Book Reviews

The Terpenes: The Sesquiterpenes, Diterpenes and their Derivatives, Vol. III. 2nd ed. Sir John Simonsen and D. H. R. Barton. New York: Cambridge Univ. Press, 1952. 579 pp. $10.00.

The increasing importance of the chemistry of the higher terpenes is shown by the necessity for this book. In 1932, the second volume of the first edition of this monograph devoted only 114 pages to the sesquiterpenes—much of this space being taken up by substances of unknown constitution and uncertain identity. In the present volume, covering the literature through 1949 and modestly termed a second edition, the sesquiterpenes are given nearly three times as many pages; a wholly new section on the diterpenes has been added. This field of research is not closed, however, and it is to be hoped that the next 20 years will see the chemistry of the sesquiterpenes placed on as firm a basis as that upon which the chemistry of the monoterpenes rests. A sign that this is occurring is found in the fact that some portions of this work, notably those dealing with humulene and β-caryophyllene, are already obsolete.

Those familiar with Volumes I and II of the present edition need not be told that this volume is concisely and clearly written, and thorough but critical in its coverage of the literature. Such readers will be pleased to note that it contains addenda to the previous volumes (80 pp.) covering the literature on the monoterpenes from 1947 to 1950 (prepared by the senior author and L. N. Owen).

This work is, generally speaking, well organized. Subsections of subchapters are devoted to individual compounds. The main sources, methods of isolation, and the physical properties of each substance are very briefly summarized. Evidence as to the structure of the compound is then presented in detail, with an abundance of structural formulas, followed by a textual summary of the principal derivatives and reactions of the substance. Although the work is obviously not intended to be a handbook, it seems possible that some improvement might be achieved by the use of tabular summaries of the physical properties and derivatives arranged to permit easy comparisons among substances of similar properties.

The authors are particularly to be commended for their critical judgment in the assignment of structural formulas to the compounds. In this respect they show more caution than many of the workers quoted, and one may feel considerable confidence in most of those structures that are indicated as established. It should be remembered, however, that few of these substances have been synthesized by unequivocal methods and that many of the structural assignments rest heavily on the results of dehydrogenation at high temperature. The caution of the authors has not prevented them from using the best formulas available in 1950 to illustrate the oftentimes intricate chemistry of degradation reactions. These formulas are usually clearly identified as tentative and serve as valuable summaries of the work so far done; the clarification achieved by this somewhat less than rigorous approach would seem to be well worth while.

One of the great values of the study of the chemistry of natural products is the respect it breeds for the ability of organic compounds to undergo rearrangement and isomerization. This point is brought out throughout this work, but particularly well in the special article on santonin, by W. Cocker. This chapter is especially recommended to organic chemists in general as an object lesson in stereochemistry, molecular rearrangements, and the dangers of jumping to conclusions on the basis of too much respect for "general reactions." It is also recommended as an outstanding example of the order that can be brought from chaos by clear but highly condensed chemical writing.

This book, with its companion volumes, should be in every institutional library and in the libraries of chemists working with flavoring matters, essential oils, or the resin acids. It seems likely that other chemists, especially those with interests in polycyclic compounds, pharmaceuticals, stereochemistry, or mechanisms of rearrangement will find enough of value here to justify its purchase. The binding, paper, and typography are good. There must be several thousand structural formulas in this book; a few of these contain typographical errors minor enough to cause only temporary confusion.

It is to be hoped that the authors, one of whom is making important contributions to the chemistry of the triterpenes, will find it possible in the near future to extend the scope of this monograph to include that field as well.

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Prehistoric Europe: The Economic Basis. J. G. D. Clark. New York: Philosophical Library, 1952. 349 pp. Illus. $12.00.

Grahame Clark, recently elevated to the Disney professorship of archaeology at Cambridge, has produced his fifth major volume on European archaeology. This large and handsome book, beautifully printed by John Bellows of Gloucester, England, is copiously and instructively illustrated. In it Dr. Clark has, in a nutshell, restored the organic element to European archaeology, concentrating on perishables, particularly wood, bone, horn, bark, bast, leather, matting, basketry, and textiles. Drawing his materials from swamps, bogs, and preliterate art representations on stone, he has compared them with European folk survivals. The result is a coherent and well-rounded picture of the economic life of that subcontinent, particularly its northwestern portion, from the end of the last glaciation to the beginnings of recorded history.