(-\underset{Cl}{\underset{|}{Si}}-O-)_n$ on p. 13, where disproportionation of the suggested monomeric unit to give branching units is to be expected]; and (2) no indication of the labile nature of many of the systems treated, particularly with respect to molecular rearrangements and reorganization. Because no theoretical framework is presented and the reference citations are weighted in favor of qualitative studies leading to conjectural structures, the uninitiated reader will probably gain a false impression of universal naiveté and backwardness in the field of inorganic macromolecules. Nevertheless, this book (which contains satisfactorily few misprints) is highly recommended as a short introduction to an exciting and growing branch of chemistry.

CENTRAL RESEARCH DEPARTMENT JOHN R. VAN WAZER
MONSANTO CHEMICAL COMPANY
ST. LOUIS, MISSOURI 63166