NEW BOOKS

STANDARD METHODS FOR THE ANALYSIS OF OILS, FATS AND SOAPS FOR THE INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY, published as a supplement to Pure and Applied Chemistry by the IUPAC in Great Britain (The Chapel River Press, Ltd., Andover Hants, approx. 140 pp., 5th. Ed., 1964, $9.50; USA, Butterworth, Inc., Washington, D.C.) The methods included those adopted and edited by the Oils & Fats Division of the Union.

This text should be a ready reference for any company engaging in international trading of oils, fats and soaps. In this revision the editors have attempted to effect a more systematic presentation of the analytical methods. One change was a publication in loose leaf form which permits the advantages of the AOCS Methods of Analysis. The section headings "Apparatus and Reagents" does not include everything necessary for the assay, but only that which is particular for that assay.

The text is written in French and English. One fact which was not easy to comprehend at first is the policy "in case of dispute, the French text is the official text." However, upon reading the history of the oil and fats division of the IUPAC and its origin in France, this policy can be understood. The methods are written essentially for trading internationally in fats, oils and soaps. Usage then naturally follows for quality control analysis. Fifteen countries are represented with Sweden and Israel awaiting membership. F. D. Snell, U. C. Mehlenbacher and E. M. Sallee are members from our country.

The text is divided into four sections: 1) Oleaginous seeds and fruits, 2) Oils and fats, 3) Glycerine, and 4) Soaps. The general procedure of the methods parallel the AOCS Methods of Analysis. However, some important details are overlooked. Reference is made to methods of sampling and sample preparation. While recognition is made of sample size, grinding and mixing, detailed instructions are lacking. For International trading such information is important. It may be that the authors are trying to cover a variety of materials in each method rather than detailed procedures for each product. The methods are written in slightly more than 100 pages with one half devoted to French and the balance to English.

One must not be too critical of the methods as written for it surely is a task to have 15 countries of varied languages, customs, background and interest to agree on the methods and details of procedure.

Most of the methods are familiar to us. However, they pay particular attention to dust and foreign matter in seeds. For some determinations, more than one method is described, i.e. two methods for titre and three methods for iodine number, Wijs, Hanus and Hubl. One determination not familiar to me is the A & B number. The A number is the mls. 0.1N KOH required to neutralize the fatty acids whose Mg. soaps are soluble in water and Ag. soaps are insoluble. This indicates the presence of caproic, caprylic and capric fatty acids. It is used to indicate the percentage of palm kernel, coconut and similar oils. The B number is the same for soluble Mg. and Ag. soaps. The value is employed to indicate the presence of butryric acid or butter.

The only instrument referred to is the spectrophotometer for oil color. Here they employ the AOCS Method with published tables for calculation. It is reasonable to assume that many countries lack modern instrumentations so that this edition cannot make use of them.

The overall editing is good. No typographical errors were noted. The paper appears to be soft or uncoated and may not be as durable as one would expect of an official method of analysis. Binding is good and it is easy to insert revisions.

T. J. POTTS
Ralston Purina Co.
St. Louis, Mo.

ADVANCES IN ENZYMOLOGY, Vol. XXV, (Interscience Publishers, John Wiley and Sons, New York, 565 pp., 1963, $15.00). The present volume is devoted, as its predecessors, to critical reviews of selected topics in enzymology and biochemistry. Although enzymology is a discipline unto itself, the rapid developments in all phases of dynamic biochemistry have eroded the boundaries between these areas, and have made at least part enzymologists out of most biochemists. Hence the contents of this volume will probably have a broad appeal to many biochemists.

Of the ten topics between the covers, only two can be said to be concerned with "pure" enzymology. M. Eigen and G. G. Hammes present what will be, to most readers, the first introduction to the exciting potentialities of the magnificent new techniques of studying the elementary steps in enzyme reactions by relaxation spectrometry. The senior author, Eigen, has been personally responsible for the major developments in this area which promise an important breakthrough in enzyme kinetics. While it is unfair to ask for presentations which provide "instant knowledge," these authors (who write with such clarity and conciseness) would have helped the average reader by an expanded elementary introduction. The other contribution to "pure" enzymology, a kinetic consideration of product inhibition, by C. Walter and E. Frieden, occupies almost 100 pages and will probably be of less general value. No conceivable theoretical possibility nor relevant literature seems to have been overlooked, but the field suffers from a lack of sufficiently good data.

The remaining eight contributions are, with one exception, timely, significant and of general interest. The energetics of photosynthesis are often as frustrating to the expert as to the non-specialist. J. A. Bassham differentiates well between the known and the speculative and provides a guide to intelligent thinking on the subject. In addition, Bassham presents an unbiased consideration of some apparent anomalies in the classical picture of the path of carbon in photosynthesis, which path he helped to propound as a member of the Calvin team.

W. D. McElroy and H. H. Seliger present a straightforward review of the chemical basis of biological light emission, augmented with a bit of the relevant comparative biochemistry. Y. Hatefi's chapter on coenzyme Q provides a complete survey of the chemistry, occurrence, origin and analysis of this class of substances as well as possible biological function.

The relatively satisfactory state of knowledge in the area of biological methylations permits D. M. Greenberg to present a concise but comprehensive picture of that field. The toxic manifestations of ethionine have long excited interest because of its connection with fatty liver and hepatomas. J. A. Stekol reviews critically the accumulated data of 25 years and considers the efforts which have been made to find the molecular basis for the action of ethionine.

Those who wish to keep up with the recent burst of development in the field of acid mucopolysaccharides will find R. W. Jeanloz' discussion helpful. The final topic, "The Mechanism of Cocoa Curing," may be dear to a small number of specialists but it is not likely to be turned to first by the average reader who picks up this volume.

By and large, each contribution is a well-integrated treatment of principles and experimental work, and will serve as an excellent source of learning for the student and the practising biochemist. Matter of special interest to the worker in lipids is to be found in the chapters on ethionine and coenzyme Q.

BERNARND AXELROD
Biochemistry Dept.
Purdue University
Lafayette, Ind.