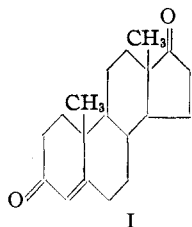


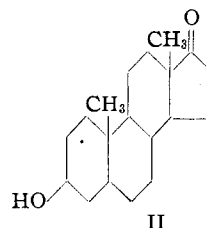
This similarity in behavior suggests that the testicular hormone may possess in a portion of its molecule a structure closely related to that which is present in the corpus luteum hormone. Therefore it seemed important to us to prepare a compound structurally related to both the corpus luteum hormone and to androsterone. Such a substance would be the unsaturated diketone,  $\Delta^4$ -etio-cholen-dione-3,17. (I)



This compound has now been prepared in this Laboratory by oxidation of the dibromide of dehydroandrosterone (the dehydroandrosterone used in these experiments was prepared by Francis B. Cramer according to our method [Wallis and Fernholz, *THIS JOURNAL*, **57**, 1379 (1935)] with chromic acid by a method similar to that used in the preparation of the corpus luteum hormone [Fernholz, *Ber.*, **67**, 1855, 2027 (1934)]. It melts at  $170^\circ$  (uncorr.),  $[\alpha]^{30}_D +199^\circ$  in chloroform. Physiological investigations are being made to determine whether it possesses properties

similar to the active principle occurring in testicular extracts.

We have also carried out experiments on the hydrogenation of dehydroandrosterone, and have found that in alcoholic solution, under proper conditions, 3-hydroxy-etioallocholanone-17 (II)



is easily obtained by hydrogenation with palladium black. This product melts at  $172^\circ$  (uncorr.),  $[\alpha]^{26}_D +88.6^\circ$  in methyl alcohol. A mixed melting point with an authentic specimen of the hydroxy ketone showed no depression. In acetic acid solution both the double bond and the ketone group in dehydroandrosterone are hydrogenated. This also occurs when platinum black is used as the catalyst.

The experimental details of the preparation of these compounds together with the results of the physiological tests will be reported at a later date.

FRICK CHEMICAL LABORATORY  
PRINCETON, N. J.

EVERETT S. WALLIS  
E. FERNHOLZ

RECEIVED JULY 15, 1935

## NEW BOOKS

**Dictionnaire de la Chimie et de ses Applications.** (**Dictionary of Chemistry and its Applications.**) By CLÉMENT DUVAL, Docteur ès Sciences physiques, RAYMONDE DUVAL, Docteur ès Sciences physiques, and ROGER DOLIQUE, Dr. ès Sciences phys. Pharmacien. Preface by H. Luc, Directeur général de l'Enseignement technique. Hermann & Cie., 6 Rue de la Sorbonne, Paris, France, 1935. xxxii + 747 pages.  $13.5 \times 19$  cm., paper covers, price, 90 francs.

This excellent little dictionary provides the reader of French scientific literature with brief guiding definitions of about 20,000 terms in chemistry and related fields, including a number of French trade names not easily found elsewhere. Named types of apparatus are defined by use only and are not described. The list of names of minerals appears to be especially complete.

The modernity of the work is indicated by the inclusion of deuterium but not tritium. No etymological informa-

tion is given nor is the correct syllabification or pronunciation indicated. It is obviously a book to be consulted by the reader who wishes to acquaint himself with the meaning of an unfamiliar term and for this reason alone deserves a place on the shelf of a reference library.

WILLIS A. BOUGHTON

**The Application of Absorption Spectra to the Study of Vitamins and Hormones.** By R. A. MORTON, D.Sc., Ph.D., F.I.C., The University of Liverpool. Published by Adam Hilger, Ltd., 98 Kings Road, Camden Road, London, N. W. 1, England, 1935. 73 pp. 25 figs.  $16 \times 25.5$  cm. Price, per copy including postage, 10s./4d.

This little book consists of eight essays, seven dealing with specific vitamins, and one with a few hormones. It seems to furnish the text for an unwritten sermon extolling the possibilities of the spectroscopic method in organic

chemical investigations. The groundwork for this technique was laid nearly fifty years ago by Hartley; organic chemists, in general, have been slow in recognizing its advantages, which have been systematically exploited mainly by the small group engaged in the investigation of biological products. The author candidly admits the empirical nature of information thus acquired, and rightly points out that absorption spectroscopy is merely of ancillary value to organic chemistry. It is, however, not too much to hope that its more general adoption will result in the disclosure of general principles capable of theoretical application.

