catalogued the results of the researches of others. No one, therefore, could have been better qualified by thorough familiarity with the subject to write this long-needed review of existing information concerning the biochemistry of the fatty acids and their compounds, the lipids.

In preparing to write the book, Dr. Bloor evidently realized that it should fulfil two purposes: to provide the general student of biochemistry with a present-day interpretation of the chemistry of the lipids and their rôle in the functioning of living matter; and to provide the present and future researcher in the lipid field with a complete and convenient catalogue of the information that has accumulated about the lipids. The subject is dealt with in six chapters: Chemistry; Digestion and Absorption; Lipids of the Blood; the Lipids of Tissues; Lipid Metabolism; and the Lipids of Secretions and Excretions. Each chapter in turn is subdivided into numerous sections and subsections, each of which is indicated in the exceptionally detailed table of contents. Thus the reader is provided with a key to the information on any specific subject concerning the lipids. Each chapter ends with a complete and conveniently indexed bibliography which enables one to consult the original sources of the information summarized in the book. In spite of the author's admission of the incompleteness of his bibliography, the literature on the lipids up to about 1940 appears to be pretty thoroughly catalogued. Although the preface was written in April, 1943, it is evident that most of the information published since about 1940 is either missing or is very briefly mentioned. It is of course inevitable in any review of a rapidly advancing field that recent findings, many of which necessitate a radical change in viewpoint or interpretation, are omitted. Such is the case with Dr. Bloor's monograph. In general the important and far-reaching results that have been obtained by the use of the isotopes are not included. Consequently, in the reviewer's opinion at least, certain of the interpretations of earlier data are either untenable or at any rate inadvisable as definite statements of fact. For the research worker in the lipid field such faults are of little importance; they serve to accentuate the need for further work and especially for new methods of approach. The general reader, on the other hand, is likely to be left with falsely secure convictions concerning certain aspects of the biochemistry of the lipids.

"The Biochemistry of the Fatty Acids and the Lipids" is treated by Dr. Bloor primarily from a physiological standpoint. The balance between the more strictly chemical, *i.e.,* the organic and physicochemical aspects, and the functional is perhaps not as even as some would wish. Chapter I, dealing with the chemistry of the fatty acids and the lipids, takes up only the first fifty-seven pages of the total three hundred and seventy-seven; of these fifty-seven, twenty deal with quantitative methods. Furthermore, Chapter I suffers perhaps more than the other chapters from the absence of the more recent work. For example, the chemistry of the material conventionally called cephalin has been considerably modified and elucidated by the work of Folch: cephalin is a mixture of at least three components.

In the remaining chapters the author has done an admirable job of classifying the enormous amount of information, and by intercalating introductory remarks, interpretations and summaries, of weaving the various threads into a fabric. As stated in his preface, Dr. Bloor himself has recognized that this fabric is imperfect; it can not be otherwise in a growing subject. Nevertheless, the monograph will fill a long-felt need and will serve as a very useful guide to further constructive research into the biochemistry of the lipids.

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SYNTHETIC SUBSTANCES

The Chemistry of Synthetic Substances. By DR. EMIL DREHER. Translated by MARION LEE TAYLOR. 103 pp. New York: Philosophical Library. 1943. $3.00.

THE original of this volume appeared in German in 1939 at a time when the chemistry of large molecules had not received the attention which is at present devoted to it. The effects of constituents and substituents on the polymerization and the properties of the resultant condensates had not received the published discussion which is at present available.

At that time, Dr. Dreher's volume made a notable contribution to this difficult subject and all the information contained in the volume is still of basic importance. The available copies of the first German edition were very limited in number and the present translation will therefore be welcome to those who either were unable to secure the German or were unaware of its existence.

The volume discusses high molecular organic compounds and the principles of the processes of polymerization and polycondensation. Several chapters are devoted to the influence of side groups on the capacity for polymerization, and a chapter is devoted

to the solubility of high molecular film-forming substances.

The book from start to finish is strictly chemical and the approach to all the subjects is, as the title implies, a study of the chemistry of the processes under discussion. It is replete with bibliographic references inserted at the ends of the various chapters.

The style of the translator is somewhat influenced by an occasional too literal translation of the German, and the general format reveals the influence of the modern requirements of our war economy. The book should be a valuable addition to the libraries of all those who are interested in the chemistry of polymerization and will be particularly welcome to those who have seen the German original and have wished for an English translation.

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MARINE AND AIR NAVIGATION

Marine and Air Navigation. By JOHN Q. STEWART and NEWTON L. PIERCE. 472 pages. Ginn and Company. $4.50.

ALTHOUGH the difference between marine and air navigation is largely one of technique, this is probably the first text to treat both equally. Many students will want to read both parts, yet the reader who wishes to limit his studies to either one will find the two sufficiently well separated to permit this.

The book contains a large number of illustrations and reproductions of charts and government publications. Throughout the book emphasis is given practice rather than theory, with mathematics playing a supporting role and never a leading one. The book is unusually readable for a text and for piloting and dead reckoning navigation is thorough and well organized.

The only fault, if it is one, is the order of presentation of the various parts of celestial navigation. A step-by-step explanation of the simplest method of solution of celestial observations is all that is necessary for the navigator with modern equipment, but it may not be the best way to instill a thorough understanding of the principles which may be needed when the easiest tools are not available.

Despite this feature, which many readers will entirely approve, the book is easily the best general text on navigation that has appeared in recent years.

Basic Marine Navigation. By BART J. BOK and FRANCES W. WRIGHT. 422 pp. Houghton Mifflin Company. Book, $4.50; kit, $1.70.

WRITTEN for the Army Engineer Command, this book gives chief attention to navigation near land. Emphasis is given procedure, and where rules and computational forms suffice, a deeper discussion is omitted. It attempts to develop "an intuitional understanding of the procedures" rather than a theoretical understanding of the principles involved. Included is an interesting and practical chapter on "Navigation in Emergencies," a good chapter on "Marine Meteorology" and one on the principles of the maneuvering board.

Celestial navigation is fully covered, but the chapter on the sextant seems to be out of place and "Navigation by the Sun" and "Navigation by the Stars" are separated as though there were an essential difference between them. Somewhat questionable, also, is the placing of special cases before the usual method of finding a line of position.

Regardless of its weaknesses, this is one of the better recent books on navigation. It is well written and contains a number of excellent illustrations. It is particularly recommended to the person who wants to teach himself. Available separately is a "kit" which supplies the necessary materials for solving the practice problems of the text.

The Theory of the Gyroscopic Compass and Its Deviations. By A. L. RAWLINGS. 182 pp. The Macmillan Company. $3.00.

IN this second edition the author has simplified the mathematics somewhat, but it is still too involved for the average reader.

The book naturally falls into three parts, the first dealing with the principle of the gyroscope, the second giving a description of the various gyro-compasses; the third dealing with the errors of the gyrocompass, as an instrument to indicate true north, and their solution.

Written from the viewpoint of the designer, the book contains much of interest to the non-mathematical reader with a general knowledge of the instrument. It is undoubtedly the most thorough book on the subject.

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SPECIAL ARTICLES

A METHOD OF PROLONGING THE ACTION OF PENICILLIN[1]

THE clinical effectiveness of penicillin has been well established. However, from the standpoint of determining optimum dose, period of time necessary for treatment and of inconvenience both to patient and

[1] From the Penicillin Section, Laboratory Service, Walter Reed General Hospital. The technical assistance of