

intimately acquainted with the recent advances in this field, whether this desire arises from an interest in the technical or the theoretical side of the subject.

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Stereochemistry. By A. W. STEWART, D.Sc., Carnegie Research Fellow, and Lecturer on Stereochemistry in University College, London. Text-Books of Physical Chemistry. Edited by Sir William Ramsay, K.C.B., F.R.S. Longmans, Green and Co. 1907. xx + 583 pp.

"Owing to the extent of the field which has been opened up by stereochemical research during the past decade, a full treatment of every branch of the subject was impossible within the compass of the present volume. But since Landolt's book on *The Optical Rotation of Organic Compounds* has been brought nearly up to date and translated into English, there seems no necessity to deal with this division of the subject in such detail as would at one time have been advisable. Moreover, in other fields so much work has been done in recent years that it appeared desirable to treat these investigations more fully than the problems of optical activity."

This extract from the preface of Stewart's "Stereochemistry" shows in a general way the plan underlying the treatment in this book. In pursuance of this plan, the subject is divided into two sections, *Stereoisomerism* and *Stereochemical Problems into which Isomerism does not Enter*. In the former, 125 pages are devoted to *Optical Activity*, an excellent account being given, and 180 pages to *Stereoisomerism without Optical Activity*, including geometric isomerism and a short summary of Werner's theory and the stereoisomerism in cobalt, platinum, and chromium compounds. In the second section, the phenomena of *Steric Hindrance* are treated in detail. The explanations put forward here do not seem altogether satisfactory, and it is a fair question whether many, if not all, the phenomena here described will not be found in time to depend upon or to be connected with such questions as the vibration of the molecule as shown by the isorropic band as described on page 419 in discussing the non-reactivity of the carbonyl group in certain substituted quinones. The reactions representing esterification as given on page 440 also require revision in view of the very recent work of Stieglitz and of Goldschmidt. The stability and configuration of cyclic and other compounds, including Baeyer's strain theory, are then treated, and finally the space formula of benzene is taken up together with all the attempts which have been made to solve this problem. The formula, or rather formulas given by Baly, Edwards, and Stewart based upon the absorption bands of benzene, at first sight appear unorthodox, to say the least, to the organic chemist brought up with the idea of the symmetrical character of the benzene hexagon. This changing of the

shape of the nucleus is only one of the methods of indicating the vibration or oscillation which was first proposed by Kekulé for the benzene structure, and is of interest now in another connection. These formulas represent all the possible structures produced by the making and breaking of bonds, each make and break causing a definite absorption band. This conception of make and break *between* the atoms in the molecule being responsible for the absorption bands is not far removed from the physicist's conception of the motion of the electron *within* the atom or molecule being responsible for the optical phenomena.

In Appendix A, the *Relations of Stereochemistry to Physiology* are discussed briefly, and in Appendix B, directions are given for the construction of stereochemical models.

This book is fully up to the best of the other volumes of the series, and is indispensable to every organic chemist. Exception may be taken to the statement on page 41 that the solid racemic compound possesses a molecular weight double that of one active component, when as a matter of fact, practically nothing is known of the molecular weight of any substance in the solid state.

The proof-reading has been well done, very few misprints being noticeable, the most serious being on page 14, where the length of the liquid layer for the specific rotation is given as centimeters instead of decimeters. The expression is given correctly in the foot-note on page 122.

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Book of Chemical Labels. Prepared by HERMON RAYMOND WOOD. New York: The Kny-Scheerer Co. Price, 35 cts.

A book of about five hundred gummed labels bearing the names and formulae of the chemical substances which are most commonly used in the laboratory, one label for each substance. The labels are mostly satisfactory, but the following errors have been noticed: Calcium hydrate, sodium hydrate, potassium hydrate, potassium persulphate, KSO_4 . The chief objection to such a set of labels for laboratory use is that a large number of a few of the labels is usually required and only a small number of the majority.

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