HANS T. CLARKE

**Experiments in Organic Chemistry.** By LOUIS F. FIESER, Associate Professor of Chemistry, Harvard University. D. C. Heath and Company, 285 Columbus Avenue, Boston, Massachusetts, 1935. viii + 369 pp. 42 figs. 14 × 22 cm. Price, \$2.40.

The title of this new work is entirely too modest to describe adequately the contents of the book, for its scope is far broader than that of the usual laboratory manual. Formally the book is divided into two parts. Part I includes the usual experiments dealing with detection of the elements, distillation, extraction, crystallization, etc., experiments illustrating the preparation and properties of typical substances, and a scheme designed to permit the identification of a limited number of organic substances. Throughout this part of the book aromatic compounds are frequently used to illustrate reactions of aliphatic chemistry. Unquestionably there are many advantages to be gained by this innovation, and it should help materially to impress upon the student that most of the differences between aromatic and aliphatic compounds containing the same functional group are of degree rather than of kind. The experiments are well chosen and excellently diversified, but we have been unable to explain to our own satisfaction the reason for deferring the excellent discussion of steam distillation until so late in the book. It would seem that this experiment belongs among the first few, and that the theory of steam distillation should be studied before the method is used in preparative work. Some of the experiments are followed by a series of questions, but the majority are not, for it is the opinion of the author that the quizzing of the student should be left to the laboratory instructor. Certainly such a method of questioning will more adequately determine the breadth of the student's knowledge of the subject, but the student will certainly do more collateral reading if he is required to answer at least a certain number of questions carefully framed to bring about a thorough understanding of the principles involved in the experiment whose description they follow. The final experiment of this section, dealing with Martius Yellow and its reduction products, is designed to test the skill acquired in the previous work, and to "afford the student an opportunity of gaining some experience in the rapid handling of small quantities of material." These consecutive preparations should serve their purpose well.

Part II is entitled, "Suggestions Regarding Advanced Work." Chapter I includes a very brief discussion of

laboratory equipment, and a short description of the literature of organic chemistry. Chapter II is a thoroughly up-to-date discussion of various reagents, solvents and gases frequently employed in the organic laboratory. This part of the work is particularly well done and should make the book valuable to the student long after he has finished his first course in organic laboratory work. The third chapter of Part II is a description of a method of semi-microanalysis. Admittedly semi-micro methods have a place in undergraduate instruction, but we feel very strongly that the statement on p. 351, line 8 *et seq.*, is somewhat overdrawn. Certainly, the statement that microanalysis "is essentially a method for the specialist in analysis" is not at all in accord with our experience.

The procedures and descriptions are clearly and concisely written, free from typographical errors, and adequately illustrated by well-drawn figures. Print, paper, and binding are of high quality. The book is a distinct contribution to the literature of experimental organic chemistry, and should be well received.

NATHAN L. DRAKE

**Geschichte der physiologischen Chemie. (History of Physiological Chemistry.)** By Dr. FRITZ LIEBEN, Lecturer at the University of Vienna. Verlag Franz Deuticke, Helfferstorferstrasse 4, Wien I, Austria, 1935. x + 743 pp. 18 × 25.5 cm. Price, M. 20; bound, M. 23.

This is an interesting and valuable work. It is divided into two parts: A. An historical review of the science down to comparatively recent times, consisting of the following chapters: I, Antiquity and the Middle Ages; II, Iatrochemistry; III, The Period of Phlogiston; IV, From Lavoisier to Berzelius; V, Liebig and his Contemporaries in Germany; VI, The Great French Chemists of the 19th Century; VII, The Later German Chemists of the 19th Century. This portion of the book conforms to the usual historical procedure. Part B is of a different character. It comprises the following chapters: I, Nutrition and Metabolism; II, The Muscles; III, Fermentation; IV, Blood; V, Bile; VI, The Proteins, etc.; VII, The Carbohydrates; VIII, Fats and Lipoids; IX, Nucleic Acids; X, Urine and Other Excretions and the Body Fluids; XI, Inorganic Constituents; XII, Hormones.

Part B presents in great detail the development of many departments of biochemistry down to the present day. It is, therefore, at once a handbook and an historical work. Thus the reader may find here the information that he may desire regarding the facts of biological chemistry as a guide to an understanding of the evolution of the science. The way in which the facts have come to light and the intricate interplay of fact and theory that constitutes the evolution of a science are judiciously and fully presented. In a period when development is so rapid and the aspects of the subject so manifold, this method of presentation seems to be a happy invention. For on the one hand it facilitates rapid orientation in the history of a particular topic, and, on the other hand, it affords a better guide to the literature of a special subject than can ordinarily be found in textbooks, handbooks and special reviews.

