is included or is any comment made on the fact that the spectra of benzanil in 0.01 *M* perchloric acid is completely different from that in ethanol—a difference which is probably due to hydrolysis.

The text volume, by G. Varsanyi, contains a general discussion of the quantum mechanical basis of spectra, and of the spectra of common chromophores. Included are useful tables for interconverting wave lengths to wave numbers and to fresnels and energy (in kcal./mole), and transmittancy to absorbancy. The discussion is however rather ambiguous in places (*e.g.*, looser electronic structure of sulfur, p. 35, 36) and is phrased in poor English, particularly in pp. 9–12. The comparison of chromophores on pp. 41–44 would be clearer if more data were given. The term "vibronic" (p. 11), used to denote electronic-vibrational (-rotational) spectra is unfortunate since it suggests a vibrational origin of the spectra, and "particle" is preferable to "corpuscule" (p. 9). Some minor typographical errors were noted; compiled p. 5, L. 28, literature p. 54, and the use of J as symbol for iodine (p. 47, 51) as well as errors in the reference section.

This collection of spectra presents data on a variety of classes of organic compounds and will be of use as a reference work to both synthetic and natural product chemists. It should find a place in any library alongside Friedel and Orchin.

DEPARTMENT OF CHEMISTRY
UNIVERSITY OF PUERTO RICO
MAYAGUEZ, P. R.
OWEN H. WHEELER

The Plasma Proteins. Volume I. Isolation, Characterization, and Function. Edited by FRANK W. PUTNAM, Department of Biochemistry, College of Medicine, The J. Hillis Miller Health Center, University of Florida, Gainesville, Florida. Academic Press Inc., 111 Fifth Avenue, New York 3, N. Y. 1960. xv + 420 pp. 16 × 23.5 cm. Price, $12.50.

This is the first volume of a two-volume treatise on the plasma proteins. It consists of ten chapters, each contributed by a different author. The first chapter is introductory; the second chapter is a practical guide to fractionation and isolation procedures which depend on solubility differences; the third chapter discusses electrophoretic and ultracentrifugal analysis of normal human serum (pathological conditions will be considered in the second volume); the fourth chapter is on the subject of chromatography; and the fifth chapter lists the amino acid analyses (where available) and physical constants for the approximately twenty plasma proteins which have been obtained in pure form. The remaining five chapters describe the properties of individual proteins or protein systems: plasma albumin, α-globulins, macroglobulins, glycoproteins and metal-binding proteins.

The outstanding feature of the book is the care with which it has been edited: the duplication and lack of cross-reference which characterize most books of multiple authorship is absent here. For example, ceruloplasmin is both a glycoprotein and a metal-containing protein and is thus mentioned both in Chapter 9 and 10. A detailed discussion occurs in the latter chapter only, and the reader of Chapter 9 is given just two brief paragraphs and the advice to consult Chapter 10 for a detailed account. Furthermore, it happens that a new and previously unpublished method of isolating ceruloplasmin is given in Chapter 2. A reference to it is given at the appropriate place in Chapter 10.

"The Plasma Proteins" is thus a readable and comprehensive account of the limited area of protein chemistry which it seeks to describe. It shows the remarkable progress which has been made in this field in the past twenty years, best illustrated perhaps by the fact that J. F. Foster, in Chapter 6, is able to give a unified account of all properties of plasma albumin, such as ion binding, denaturation, electrophoretic behavior, etc., in terms of a simple model consistent with all the facts. The book also shows how much is still unknown: for example, complete amino acid analyses are available for only a few of the plasma proteins and sequence studies and X-ray data are virtually non-existent. The book should be useful not only to those who are interested in plasma proteins as such, but to protein chemists and biochemists in general, for the type of information which one wishes to obtain and the methods used to gather it are the same, whether one deals with blood plasma or any of the other chemical factories and transport systems of living media.

DEPARTMENT OF BIOCHEMISTRY
DUKE UNIVERSITY
DURHAM, NORTH CAROLINA
CHARLES TANFORD

Optical Rotatory Dispersion. Applications to Organic Chemistry. By CARL DJERASSI, Vice President, Syntex, S. A. (Mexico), and Professor of Chemistry, Stanford University. McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York 36, N.Y. 1960. xiii + 293 pp. 16 × 23.5 cm. Price, $9.50.

