

The heterogeneous selective oxidation of hydrocarbons is described in a chapter by Sampson and Shooter. They detail the ways in which the yields of required oxidation products can be increased by varying the nature of the surfaces which act as catalysts or catalyst supports. This is rather a long chapter dealing in considerable detail with the oxidation of ethylene (12 pages) and propylene (20 pages) and also with the oxidation of C_4 and aromatic hydrocarbons.

The volume is therefore a mixture of pure and applied research with a considerable variation in the sophistication of the work involved. Taken as a whole, it is an interesting volume for those concerned with the chemistry of combustion processes.

D. E. Hoare

Chemistry Department, Queen's College
Dundee, Scotland

Optical Rotatory Dispersion and Circular Dichroism in Organic Chemistry. By PIERRE CRABBÉ, Syntex, S.A., and Iberoamerican University, Mexico. Holden-Day, Inc., 728 Montgomery St., San Francisco, Calif. 1965. xv + 378 pp. 19.5 × 26 cm. \$11.75.

The use of optical rotatory dispersion (ORD) and circular dichroism (CD) measurements in organic chemistry has developed dramatically during the last 10 years. Together these two techniques constitute a unique method for studying the chirality or "handedness" of molecules. The techniques are perhaps chiefly of value to the natural product chemist or biochemist, since nearly all naturally occurring organic compounds are dissymmetric; however, they are of potential value to chemists working with any type of dissymmetric structures.

Two standard books on these methods have previously appeared (Djerassi, "Optical Rotatory Dispersion," 1960; Velluz, Legrand, and Grosjean, "Optical Circular Dichroism," 1964). Dr. Pierre Crabbé has now produced an excellent over-all picture of both techniques. This book extends and brings up to date the treatment in the two previous volumes and is presented from the point of view of a structural organic chemist.

The first four chapters of the book give a brief theoretical and technical treatment and an outline of the types of problem to

which the methods can be applied, including the study of *absolute* and *relative* configurations, location of functional groups, and conformational studies.

The chromophores which have optically active absorption bands, and therefore give rise to Cotton effects, can be divided into two classes, *viz.*, symmetrical, but perturbed chromophores, and inherently dissymmetric chromophores. Chapters 6 and 7 of Dr. Crabbé's book (108 pp) deal in great detail with the saturated carbonyl group, which has been studied most intensively and most profitably. Chapter 11 (66 pp) considers the other perturbed chromophores; some of these (carboxyl, aromatic rings, and nitro groups) have been studied intensively during the few months since this book was published.

The inherently dissymmetric or twisted chromophores are dealt with in Chapters 8, 9, and 10. Biaryls and conjugated dienes are discussed briefly, and then an extensive treatment (53 pp) of unsaturated ketones is given; up to the present, these compounds come next in importance to the saturated carbonyl compounds.

Chapter 12 deals with biopolymers (polypeptides, proteins, and nucleic acids). This is a field of great and growing importance, and the ORD and CD techniques are particularly valuable for the study of helical forms. A final Appendix treats the automatic processing of data for circular dichroism curves.

The book contains full references and is well printed with excellent formulas and diagrams; these are essential for a book dealing with any aspect of stereochemistry. Each chapter contains carefully planned tables, which illustrate the value of the techniques in structural problems. All concerned are to be congratulated on the *speed* with which the book was produced.

This subject is developing rapidly at present, and the next few years will certainly see great extensions to the scope of these techniques. Dr. Crabbé has written a well-balanced account, with emphasis on those aspects which are important to the natural product chemist. His book can be heartily recommended to anyone wishing to enter the field and to see how these relatively new techniques may help his own research. Those working in the field will certainly have the book already and will no doubt thank Dr. Crabbé for providing such a compact and encyclopedic picture of the present situation.

W. Klyne

Westfield College
London, N.W.3, England