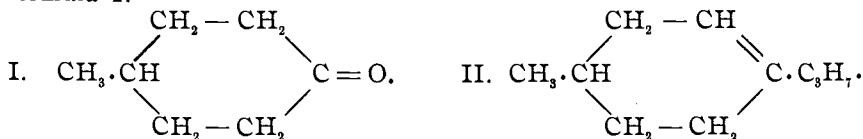
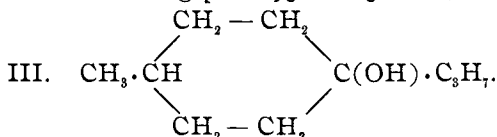


thene (*Pr. Chem. Soc.* **21**, 255-56). Hexahydro-*p*-toluic acid reacts with phosphorus pentachloride and bromine, giving *a*-bromhexahydro-*p*-toluic acid. By hydrolysis with soda this is changed into the hydroxy acid, which is decomposed by sulphuric acid, giving carbon monoxide (from formic acid), and 1, 4-methylcyclohexanone; boiling point, 170°; formula I.



1,4-Methylcyclohexanone reacts readily with magnesium isopropyl iodide to form *tertiary menthol*; boiling point 95° at 25 mm.; formula III.



When this is heated with potassium hydrogen sulphate, *inactive menthene* is produced (formula II). It boils at 168°, and forms the characteristic nitrosochloride melting at 128°.

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## NEW BOOKS

NOTIONS FONDAMENTALES DE CHIMIE ORGANIQUE. BY CH. MOUREU, professeur à l'École supérieure de Pharmacie de l'Université de Paris; deuxième édition, revue et augmentée. Paris: Gauthier-Villars. 1906. 320 pp.

In this new edition the author has revised and enlarged the previous one so as to bring it up to date. The manner of presenting the subject remains the same as before, all organic compounds being grouped to illustrate various "functions"—hydrocarbons, alcohol function, acid function, &c., the different classes of acyclic and cyclic compounds being treated under these various functions. The chapter on hydrocarbons, for example, includes all classes of hydrocarbons, acyclic and cyclic; that on alcohols, all alcohols, both fatty and aromatic, and so on. It is a very good introduction to the study of organic chemistry and fulfils well its object of pointing out to the student the broad general lines of the theory of the subject by a succinct and very general discussion of the most important classes of organic substances, considering together all those of similar function.

MARSTON TAYLOR BOGERT.

GENERAL PRINCIPLES OF ORGANIC SYNTHESIS. BY P. ALEXEYEFF, Late Professor of Chemistry, University of Kieff, Russia. Authorized translation with revisions and additions by J. MERRIT MATTHEWS, PH. D., Head of Chemical Department, School of Industrial Art, Philadelphia. New York: John Wiley & Sons. 1906. 8vo., viii + 246 pages. Cloth, \$3.00

In preparing a translation of Alexeyeff's book on the methods for the

transformation of organic compounds, which originally appeared in 1889 in Russian, the author has made use of the original edition of the book, and of the French translation by Darzen and Lefèvre. In order to bring the book up to date much new material has been added, and a general rearrangement of the subject-matter has been made. According to the translator "this book is intended for the general student of advanced organic chemistry, and deals only with the theory of the subject. It is not intended in any way as a laboratory manual for the preparation of organic compounds. The attempt of the author has been to present the theory of organic radicals in a systematic form and in as logical a method of development as possible, so that the student may acquire a comprehensive grasp of the general principles underlying synthetic organic chemistry."

The chapter headings give a more definite conception of the field covered by the book. These are: Oxidation, reduction, substitutions, removal of radicals, direct fixation of groups, fixations accompanied by a decomposition of the molecule, condensations, types of syntheses, and isomerization. Under these headings are discussed the various types of syntheses, for example; in the chapter on the direct fixation of groups an account is given of the more important methods for the direct addition to organic compounds of hydrogen, oxygen, halogens, water, ammonia, etc. In the chapter on condensation, the formation of ethers, esters, compounds containing sulphur, ammonia derivatives, etc., is discussed. The book resembles in content and aim the well-known treatise of Lellmann. It does not cover the field, however, so exhaustively.

While it is evident that the translator has included in the book some facts which have been established since the appearance of the original Russian edition in 1889, it is also clear that he has neglected to describe a number of new synthetical methods which are in daily use by investigators. The important work of Sabatier on the reduction of organic compounds by hydrogen in the presence of finely-divided metals is overlooked; no mention is made of Grignard's synthesis; the description of the diazo reaction is inadequate, and the old structural formula for these compounds is given; the Friedel-Crafts reaction is passed by with a few words, and there is given the old explanation of the mechanism of this reaction, which has been studied so successfully in recent years; the Wurtz and Fittig syntheses receive but bare mention; the important work which has been done on the nitration and sulphonation of the fatty hydrocarbons is not noticed, and the usual text-book statements about nitration in the fatty series are given; and, finally, no account of Fischer's method of esterification appears, although the old method of saturating an alcoholic solution of the acid with hydrogen chloride is described.

There are but few references in the book, and most of these are to original monographs in Russian.

While the faults of the book, which are chiefly those of omission, detract from its value and usefulness, it is clear to the reviewer that it will prove of value to the student of organic chemistry who has completed the usual text-book course in the subject, and is about to prepare for further work by a more detailed study of synthetical methods. The book contains a great many facts, well arranged and clearly put.

JAMES F. NORRIS.

TECHNOLOGIE DER FETTE UND OELE. HANDBOOK OF THE PREPARATION AND INDUSTRY OF THE ANIMAL AND VEGETABLE FATS, OILS AND WAXES. BY GUSTAV HEFTER, Director of the Triest Vegetable Oil Company, with the assistance of G. LUTZ, in Ausburg, O. HELLER, in Berlin, FELIX KASSLER, in Galatz, and other experts. pp 741. Berlin: Julius Springer. 1906. Bound, 22.50 marks.

This is the first of a series of four volumes dealing with the manufacture of the Fats, Oils and Waxes. Volume I considers the preparation of the fats and oils. Volume II pays special attention to the properties and uses of these substances, their by-products and commercial aspect. Volume III has to do with the industries, other than soap, employing these oils as of the edible and lubricating oils, the manufacture of degreas, rubber substitutes; varnish, Turkey red oil, etc. Volume IV is devoted exclusively to soap manufacture.

The subjects discussed in Volume I, just at hand, are the occurrence and formation of the oils, fats and waxes and the properties of the various acids and alcohols of which they are composed. The chemical and physical properties of the oils themselves are carefully considered.

Beginning with the fifth chapter the methods of obtaining these bodies are thoroughly and minutely discussed, nearly all the various processes and principal machines for storing, cleaning, conveying, crushing, shelling, cooking, pressing and extracting the seeds, as well as the methods of treating the oils themselves, and their by-products, being considered. The rendering and treatment of animal fats are detailed with equal care.

A whole chapter is devoted to the preparation of the waste fats. The last chapter deals with the bleaching and purification of the oils, the removal of water, sediment, albuminoids, acids, color, odor, etc.

Nothing has appeared on these subjects since the classical work of Schaedler, that can compare with the present volume in character, scope and minuteness. As an instance of the painstaking care shown in its preparation, may be cited an appendix describing advances in the subject while the book was in press. The copious references in two foreign languages, English and French, and especially the consideration of the work of Americans in this field are notable features.

The book fills a long felt want and may be most cordially recommended to all desiring information on these subjects.

A. H. GILL.