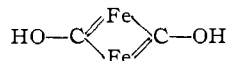


the bridge carbons are formed by  $dsp^3$  hybrid orbitals and the bond from iron to the acetylenic carbon by an unhybridized d-orbital.

This complex is of interest for the following reasons: (1) It contains a novel resonating system



which is analogous to the cyclobutadiene system. (2) Although several metal hydrocarbonyls have been synthesized and studied, this is the first hydrocarbonyl in which the position of the hydrogen has been established. (3) Stable derivatives of a

hydrocarbonyl are now available for study by physical methods. (4) This is the first evidence for the existence of an  $M=C-OH$  grouping, a type of linkage postulated<sup>5</sup> in surface intermediates in the Fischer-Tropsch reaction.

(5) H. H. Storch, N. Golombic and R. B. Anderson, "The Fischer-Tropsch and Related Syntheses," John Wiley and Sons, Inc., New York, N. Y., 1951, p. 592.

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## BOOK REVIEWS

**Technique of Organic Chemistry. Volume I. Part III. Physical Methods of Organic Chemistry.** Second Completely Revised and Augmented Edition. Editor ARNOLD WEISSBERGER, Research Laboratories, Eastman Kodak Co., Rochester, N. Y. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1954. xi + 2097-2530 pp. 16 × 23.5 cm. Price, \$8.50.

The subjects covered in this, the third of three volumes comprising Volume I in a series on Technique of Organic Chemistry, will be of less general interest than those covered in earlier volumes. This is because the techniques under discussion, although potentially of wide applicability, are highly specialized and quite elaborate from an instrumental point of view. However, the standard of presentation continues to be of the highest and those who have occasion to seek authoritative information as to what can be done with these methods, and in a general way how it is done, will find this source invaluable.

The new chapters deal with Electron Microscopy (F. A. Hamm), Microspectroscopy (E. R. Blout), Determination of Streaming Birefringence (R. Signer), Measurement of Dielectric Constant and Loss (J. G. Powles and C. P. Smyth), Radio-frequency Spectroscopy (B. P. Dailey) and Neutron Diffraction (J. M. Hastings and L. Corliss). In addition there are short chapters supplementing previous chapters on viscosity of polymer solutions, crystal structure, electron diffraction, magnetic susceptibility and scintillation counting.

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**Progress in Stereochemistry. Volume 1.** By W. KLYNE, M.A., B.Sc., Ph.D. (Editor), Reader in Biochemistry, University of London (Postgraduate Medical School). Academic Press, Inc., Publishers, 125 East 23rd Street, New York 10, N. Y. 1954. x + 378 pp. 16 × 25 cm. Price, \$8.00.

Stereochemistry, as discussed in this volume, transects the traditional disciplines of chemistry (although the strongest emphasis is in the organic field) and deals with electronic structure as well as with the orientation of groups and with reaction mechanisms as well as with stereoisomerism. The book reflects the growing concern of chemists with physical methods and mechanisms of organic, inorganic and enzymatically catalyzed reactions and provides surprisingly up-to-date coverage of many important areas of chemical endeavor. As implied by the title the emphasis is on recent developments. There are, however, interesting similarities between the present work and Freudenberg's classical volumes published some twenty-three years ago.

Volume One contains nine chapters and a brief appendix on bond lengths and valence angles. Each of these represents a noteworthy contribution and, in the opinion of the reviewer, Chapters 1, 2, 5, 7 and 9 are particularly outstanding. The chapters are as follows:

1. The Shapes of Simple Molecules (A. D. Walsh). This chapter contains a convenient tabulation of bond angles, bond lengths and shapes of di- to octatomic molecules. Generalizations are drawn from these data and are presented together with an excellent qualitative theoretical discussion.

2. The Conformation of Six-membered Ring Systems (W. Klyne). Dr. Klyne has provided us with an expert description of the results in this new field up to the end of 1954.

3. Stereochemical Factors in Reaction Mechanism and Kinetics (P. B. D. de la Mare). This section presents an interesting but limited and sketchy discussion of a very broad topic. Attention is paid chiefly to addition, elimination, nucleophilic substitution and certain 1,2-rearrangement reactions.

4. The Relationships Between the Stereochemistry and Spectroscopic Properties of Organic Compounds (E. A. Braude and E. S. Waight). Applications of both infrared and ultraviolet spectral methods are given, the latter with especially interesting sections on the correlation of absorption intensity with stereochemistry. The infrared section is rather limited.

5. The Correlation of Configurations (J. A. Mills and W. Klyne). This extraordinary section is one of the highlights of the book and is unsurpassed in excellence. The authors, who have themselves contributed brilliantly to the correlation of configurations, have written a stimulating and lucid review which is commensurate with their already demonstrated prowess in the field.

6. The Stereochemistry of the Hydrogen Bond (L. Hunter). Here is an interesting and well documented summary of data from both the organic and inorganic fields.

7. The Stereochemistry of Compounds of High Molecular Weight (E. J. Ambrose). This chapter contains a fine but brief discussion of general principles and methods, followed by a description of the stereochemistry of various long-chain hydrocarbons, proteins and polysaccharides.

8. Stereospecificity of Enzyme Reactions (V. P. Whitaker). The treatment of the subject matter in this chapter falls considerably below that which may be expected for such an important and dynamic field. It is occasionally too rudimentary, too discursive and too superficial and seldom incisive, current or exciting. Stereochemical, theoretical and even general discussion is surprisingly lacking.

9. The Stereochemistry of Complex Compounds (R. S. Nyholm). Professor Nyholm has written a clear and valuable introduction to the stereochemistry of complex compounds which will appeal to chemists of all fields. The