The interests of the author are predominantly chemical

rather than physiological. For this reason, as he carefully states, the work is correctly described as a study of physiological chemistry rather than of chemical physiology, and the more strictly physicochemical aspects of the subject take a secondary place. The task seems to have been well performed, within these limitations, which are not unreasonable in view of the vaguely defined frontiers of the science on chemistry, general and special physiology, pathology and medicine.

In a word, the result is (a) a broad historical sketch of the background of the science, (b) a full account of the innumerable lines of development in recent times, and (c) an equally full presentation of the present state of the science.

L. J. HENDERSON

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### BOOKS RECEIVED

June 15, 1935–July 15, 1935

- EMIL ABDERHALDEN, Editor. "Handbuch der biologischen Arbeitsmethoden. Fermentforschung." Abt. IV, Teil 1, Heft 9. Urban & Schwarzenberg, Friedrichstrasse 105B, Berlin N 24, Germany. 246 pp. RM. 13.50.
- DANIEL BRARD. "Toxicologie du Chrome." Hermann et Cie., Éditeurs, 6 Rue de la Sorbonne, Paris, France. 80 pp. Fr. 15.
- THÉOPHILE CAHN. "Biochimie du Jeune." Hermann et Cie., Éditeurs, 6 Rue de la Sorbonne, Paris, France. 56 pp. Fr. 12.
- CLÉMENT DUVAL, RAYMONDE DUVAL and ROGER DOLIQUE. "Dictionnaire de la Chimie et de ses Applications." Hermann et Cie., Éditeurs, 6 Rue de la Sorbonne, Paris, France. 747 pp. 90 Fr.
- RENÉ FABRE. "Introduction a l'Étude de la Toxicologie. Généralités sur les Poisons." Hermann et Cie., Éditeurs, 6 Rue de la Sorbonne, Paris, France. 99 pp. Fr. 15.
- RENÉ FABRE. "Introduction a l'Étude de la Toxicologie des Gaz (Première Partie)." Hermann et Cie., Éditeurs, 6 Rue de la Sorbonne, Paris, France. 68 pp. Fr. 12.
- RENÉ FABRE. "Altérations du Sang dans les Intoxications Professionnelles." Hermann et Cie., Éditeurs 6 Rue de la Sorbonne, Paris, France. 48 pp. Fr. 12.
- ARTHUR HAAS. "Die Umwandlungen der chemischen Elemente." Walter de Gruyter & Co., Genthinerstrasse 38, Berlin W 10, Germany. 118 pp. RM. 4.30; bound, RM. 5.
- J. T. KING. "The Influence of Cupels on Silver Loss." Bulletin No. 147, 1934, School of Engineering Research, University of Toronto. The University of Toronto Press, Toronto, Canada. 69 pp.
- EDGAR LEDERER. "Les Carotinoides des Animaux." Hermann et Cie., Éditeurs, 6 Rue de la Sorbonne, Paris, France. 62 pp. Fr. 15.
- JAMES MURRAY LUCK, Editor. "Annual Review of Biochemistry." Vol. IV. Annual Review of Biochemistry, Ltd., Stanford University P. O., California. 639 pp. \$5.00.
- HARRY BOYER WEISER. "Inorganic Colloid Chemistry." Vol. II. The Hydrous Oxides and Hydroxides." John Wiley and Sons, Inc., 440 Fourth Ave., New York. 429 pp. \$4.75.
- RALPH W. G. WYCKOFF. "The Structure of Crystals. Supplement for 1930–1934 to the Second Edition." American Chemical Society Monograph. Reinhold Publishing Corporation, 330 West 42d St., New York City. 240 pp. \$6.00.
- "Tables Annuelles de Constantes et Données Numériques de Chimie, de Physique, de Biologie et de Technologie." Vol. X, Part I, 1930. McGraw-Hill Book Co., Inc., 330 West 42d St., New York City. 633 pp. \$20.00.
- "Table Internationale des Poids Atomiques. Cinquième Rapport de la Commission des Poids Atomiques, 1935." (In English, German and French.) National Research Council, 2101 Constitution Avenue, Washington, D. C. 40 pp.