fide, cyanide- and iodide ion, or by substances competing for the sulfhydryl group, such as methylmercuric nitrate, mercuric ion, and excess of the mercurial itself.

The dimer has an appreciably smaller solubility than the monomer. This property in conjunction with the rapid rate of dimer formation has proved useful in the isolation of the mercaptalbumin fraction of human serum albumin. The mercaptalbumin may be recovered by precipitating the mercurial as its very insoluble iodide.

Theoretical implications of the marked effects of mercurial structure on the kinetics of dimerization are being further studied in this laboratory.

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RECEIVED DECEMBER 22, 1950

BOOK REVIEWS

Annual Review of Biochemistry. Volume XIX. J. MURRAY LUCK, Editor, Stanford University, HUBERT S. LORING, Associate Editor, Stanford University, and GORDON MACKINNEY, Associate Editor, University of California. Annual Reviews, Inc., Stanford, California. 1950. xi + 596 pp. 16 × 23 cm. Price, $6.00.

The high quality and great usefulness of the Annual Review series is well attested by the launching of three new reviews (Physical Chemistry, Plant Physiology and Psychology) in 1950. The current volume (XIX) of Annual Review of Biochemistry contains fewer pages than preceding issues, but the amount of material is about the same since a smaller type has been used. The number of chapters (22) is slightly lower than that of previous years, probably as the result of the establishment of other reviews in related fields. However, the number of references cited (somewhat over 4700) is about the same as that of the preceding volume.

Volume XIX contains the customary chapters on enzymes and biological oxidations (3), chemistry of carbohydrates, lipids, amino acids and proteins, nucleic acids, hormones, antibiotics (7), vitamins, nutrition, metabolism of carbohydrates, fats and amino acids (6). Two chapters deal with the composition and metabolism of muscle and of neoplastic tissue; other chapters cover the composition of blood serum and plasma, the pyrrole pigments, immunochemistry and partition chromatography. Each chapter is written by a specialist in the field and summarizes the important papers which appeared between November, 1948 and December, 1949. The rapid increase in the volume of biochemical literature makes these critical reviews invaluable to teachers, students, research workers and others attempting to keep abreast of developments in the various areas of biochemistry.

DEPARTMENT OF CHEMISTRY
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Synthetische Methoden der organischen Chemie. Repertorium 3. By W. THEILHEIMER. S. Karger, Ltd., Holbeinstrasse 22, Basel, Switzerland. (New York), 1949. viii + 412 pp. 16 × 23 cm. Price, Sfr. 40.—. (Available through Interscience Publishers, Inc., 215 Fourth Avenue, New York 15, N. Y.; price, $10.00.)

Volumes 1 and 2 of this series, covering the periods 1942–1944 and 1945–1946, have appeared in English translations. The current volume (1946–1948) and Volume 4 will be published only in the German editions but it is expected that translations will be resumed with Volume 5.

These books present a survey of new synthetic methods and modification or improvements of older methods, arranged according to the system of reaction types developed by Weygand. Reaction symbols have been devised which permit a systematic classification of the transformations involved. The individual entries state concisely the starting materials, reaction conditions, products and yields. Reference to the original work is given and often supplementary references, including citations to the early volumes of this series. The text of Volume 3 serves to some extent as a cumulative index, since it contains all of the type reaction headings of the earlier volumes, and cross references are given when no new entries are available. There is provided also a cumulative subject index (50 pp.) to the first three volumes. A short tabulation (3 pp.) of English–German translations of the principal chemical terms used in the index is included.

This type of survey is particularly useful to the research worker as a means of locating new and improved methods for specific reactions, which might otherwise be quite difficult to find in the original literature.

DEPARTMENT OF CHEMISTRY
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Elsevier's Encyclopaedia of Organic Chemistry. Series III. **Carboisocyclic Condensed Compounds.** Volume 12B. Naphthalene A. Compounds Containing One Naphthalene Nucleus. Nitrogen Compounds. Edited by F. RADT. Elsevier Publishing Company, Inc., 215 Fourth Avenue, New York 3, N. Y. 1949. Pages 345–1052. 18 × 26 cm. Price, single volume $64.00, For subscribers to Series III $56.00, For subscribers to the complete work $48.00.

