CARL DJERASSI: **Optical Rotatory Dispersion, Applications to Organic Chemistry (McGraw-Hill Series in Advanced Chemistry)**. McGraw-Hill, New York, 1960. 293 pp., $6.50.

AMONG the physical methods used by the organic chemist for the solution of his problems polarimetry is one of the oldest. However, with very few exceptions the determination of optical rotation in organic laboratories was limited to one wavelength only; that of the sodium *D* line. It is chiefly the merit of Carl Djerassi to have clearly recognized the serious shortcomings of this monochromatic procedure and the advantages of determining optical rotations in the entire region between the sodium *D* line and the ultra-violet.

Since, prior to Djerassi's work, hardly any data were accumulated, it was necessary for this author to amass a large amount of experimental material in his own laboratory in order to draw the necessary generalizations and outline the principal uses of optical rotatory dispersion in organic chemistry. It is to be welcomed that a coherent account of this monumental work has now been made available in book form by the principal exponent of the method himself.

The book starts with a simple and very readable explanation of the "Cotton effect" and the Drude equation. A short section on nomenclature and a chapter on instrumentation follow. The largest amount of rotatory dispersion studies performed up till now was on carbonyl compounds, and among these the steroids provided the most advantageous field for the initial exploration. Chap. 4 deals in detail with the uses of rotatory dispersion in the determination of structure and configuration of steroid ketones. A discussion of bicyclic ketones and triterpenoids follows in Chap. 5 and 6. The Chap. 7 on monocyclic ketones and aldehydes shows very clearly that rotatory dispersion will eventually become a very important tool for the solution of conformational problems in flexible molecules.

Of great interest is Chap. 9 on haloketones, which discusses among other topics, the application of Djerassi's axial haloketone rule. This rule provides one of the means to determine absolute configuration by rotatory dispersion. The general problem of absolute configuration is discussed in Chap. 10 and it is one of the most important uses of rotatory dispersion in organic chemistry.

The theory of rotatory dispersion curves is treated in an excellent chapter (12) written by A. Moscowitz, a collaborator of the late W. Moffit of Harvard University. Of particular significance is the discussion of the octant rule (Moffit, Moscowitz, Woodward, Klyne and Djerassi) in Chap. 13. This generalization, which permits the prediction of the sign of the Cotton effect, has not been up till now generally available. Of the manifold uses of the octant rule, the determination of the preferred conformation of *cis*-decalones and the study of conformational mobility of monocyclic cyclohexanones is particularly interesting.

The remainder of the book describes the application of rotatory dispersion to various classes of compounds which have not yet been as extensively studied as ketones. These are: thiones, nitroalkanes, nitrites, aromatic compounds, xanthates, aminoacids, proteins and many others. In many of these classes interesting results have been already obtained.

It is abundantly clear that both the spectropolarimeter and Djerassi's excellent account of its uses will have, from now on, a permanent place in every modern organic laboratory.

K. WIESNER