The last six years have witnessed the emergence of the spectropolarimeter as a powerful and versatile tool in the elucidation of structural and particularly stereochemical problems in organic chemistry. Revival of interest in spectropolarimetry, triggered by the development of commercial instrumentation in 1952, is the outgrowth chiefly of the remarkable researches by Professor Djerassi and his group at Wayne and Stanford. The present book surveys and summarizes the results of these and of allied independent investigations.

The central theme of the book is that the sign and shape of an anomalous rotatory dispersion (RD) curve significantly reflect the stereochemistry of the immediate environment of the optically active chromophore. RD curves may therefore yield useful information about configuration and conformation. This claim is amply documented for the carbonyl chromophore, which is ideally suited for RD studies and which is incorporated in many readily available (from natural sources) structures of rigid conformation and of known absolute configuration. The abundance of experimental material available for this one chromophore is reflected in the organization of chapters, seven of which specifically discuss various classes of ketones (steroids, bicyclic ketones, triterpenoids, monocyclic and aliphatic ketones, α-hydroxyketones, α-haloketones) while only two are devoted to all of the other chromophores (as in nitroalkanes, xanthates, aromatic compounds, disulfides, etc.).

The author has wisely invited other specialists to contribute chapters or sections in areas which they would be most competent to discuss: E. R. Blout on optical rotatory properties of synthetic polypeptides and of proteins (with the stress on the effect of helix formation on RD), A. Moscowitz on theory and analysis of RD curves, J. A. Schellman on RD of amino acids, and A. N. James, B. Sjöberg, A. Savitzky, R. H. Noble, W. Slavin, and T. Porro on instrumentation and methodology.

A chapter on nomenclature introduces and defines the new jargon of organic spectropolarimetry (peak, trough, plain curve, etc.).

The book has a name and compound index but no subject index; the detailed table of contents is intended to serve that purpose. This is an unfortunate decision in my opinion and one which may lead to much unnecessary rummaging. For example, the axial haloketone rule is discussed in sections 9–2, 9–3, 10–3 and 13–4, α,β-unsaturated ketones in sections 4–3, 5–3 and 6–3, and circular dichroism in sections 1–2 and 12–2: to find any one of these items it is necessary to scan the whole table of contents (5 pages); even then the reader may be left with the hollow feeling that he has not been able to make a really effective search.

The field appears to be in a state of active development and the book thus serves the useful function of bringing to the attention of chemists a valuable source of up-to-date information at a time when the foundation has been laid and many exciting developments may be anticipated for the near future; among these will surely be calculations of rotational strengths (which serve as quantitative measures of the interaction of the chromophore with the dissymmetric environment), elucidation of conformational problems in biological polymers, development of instrumentation permitting penetration of the farther ultraviolet, and more extensive exploration of optically active chromophores other than the carbonyl. The timeliness of the book is revealed in the approximately 500 footnotes (several of them repeat citations). According to my count, 19.5% refer to *all* of the pre-1950 literature, 9.0% to 1950–1954, 20.0% to 1955–1956, 25.5% to 1957–1958, 13.5% to 1959 and 12.5%

to "unpublished," "in press" and "private communication"; some of the papers in the last category are just now appearing in the journals. The most startling example is the chapter on the octant rule, which is wholly devoted to an as yet unpublished generalization by W. Moffitt, A. Moscowitz, R. B. Woodward, W. Klyne and C. Djerassi. However, the very fact that the field is in its infancy and in rapid flux has also drawbacks for the book, since some of the information, *e.g.* on instrumentation, is relatively perishable and will require updating soon.

The writing is lucid and vigorous, the style effortless. Professor Djerassi is to be congratulated on presenting us with a worthy successor to T. M. Lowry's "Optical Rotatory Power," published a quarter of a century ago. The present volume is a landmark in stereochemistry which I warmly recommend to all chemists concerned with structural problems in organic and biochemistry.

DEPARTMENT OF CHEMISTRY
NEW YORK UNIVERSITY KURT MISLOW
NEW YORK 53, N. Y.

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