Two earlier volumes (Vols. 14 and 12A) of this encyclopaedia have been reviewed by L. F. Fieser (THIS JOURNAL, **70**, 1294(1948)) and W. A. Mosher (*ibid.*, 71, 3579 (1949)). The reader is referred to these reviews for an excellent discussion of the general plan of this monumental undertaking. The reviewer of the present volume (Vol. 12B) can only re-echo enthusiastic approval.

The present work deals with nitrogen compounds of naphthalene. The compounds are listed under the headings: Naphthalene Compounds Containing Nitro Groups; Nitrosonaphthalenes; Hydroxylaminonaphthalenes; Naphthalene Compounds containing NH_2-Groups; Naphthylnitramines; Nitrosohydroxylaminonaphthalenes; Naphthylnitrosamines; Hydrazinonaphthalanes; Diazo-Compounds; Azo-Compounds; Azoxy-Compounds; Triazo-Compounds; Hydroxytriazenes; Triazenes; and Tetrazenes.

As far as possible, derivatives of any given substance have been grouped together. Accordingly, anhydrides of dicarboxylic acids are found under the latter and not under the heterocyclic compounds containing one oxygen. Likewise, methylene ethers of dihydroxy-compounds are considered as derivatives of dihydroxy-compounds. Compounds differing only in their degree of unsaturation are described in immediate succession. Thus, 2-Naphthylhydroxylamine is followed by 5,6,7,8-Tetrahydro-2-naphthylhydroxylamine.

Functional groups in the side chain are given precedence over similar functional groups in the nucleus. Compounds containing the same functional group only once are followed

by those compounds which, in addition, contain a functional group treated earlier in the system. After these substances are listed the compounds in which the first-named functional group is represented twice.

The location of a particular compound is further facilitated by an alphabetical index and a formula index.

The Editors and Publishers of this volume merit the appreciation of the organic chemists.

SCHOOL OF CHEMISTRY
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Elsevier's Encyclopaedia of Organic Chemistry. Series III. **Carboisocyclic Condensed Compounds.** Volume 12B Naphthalene. A. Compounds Containing One Naphthalene Nucleus. Hydroxy Compounds. Edited by F. RADT. Elsevier Publishing Company, Inc., 250 Fifth Avenue, New York 1, N. Y. 1950. xxxix + 1283 pp., contents, subject and formula index included. 18 × 26 cm. Subscribers to the complete work $78.00; subscribers to Series III only $91.00; single volume $104.00.

The new volume of Elsevier is the sixth volume which has so far appeared. It constitutes the third part dealing with naphthalene and its derivatives and covers the various hydroxy compounds of naphthalene including the hydrogenated compounds, such as the decalols, tetralols, etc. The fourth part, comprising the oxo compounds of naphthalene is scheduled for appearance in November, 1950. The Editors have thus kept closely to the announced publication schedule.

The coexistence of Elsevier and Beilstein naturally begs a comparison of the two works. An encyclopaedia of the type under discussion has to fulfill a number of requirements: the system of classification must be such that no room is left for ambiguity; it must be complete and the available references must be intelligently abstracted; it should be up-to-date; and last but not least, it should also be readable, attractive and convenient for the user. The Beilstein system is no doubt tight and unambiguous; no one has ever demonstrated a misplaced compound in Beilstein. The system is rigid, so rigid, in fact, that a whole book has been written as an Introduction to Beilstein. Elsevier has only three pages of introductory remarks. The system is less rigid; it uses Beilstein's principle of latest position, but exceptions are made where they cannot confuse. For instance, in the present volume benzoates and nitrobenzoates are listed as derivatives of the naphthols, where Beilstein lists them only under the acids. In this way compounds which are most closely related chemically are kept together in Elsevier, even if repetition should be necessary in order to maintain the system of classification. Since the Elsevier system is based on the carbon skeleton, rather than the functional group, polyhydroxynaphthols, aminonaphthols, azo derivatives, methylene ethers of dihydroxynapthalenes (which are heterocyclic by the Beilstein system) are all described in one volume, while they are scattered over many volumes in Beilstein. It has become customary to look upon the Beilstein system as the only possible one, because of its success and thoroughness. The founders of Elsevier, who were for many years associated with Beilstein, must have had good reason to believe that the Beilstein system can be altered, simplified, or even improved.

