cific rotation of this product with those of the sample previously reported indicates quite definitely that the latter contained among other impurities a considerable amount of cholesterilene.

Like ergosterol [A. Windaus and J. Brunken, *Ann.*, **460**, 227 (1928)] 2,4-cholestadiene in alcoholic solution adds oxygen in the presence of eosin and light to form a stable crystalline peroxide, m. p. 118.5–120.5°, $[\alpha]^{23}D$ + 52.8° in chloroform.

Anal. Calcd. for $C_{27}H_{44}O_2$: C, 80.93; H, 11.08. Found: C, 80.72; H, 11.15.

A further study of these compounds is in progress.

This investigation is being aided by a grant from the International Cancer Research Foundation.

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RECEIVED MARCH 21, 1938

NEW BOOKS

The Carbon Compounds. A Textbook of Organic Chemistry. By C. W. PORTER, Professor of Chemistry in the University of California. Third revised edition. Ginn and Company, 15 Ashburton Place, Boston, Mass., 1938. viii + 495 pp. 16 × 24 cm. Price, $4.00.

The earlier editions of this well-known book have been reviewed [Whitmore, THIS JOURNAL, **49**, 1391 (1927); **53**, 3195 (1931)].

"This book constitutes an outline of an elementary course in organic chemistry. Its scope is limited to fundamental principles and general reactions. The publishers have permitted frequent revisions and this policy has made it possible to keep the book in step with recent advances in the field of chemistry."

The present edition includes a new chapter on "Conjugation and Resonance" and a new chapter on "Optical Isomerism."

HENRY GILMAN

La Synthèse Totale en Chimie Organique. Mémoires de MM. Wöhler, Gerhardt, M. Berthelot, Le Bel, Van't Hoff, Jungfleisch, Ladenburg, Pasteur. (Organic Synthesis from the Elements.) Preface and Commentaries by MARCEL DELÉPINE. (Classiques de la Découvert Scientifique.) Gauthier-Villars, Éditeur, 55 Quai des Grands-Augustins, Paris 6, France, 1937. viii + 145 pp. 13.5 × 19 cm. Price, 21 francs.

The continuity of the present book depends so much upon the Commentaries of Professor Delépine that it seems proper to regard the work as his, a narrative history of the idea and of the fact of the synthesis of organic compounds from the elements, well documented and illustrated with quotations, often very long ones, from the original sources. While the editor-author agrees that many other illustrations might be found for his purpose, the principal points around which he has woven the narrative are as follows: the synthesis of urea by Wöhler and earlier investigations, the discovery of urea by Fourcroy and Vauquelin, the examination of the urine by Rouelle and by Bourdelin, some ideas before Berthelot on the synthesis of organic compounds, Gerhardt's earlier and later opinions, Berthelot's discussion in *La Chimie Organique fondée sur la synthèse*, his synthesis of stearin, of formic acid, of acetylene, of ethylene, of alcohol, and of benzene structure theory (briefly), Van't Hoff on the formulas of structures in space, Le Bel on the relations which exist between the atomic formulas of organic substances and the rotatory powers of their solutions, Jungfleisch's synthesis of *d*- and *l*-tartaric acid from ethylene, Ladenburg's synthesis of coniine, asymmetric decomposition and total asymmetric synthesis. The result is an interesting and coherent account, a cross-section of the history of organic chemistry, which is all the more valuable because no adequate history of organic chemistry as a whole exists at present. The book is illustrated with portraits of Wöhler, Berthelot, Van't Hoff, Le Bel, Jungfleisch, Ladenburg, and Pasteur.

TENNEY L. DAVIS

Katalytische Umsetzungen in homogenen und enzymatischen Systemen. (Catalytic Reactions in Homogeneous and Enzymatic Systems.) By W. FRANKENBURGER. Ludwigshafen/Rhein. Akademische Verlagsgesellschaft m. b. H., Sternwartenstrasse 8, Leipzig C 1, Germany. 1937. xi + 444 pp. 22 figs. 15.5 × 24 cm. Price, RM. 34.80; bound, RM. 36.

This book, by one who contributed much to the modern ideas on catalysis, is a comprehensive survey of homogeneously and microheterogeneously catalyzed reactions.

It is somewhat disappointing that Dr. Frankenburger, who is an expert on heterogeneous catalysis, has not included heterogeneous reactions in the present volume; nevertheless the work covers a wide field. After a brief and rather non-mathematical introduction reviewing the general theories of reaction rates in elementary and complex reactions, the author discusses catalysis in gas reactions primarily from the point of view of reaction chain mechanism. Several typical reactions are dealt with in detail and the results of their kinetic analysis are presented clearly and yet not dogmatically. The next, and by far the longest, section deals with homogeneous catalysis in liquid mixtures. It is primarily a discussion of acid–base catalysis and of catalysis in oxidation reactions. One misses in the chapter on acid–base catalysis a unified statement of the general acid–base theory and yet its

knowledge is very useful for a correct understanding of the phenomena discussed.

The last section is devoted to enzymatic catalyses, hydrolytic, fermentation and oxidation reactions being covered in detail. A brief review of catalysis by colloidal metals ends the book.

Reading the book, one repeatedly finds better known reactions discussed in considerable detail. Combined with sections devoted to general theories, the whole gives the reader a well balanced idea of the present status of our knowledge in the field of homogeneous catalysis. A few omissions and the noticeable emphasis on publications in the German language are failures not important enough to detract significantly from the value of the book. It is therefore to be well recommended not only for reference use but also for systematic study and should prove very useful to chemists and biologists alike.

