

beautifully developed large prisms, which were not hygroscopic and were devoid of action toward Fehling's solution. The compound was found to be stable in neutral and alkaline solutions, but it suffered rapid decomposition at room temperature in acidic media. Experiments carried out in fermentation saccharimeters showed that while yeast was capable of fermenting fructosedimethyl-acetal in distilled water to give carbon dioxide, methyl and ethyl alcohols in almost quantitative yield, it was without any effect on the acetal in a citric acid-disodium phosphate buffer solution of pH 7. The action of different invertase samples on the acetal at pH 4.5 and pH 7 was found to be

completely negative, although the same samples were very active on sucrose under identical conditions.

In view of the extreme sensitiveness of the acetal toward acid, the action of yeast in an unbuffered solution might be due to the fermentation of fructose liberated from the acetal by a trace of the acid of the yeast, rather than to a genuine enzymatic effect. This problem is now being investigated. A detailed account of the work will be published shortly.

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## NEW BOOKS

**Modern Theories of Organic Chemistry.** By H. B. WATSON, D.Sc. (Wales), F.I.C., Head of the Department of Chemistry at the City of Cardiff Technical College. Oxford University Press, 114 Fifth Avenue, New York, N. Y., 1937. vii + 218 pp. 21 figs. 16.5 × 25 cm. Price, \$4.50.

"Professor G. N. Lewis's conception of the sharing of one or more electron pairs by two atoms gave a new and illuminating picture of the bonds which link carbon atoms into chains and rings, and set organic chemists the task of interpreting the reactions of carbon compounds of various types in terms of the electronic structures of the molecules. .

"In this volume an attempt is made to present the modern viewpoint in a concise and simple form, and to show how the new conceptions have followed logically from the earlier views." As is evident from its size, the book does not undertake to be complete in detail, nor to provide an exhaustive bibliography. The chapters deal with: Theories of Chemical Combination; The New Physical Methods of Investigation; Applications of the Electronic Theory in Organic Chemistry, Strengths of Acids and Bases, The Inductive Effect; Substitution Reactions; General Discussion of the Application of the Electronic Theory in Organic Chemistry; Free Radicals; Compounds of Divalent Carbon and Allied Problems; Addition to Unsaturated Compounds; Tautomeric Change; Migrations from Side-Chain to Nucleus and Other Rearrangements; The Factors Determining Reaction Velocity; A Review of Some Stereochemical Problems.

The author has an exceptionally clear and logical style. This is at its best in the introductory chapters, which can be recommended not only to students, but to every organic chemist who wishes to consider what modern physics has done for the understanding of his science. Briefly Professor Watson has put the last fifteen years into their

place in chemical history, and in this placing has built a vigorous viewpoint for the present.

In the electronic interpretation of organic reactions, certain English chemists have been pioneers. Their views might originally have been more cordially received in this country if presented inductively and in terms whose meanings are well known. Professor Watson has accomplished this. He has placed the horse consistently before the cart and has shown the necessity of each concept introduced. Proceeding on this basis, he uses fewer ultimate variables than have appeared in some discussions in this field.

Chapters 6 to 10 and 12 make a less unique contribution, for in their brevity they contain little material not usually included in courses in advanced organic chemistry. Even the consideration of evidence on specific problems is far from complete. Nevertheless, the clear and discriminating presentations of some of the problems are likely to be a better introduction for students than a more exhaustive descriptive treatment.

The printing of the book is up to the usual good standard of the Oxford University Press. The publishers have done well to put the price within the reach of most students and teachers.

PAUL D. BARTLETT

**The Chemistry of the Steroids.** By HARRY SOBOTKA, Chemist to the Mount Sinai Hospital, New York. The Williams and Wilkins Company, Mt. Royal and Guilford Avenues, Baltimore, Maryland, 1938. xiii + 634 pp. 15 × 23.5 cm. Price, \$8.50.

The word "Steroids" is a newcomer to the terminology of the organic chemist. According to the author it "is meant to comprise sterols and steroids, *i. e.*, sterol-like