Other factors may cause J to decrease when CCl_4 is replaced by DMSO, but we consider them to be of secondary importance to those already mentioned. For example, intramolecular hydrogen bonding in the nitro- and halo-substituted alcohols[12] and modification of the electron-withdrawing power of R by solvation might be considered.

(12) Evidence for such bonding is given by P. J. Krueger and H. D. Mettee, *Can. J. Chem.*, **42**, 340 (1964), and by W. F. Baitinger, P. von R. Schleyer, T. S. S. R. Murty, and L. Robinson, *Tetrahedron*, **20**, 1635 (1964).

W. B. Moniz, C. F. Poranski, Jr.
U. S. Naval Research Laboratory
Washington, D. C. 20390

T. N. Hall
U. S. Naval Ordnance Laboratory
White Oak, Silver Spring, Maryland 20910

Received October 25, 1965

Book Reviews

Phase Transitions. By Robert Brout, University of Brussels. W. A. Benjamin, Inc., 1 Park Ave., New York, N. Y. 1965. xiii + 202 pp. 16 × 23.5 cm. $9.00.

The molecular theory of phase transitions, under investigation since the earliest days of statistical mechanics, is still largely not understood. Only for highly idealized models (two-dimensional Ising lattice, ideal Bose gas, Kac-Uhlenbeck model) can one give anything like a complete and rigorous discussion based on the principles of statistical thermodynamics. Realistic models (even as simple as a collection of atoms interacting by Lennard-Jones potentials) are presently out of reach by exact methods. Over the years, a number of approximation schemes have been developed: one particularly attractive one is based on the idea of a self-consistent field. (An illustration is the Bragg–Williams method in the theory of order–disorder transitions.)

"Phase Transitions" surveys formulations and applications of the self-consistent field method. The formulations are sometimes based on simple physical pictures (as in the original molecular field theory of ferromagnetism) and sometimes on rather highbrow techniques of many-body theory. In particular, about one-third of the book deals with "graphology," essentially a set of variations on the theme of the classic Ursell–Mayer virial expansion. Self-consistent field arguments are used in connection with the Ising lattice, the liquid–gas transition, freezing, ferromagnetism, superconductivity, and superfluidity. It seems to this reviewer that the results obtained from self-consistent field arguments are seldom quantitatively correct in the neighborhood of phase transitions, and sometimes not even qualitatively correct. Nevertheless, one often learns more from failure than from success.

The book grew out of sets of lecture notes, and the general style is relaxed and chatty. It was up-to-date in March 1964, as indicated by the many footnotes and other comments Added In Proof. The reader will surely be charmed by the modest way in which the author calls attention to, and corrects, mistakes in the text and in his earlier articles. It can be recommended to serious students of statistical mechanics, both as a survey of applications of the self-consistent field method, and as an introduction to "graphology."

Robert Zwanzig
Physical Chemistry Division, Institute for Basic Standards
National Bureau of Standards, Washington, D. C.

BOOKS RECEIVED; *November 1965*

E. J. Ambrose, Editor. "Cell Electrophoresis. A Symposium Convened by the British Biophysical Society." Little Brown and Co., 34 Beacon St., Boston, Mass. 1965. 204 pp. $10.00.

Vladimír Bažant, Václav Chvalovský, and Jiří Rathouský. "Organosilicon Compounds." Volume 1. Chemistry of Organosilicon Compounds." Academic Press Inc., 111 Fifth Ave., New York, N. Y. 1965. 616 pp. $25.00.

Vladimír Bažant, Václav Chvalovský, and Jiří Rathouský. "Organosilicon Compounds." Volume 2. Part 1. "Register of Organosilicon Compounds." Academic Press Inc., 111 Fifth Ave., New York, N. Y. 1965. 699 pp. $25.00.

Vladimír Bažant, Václav Chvalovský, and Jiří Rathouský. "Organosilicon Compounds." Volume 2. Part 2. "Register of Organosilicon Compounds." Academic Press Inc., 111 Fifth Ave., New York, N. Y. 1965. 544 pp. $25.00.

Ronald Breslow. "Organic Reaction Mechanisms. An Introduction." W. A. Benjamin, Inc., 1 Park Ave., New York, N. Y. 1965. 232 pp. $7.00.

Paul A. D. de Maine. "Digital Computer Programs for Physical Chemistry." Volume II. "Autoplotter, Expansion, Self-Judgment, Spectral, Polarization, Conductance, Kinetic, and Special Iterative Programs." The Macmillan Co., 60 Fifth Ave., New York, N. Y. 1965. 493 pp. $19.95.

Bodie E. Douglas and Darl H. McDaniel. "Concepts and Models of Inorganic Chemistry." Blaisdell Publishing Co., 35 West 50th St., New York, N. Y. 1965. 510 pp. $10.50.

Roderick P. Kernan. "Cell K." Butterworth Inc., 7235 Wisconsin Ave., Washington, D. C. 1965. 152 pp. $5.75.

G. Kortüm. "Treatise on Electrochemistry." American Elsevier Publishing Co., Inc., 52 Vanderbilt Ave., New York, N. Y. 1965. 637 pp. $30.00.

K. Macek and I. M. Hais, Editors. "Stationary Phase in Paper and Thin-Layer Chromatography. Proceedings of the 2nd Symposium Held at Liblice, June 10–12, 1964." American Elsevier Publishing Co., Inc., 52 Vanderbilt Ave., New York, N. Y. 1965. 358 pp. $16.00.

R. A. Morton, Editor. "Biochemistry of Quinones." Academic Press Inc., Ltd., Berkeley Square House, Berkeley Square, London, W1, England. 1965. 585 pp. $18.00.

Eugene Müller, Editor. With O. Bayer, H. Meerwein, and K. Ziegler. "Methoden der Organischen Chemie (Houben-Weyl). Vierte, Völlig neu Gestaltete Auflage." Band X/3. "Stickstoff-Verbindungen I." Teil 3. Georg Thieme Verlag, Pastfach 732, Herdweg 63, Stuttgart 1, Germany. 1965. 971 pp. DM 255.

D. D. Perrin. "Dissociation Constants of Organic Bases in Aqueous Solution." Butterworth Inc., 7235 Wisconsin Ave., Washington, D. C. 1965. 473 pp. $28.00.

Eberhard Schröeder and Klaus Lübke. Translated by Erhard Gross. "The Peptides." Volume I. "Methods of Peptide Synthesis." Academic Press Inc., 111 Fifth Ave., New York, N. Y. 1965. 481 pp. $20.00.

Rolf Strohecker and Heinz M. Henning. Translated by D. D. Libman. "Vitamin Assay. Tested Methods." Verlag Chemie, G.m.b.H., Weinheim/Bergstr., Germany. 1965. 360 pp. $12.00.