Meetings

Optical Rotation and Rotatory Dispersion

A symposium, sponsored by the Office of Naval Research, on optical rotation and rotatory dispersion was held at The Inn, Rancho Santa Fe, Calif., from 19 to 22 January. The conference featured three major aspects of this subject (i) the use or application of optical rotation and rotatory dispersion techniques in the elucidation of the conformation and configuration of inorganic, organic, and biochemical molecules; (ii) the application of quantum theory to optical rotation and rotatory dispersion; and (iii) the problems involved in developing instrumentation important to this discipline. The conference was organized by B. H. Levedahl (University of California, Los Angeles) and was dedicated to the memory of J. G. Kirkwood and W. Moffitt.

The keynote speaker at the opening dinner was Werner Kuhn of the University of Basel (Switzerland). Kuhn discussed rotatory dispersion and the vibrating momentum of optically active absorption bands applied to both organic and inorganic molecules. His particular concern was with anomalous dispersion associated with circular dichroism.

Carl Djerassi (Stanford University) discussed the applications of anomalous optical rotatory dispersion to organic chemical problems. Djerassi, who has recently edited a book in the area of interest of this symposium, emphasized the great value of rotatory dispersion in the speedy resolution of steroid confirmational problems by application of the octant rule.

W. Klyne (Postgraduate Medical School, London) further emphasized the applicability of rotatory dispersion in structural and stereochemical studies, also emphasizing the application of the octant rule, in the development of which Moffitt had been actively interested.

A. Moscowitz (University of Minnesota) discussed the application of the Kronig-Kransers theorem to optical activity.

The second session was introduced with a paper presented by E. R. Blout (Polaroid Corporation and Harvard Medical School) in which new evidence on the helical sense in synthetic polypeptides and proteins was discussed. This work, in which the cotton effect associated with the binding of dye molecules to polypeptides is utilized, represents an important breakthrough for the possible assignment of a helical sense to polypeptides and proteins. A theoretical approach to superposition rules in optical rotation was presented by Walter Kauzmann (Princeton University). This paper emphasized the importance of second-order interactions to the assignment of rotations to optical isomers.

A paper by Jacques Fresco, who was unable to attend, was read by Jen Tsi Yang. This paper was concerned with the rotatory dispersion of synthetic polynucleotides. Yang cited the recent accomplishment of the Harvard group who have been able to partially reverse the denaturation of deoxyribonucleic acid.

J. H. Brewster (Purdue University) considered the application of the principles of confirmational asymmetry to various steroids and ketones.

Optical rotation and polypeptide structure as well as the rotatory dispersion of polypeptides and proteins was discussed by Ignacio Tinoco (University of California, Berkeley) and Jen Tsi Yang (Dartmouth Medical School). The principal problem highlighted in these two papers was the importance of assigning a value to the helices present in a specific protein or polypeptide. Tinoco's utilization of electrostatic fields to obtain oriented systems for such studies was of considerable interest.

Bruno Jirgensons (Anderson Hospital and Tumor Institute, University of Texas) applied optical rotation to the classification of globular proteins. He emphasized the importance of the convergence of λ_0 values upon denaturation for specific classes of proteins.

The presentation of John A. Schellman (University of Oregon) on the rotatory dispersion of amino acids and proteins provided an excellent background for the discussions.

These sessions were followed by a panel discussion on instrumentation in which representatives of various instrument manufacturers participated. The Rudolph Polarimetry Company was represented by R. Bruce, the Applied Physics Corporation by R. C. Hawes, Photovolt Corporation by G. Levy, and Perkin-Elmer Corporation by A. Savitsky. The need for high-quality instrumentation and greater wavelength penetration was thoroughly discussed and evaluated.

Short papers were presented by Paul Tso (California Institute of Technology), on the optical properties of nucleic acids in nonaqueous solvents, and by Conmar Robinson (Courtaulds, Ltd., England), on the orientation of proteins in liquid crystals. Also of interest was the paper by G. L. Eichorn (Institute of Public Health, Baltimore) on the cotton effects found in some of the metal-containing proteins and in vitamin B_{12}.

Leon Jones (University of Utah) brought the conference to a close with his discussion of some theories of optical rotation.

Subjects of discussion at the conference ranged from the quantum mechanical basis of optical rotation and rotatory dispersion to applications in specific chemical problems. The exhaustive discussion of the papers presented was an indication both of the timeliness of the conference and of the growing interest in this field.

The proceedings of this conference will be published by Pergamon Press.

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Forthcoming Events

May

9–13. Society of Photographic Scientists and Engineers, natl. conf., Santa Monica, Calif. (SPSE, Box 1609, Main Post Office, Washington, D.C.)

10–12. Farm Electrification, conf., Omaha, Neb. (N. S. Hibsham, AIEE, 33 W. 39 St., New York 18)

10–12. Severe Storms, American Meteorological Conf., St. Louis, Mo. (K. C. Spengler, AMS, 45 Beacon St., Boston 8)

10–13. Fuel Element Fabrication, symp., Vienna, Austria. (Intern. Atomic Energy Agency, 11 Kärntner Ring, Vienna)

11. Society of Medical Psychoanalysts, annual, New York, N.Y. (M. Ross, American Psychiatric Assoc., 1700 18 St., N.W., Washington 9)

11–13. American Assoc. of Genito-Urinary Surgeons, Dearborn, Mich. (W. J. Engel, 2020 E. 93 St., Cleveland 6, Ohio)

11–13. American Assoc. of Physical Anthropologists, Washington, D.C. (E. E. Hunt, Jr., Peabody Museum, Harvard Univ., Cambridge 38, Mass.)