

Book Reviews

Criteria for Quality of Petroleum Products. Edited by J. P. ALLINSON (Institute of Petroleum). Halsted Press (John Wiley & Sons), New York and Toronto. 1973. xii + 286 pp. \$18.75.

The importance of well-defined, pertinent specifications for petroleum products has never been greater. It will continue to increase as the industry is forced to process less desirable crudes into products of increasing versatility, able to perform under more severe conditions while at the same time complying with progressively tighter environmental and consumer-oriented restrictions. Concurrently the expense of these proliferating tests is spiralling because of increased labor costs and the need for more replication to achieve greater precision.

J. P. Allison's well-edited book does not, of course, prescribe solutions to these problems, although in its first chapter G. J. Jenkins makes an excellent diagnosis of the test proliferation syndrome. Drawing on the technique of principal components analysis, he shows in several well-chosen examples that many of the separate time-honored specification tests of a product are correlated to the point of redundancy and could thus be calculated from the results of a single test.

The remaining chapters form a comprehensive introduction to the entire field of petroleum products from gases to asphalts and resids. There is also a chapter on crude oil assays. Each chapter is a self-contained essay supplementing the purely operational descriptions given in the ASTM and Institute of Petroleum test manuals with concise but detailed summaries of the purpose and background of each test. Together, these chapters provide a stimulating educational experience to the newcomer to the field, as well as to the expert in one or more of its branches.

The utility of the book is enhanced by its policy of referring where possible to both IP and ASTM test procedures by number, although the index is deficient in not providing a list or concordance of ASTM- and IP-numbered tests in a convenient numerical order. Several of the chapters are coauthored by experts from this side of the Atlantic, but occasionally a predominantly European standpoint results in serious omissions for the U.S. reader. For example, the intense search by ASTM for a test for lead contamination of unleaded gasolines is nowhere referred to. Detailed hydrocarbon analysis of lighter petroleum products and the less detailed but still valuable techniques of simulated distillation by gas chromatography of heavier products are not described. A single technique that could ultimately replace a multitude of separate tests surely is in harmony with the principles set forth in Chapter 1.

Apart from these relatively minor criticisms, the book is highly recommended.

P. R. Ballinger, *Chevron Research Company*

Experimental Methods in Biophysical Chemistry. Edited by C. NICOLAU (Craiova University). John Wiley & Sons, Inc., New York, N.Y. 1973. xvi + 687 pp. \$39.50.

The editor states in the preface that "the book is intended as a source of information and references for those engaged in biophysicochemical research but as well for graduate students and for people working in hospital and biological laboratories at large."

The book is in six sections and represents a compilation of fourteen chapters by nineteen eminent scientists. Various properties of biomolecules, such as structures, shapes and sizes, separations, electronic properties, reactions, and interactions, have been discussed in considerable detail. The typical format for each chapter is as follows: Introduction, Theory, Applications, Conclusions, and References. Each chapter includes a list of references pertinent to the subject, with the most recent citations up to 1972.

All factors considered, it is a well-organized book. The book is to be recommended for those engaged in biophysicochemical research. Graduate students may also be benefited to a certain extent by reading this book. In my opinion, however, this book has limited value for the people working in clinical environments.

Indu A. Muni, *Miles Laboratories, Inc.*

Methods in Free-Radical Chemistry. Volume 4. Edited by E. S. HUYSER (University of Kansas), Marcel Dekker, New York, N.Y. 1973. ix + 169 pp. \$22.50.

Extremes in the breadth of subject matter are treated in this volume as a part of a continuing series in free radical chemistry. Autoxidation represents one of the most important and extensive aspects of free radical chain processes. The treatment by W. G. Lloyd is limited in depth and rather broad, but it serves adequately as a palatable introduction to more detailed treatments of this complex subject. The list of references, particularly to the Russian literature, is useful. The other chapter, by W. Trahanovsky, deals specifically in the cleavage of alcohols and 1,2-glycols at carbon-carbon bonds by metal oxidants such as chromic acid as well as ceric and plumbic salts. The chapter is primarily oriented toward the mechanistic delineation of one-electron from two-electron processes. Both chapters for different reasons are of limited value when they are presented in this high-priced form set in typescript. It brings forcefully to mind the compelling justification for the continued growth of review journals by the editor of *Chemical Reviews* [74, 125 (1974)].

J. K. Kochi, *Indiana University*

Chemical Contraception. By JOHN P. BENNETT (Syntex Corporation). Columbia University Press, New York, N.Y. 1974. x + 230 pp. \$20.00.

The regulation of human fertility is a complex problem involving the synergistic interplay of many disciplines. In this book, John Bennett describes research from the areas of chemistry, biochemistry, physiology, gynecology, and pharmacology aimed at achieving safe, practical, and effective contraceptive agents. The subject matter is divided into eight chapters which discuss respectively the background to the problem; the history of contraception; the combination and sequential oral contraceptives; progestin and depot contraceptive methods; chemical abortifacients and menses inducers; postcoital antifertility; chemical contraception in the male; and the future of chemical contraception.

Each chapter begins with a brief historical summary of the topic which is then developed in the context to recent research. The postulated mechanisms of action are then discussed. Unfortunately, the test results of the vast number of synthetic compounds are presented at times in catalog fashion. Despite this minor detraction, the many tables, graphs, and figures allow one to contact much information at a glance, and, with over 500 references, the book affords the opportunity to delve into the original literature of the subject.

Of particular topical interest is the final chapter in which the author calls attention to problems hindering new contraceptive development. These include the increasingly stringent requirements of the government drug regulatory agencies, the negative influence of the press and legislative bodies, and the risk of economic loss (an oral chemical contraceptive developed over a period of ten to fourteen years costs approximately ten million dollars, leaving little time of the patent life in which to recover the research investment). The book concludes with suggestions for changing the discouraging outlook that now exists in regard to the introduction of an anti-fertility drug within the next decade. Among these are the need for further research in the area of human reproductive physiology, the employment of more suitable animal models, a reduction in the current duration of testing, and a lessening of the present public hostility toward scientific technology.

The author succeeds in presenting his subject in a manner which is readable and on the whole not overly technical. The text is relatively free of typographical errors, most of which appear in structural formulas (interestingly, the cyclic diazomethane structure is shown in a table of alkylating agents). This volume will be well received by readers wishing to have a better overview as well as scientists already involved in contraceptive research.

Paul J. Brynes, *Cornell University*