As for the second point, completeness, Beilstein is so complete that the saying goes that if a compound is not found in Beilstein, it is either not known, or one has made a mistake in trying to locate it. The reviewer has checked five compounds at random, and has found that Elsevier has all of the references available in Beilstein. He found, however, no trace of the dinaphthylcarbinols (although the phenylnaphthylcarbinols are listed). Presumably, these compounds will be listed as functional derivatives of dinaphthylmethane (12BVII). It has been pointed out by several reviewers that Elsevier, unlike Beilstein, does not make use of the patent literature. One patent reference was found by chance in the present volume; one wonders if this is due to the previous, justified criticism.

The up-to-dateness is Beilstein's eternally weak point and is one of the reasons for the existence of Elsevier. At best, Beilstein is at the moment 20 years behind, Elsevier only four, and efforts are being made to publish supplementary leaflets ten years after the appearance of each volume. This alone would ensure Elsevier its place. The present volume is stated to cover the literature up to 1944 (the closing date for volume 12 which appeared in several parts is 1948), but actually many later references up to 1950 can be found.

As for the last point, attractiveness, readability and convenience for the user, there are many ways in which Elsevier is superior to Beilstein, none in which it seems inferior. Many previous reviewers have commented on this. Summary tables, listing for instance all 14 chloronaphthols, or all known nitronaphthols with their derivatives, precede the respective sections. The same information, while available, has to be dug out of Beilstein with considerable expenditure of time. A two-page table contains all color reactions of 1-naphthol, a three-page table its molecular compounds, etc. One also finds many critical footnotes, and recent articles in the "Recueil" indicate that a staff of chemists is constantly investigating "Discrepancies in the Literature" for Elsevier.

Reviewers of Elsevier have pointed out that a real comparison of the two works will only be possible after many more volumes have appeared, and that in the meantime the two supplement each other admirably. Beilstein has been of invaluable service to organic chemistry, beyond any doubt or question whatever, but enough of Elsevier has now appeared to show that Beilstein has found a very formidable competitor. Elsevier is a streamlined, modern book, and on glancing through its attractive pages one cannot help but feel that a fresh breeze is blowing through the tedious field of organic chemical documentation.

DEPARTMENT OF CHEMISTRY
BRYN MAWR COLLEGE ERNST BERLINER
BRYN MAWR, PENNSYLVANIA

BOOKS RECEIVED

November 10, 1950–December 10, 1950

BENJAMIN T. BROOKS. "The Chemistry of the Nonbenzenoid Hydrocarbons." Second Edition. Reinhold Publishing Corporation, 330 W. 42nd Street, New York 18, N. Y. 1950. 615 pp. $12.00.

SAMUEL GLASSTONE. "Sourcebook on Atomic Energy." D. Van Nostrand Co., Inc., Publishers, 250 Fourth Avenue, New York, N. Y. 1950. 546 pp. $2.90.

PAUL KARRER AND ERNST JUCKER. "Carotenoids." (Translated and revised by Ernest A. Braude). Elsevier Publishing Company, Inc., 250 Fifth Avenue, New York 1, N. Y. 1950. 384 pp. $8.50.

ROBERT KUNIN AND ROBERT J. MYERS. "Ion Exchange Resins." John Wiley and Sons, Inc., 440 Fourth Avenue, New York 16, N. Y. 1950. 212 pp. $4.75.

FRITZ LONDON. "Superfluids. Volume 1. Macroscopic Theory of Superconductivity." John Wiley and Sons, Inc., 440 Fourth Avenue, New York 16, N. Y. 1950. 161 pp. $5.00.

K. H. MEYER. "Natural and Synthetic High Polymers." High Polymers Series. Volume IV. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1950. 891 pp. $15.00.

J. H. SIMONS (edited by). "Fluorine Chemistry." Volume I. Academic Press, Inc., Publishers, 125 East 23rd Street, New York, N. Y. 1950. 615 pp. $12.00.