G. B. KISTIAKOWSKY

The Fine Structure of Matter. Part I. X-Rays and the Structure of Matter. Vol. II of "A Comprehensive Treatise of Atomic and Molecular Structure." By C. H. DOUGLAS CLARK, D.Sc., A.R.C.S., A.I.C., D.I.C., University of Leeds. John Wiley and Sons, Inc., 440 Fourth Ave., New York, N. Y., 1937. lxxi + 216 pp. 124 figs. 14.5 × 22.5 cm. Price, $4.25.

Great progress has been made in recent years in the study of the structure of crystals by X-ray methods. The results of this work are summarized in a thoroughly satisfactory way in the "Strukturbericht," of which three large volumes have so far been issued, with others in preparation. These volumes of the "Strukturbericht" are very expensive, however, and can be included in the personal libraries of only a few investigators.

There is need for a brief but comprehensive treatise in this field, providing in one small and inexpensive volume descriptions of the more important crystal structures and a complete summary of the substances which have been studied.

Despite the general title of the series in which it is included, "A Comprehensive Treatise of Atomic and Molecular Structure," the book under review does not satisfy this need. It is far from comprehensive; very few references to the literature after 1934 are included, and the period from 1930 to 1934 is only sketchily treated. This is made strikingly apparent by comparison of the discussion of the silicates (pages 86 and 87), based on the first volume of the "Strukturbericht," with that given in W. L. Bragg's recent book "The Atomic Structure of Minerals." A similar superficial treatment is also given to other classes of compounds.

The descriptions and drawings of individual structures are unnecessarily complicated and in many cases wrong. The figure illustrating the relatively simple calcite structure, for example, contains so many lines as to confuse completely even a reader familiar with the structure. This confusion is enhanced by the fact that many of the oxygen atoms are incorrectly placed in the figure. The descriptions contain many incorrect statements.

In the opinion of the reviewer, the book cannot be recommended to any class of readers.

LINUS PAULING

BOOKS RECEIVED

February 15, 1938–March 15, 1938

H. FREYTAG. "Raumexplosionen durch statische Elektrizität." Verlag Chemie, G. m. b. H., Corneliusstrasse 3, Berlin W 35, Germany. 115 pp. RM. 3.60.

J. GROSSFELD. "Handbuch der Eierkunde." Verlag von Julius Springer, Linkstrasse 22–24, Berlin W 9, Germany. 375 pp. RM. 27; bound, RM. 28.50.

C. C. HEDGES and H. R. BRAYTON. "Laboratory Manual of Agricultural Chemistry." Revised edition. D. Appleton-Century Company, 35 West 32d St., New York, N. Y. 74 pp. $1.00.

HANS MEYER. "Synthese der Kohlenstoffverbindungen. Teil I. Offene Ketten und Isocyclen." Parts 1–2. Verlag von Julius Springer, Schottengasse 4, Wien I, Austria. 1483 pp. RM. 135; bound, RM. 139.50.

JULIUS MEYER. "Der Gaskampf und die chemischen Kampfstoffe." Dritte Auflage. Verlag von S. Hirzel, Königstrasse 2, Leipzig C 1, Germany. 376 pp. RM. 13.50; bound, RM. 15.

JOSEPH B. NIEDERL and VICTOR NIEDERL. "Micromethods of Quantitative Organic Elementary Analysis." John Wiley and Sons, Inc., 440 Fourth Ave., New York, N. Y. 271 pp. $3.00.

CARL OPPENHEIMER. "Die Fermente und ihre Wirkungen." Supplement, Lieferung 9. W. Junk Verlag, Scheveningsche Weg 74, Den Haag, Holland. 160 pp. Dutch Fl. 10.

N. THON, Editor-in-Chief. "Tables Annuelles Internationales de Constantes et Données Numériques." Vol. XI, Années 1931–1934, Première Partie (Chapitres 1 à 25). McGraw-Hill Book Co., Inc., 330 West 42d St., New York, N. Y. 500 pp.

N. THON, Editor-in-Chief. "Tables Annuelles de Constantes et Données Numériques." Vol. XI, Nos. 1, 9, 11, 12, 13, 14, 15. G. Champetier, Mlle. Bonnet and M. Magat, "Deuterium," 79 pp., 40 fr. H. S. Harned and G. Åkerlöf, "Electromotive Forces and Oxidation-Reduction Potentials," 45 pp., 25 fr. V. Henri, "Spectres Moléculaires. Structures des Molécules," "I. Molécules Biatomiques," 96 pp., 45 fr. "II. Molécules Tri- et Polyatomiques. Spectres Atomiques," 150 + 12 pp., 35 fr. M. Scherer, A. Cotton, J. Rabinovitch, "Effet Faraday. Biréfringence Magnétique. Biréfringence Electrique. Photoélectricité," 11 + 12 + 7 + 10 pp., 20 fr. P. Lafitte, "Combustion et Détonation des Gaz," 28 pp., 16 fr. M. Magat, "Effet Raman," 146 pp. McGraw-Hill Book Co., Inc., 330 West 42d St., New York, N. Y.

"Caminos." Vol. I. Num. 1, Enero-Febrero de 1938. Director Gerente, Lic. Mauricio Galvez de Forbes, 5 de Mayo, 29, Mexico, D. F. Bimonthly. $6.00.

"Comptes Rendus des Travaux du Laboratoire Carlsberg. Série Chimique. Vol. 22. Volume Jubilaire en l'Honneur du Professeur S. P. L. Sørensen pour Son 70^{ieme} Anniversaire." Carlsberg Laboratorium, Copenhagen, Denmark. 570 pp.