drochloride and sodium hydroxide and recrystallizing the product from dilute ethanol, was obtained as colorless needles melting at 177–178°. Raiford and Lichty[3] synthesized 6-chlorovanillin and its oxime and recorded melting points of 167–168° and 178°, respectively.

Further work on the filtrates from the chlorite treatments of carefully analyzed samples of black spruce (*Picea mariana*), western red cedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), aspen (*Populus sp.*), loblolly pine (*Pinus taeda*) and slash pine (*Pinus caribaea*) and on the liquors from the chlorite treatments of a number of isolated lignins of various types from both hardwoods and softwoods is now in progress. The results of these experiments, together with theoretical considerations, will appear in future communications.

(3) Raiford and Lichty, THIS JOURNAL, **52**, 4581 (1930).

THE INSTITUTE OF PAPER CHEMISTRY
APPLETON, WISCONSIN IRWIN A. PEARL

RECEIVED APRIL 3, 1946

# NEW BOOKS

**Journal of Colloid Science,** VICTOR K. LAMER, Editor-in-Chief, *et al.* Academic Press, Inc., Publishers, 125 East 23rd St., New York 10, N. Y. Volume I, No. 1, January, 1946. Published bimonthly at $10.00 a year.

This new publication, with Professor LaMer of Columbia University as Editor-in-chief, will contain original papers, letters to the Editor and book reviews. In addition to Professor LaMer the editors are T. R. Bolam of Edinburgh, E. F. Burton of Toronto, R. M. Fuoss of New Haven, H. R. Kruyt of Utrecht, J. W. McBain of Palo Alto, E. K. Rideal of Cambridge, William Seifriz of Philadelphia, A. W. Thomas of New York, Arne Tiselius of Upsala and Harry B. Weiser of Houston, an impressive list. There is also a consulting committee composed of W. T. Astbury, J. J. Bikermann, W. Clayton, P. Debye, W. Feitknecht, Alexander Frumkin, William D. Harkins, Ernst A. Hauser, Wilfried Heller, J. N. Mukherjee, F. F. Nord and The Svedberg.

The papers in the first number are: "Contraction and the Chemical Structure of the Muscle Fibril" by A. Szent-Györgi; "Polarization and Permeability" by M. Spiegel-Adolf and E. A. Spiegel; "Torsion in Protoplasm" by William Seifriz; "Adsorbed Nitrate Ions in Relation to Plant Growth" by H. Jenny; "Surface Films of Polymers" by D. J. Crisp; "Mono-dispersed Hydrophobic Colloidal Dispersions and Light-Scattering Properties. I." by Victor K. LaMer and Marion D. Barnes; "Monodispersed Hydrophobic Colloid Dispersions and Light-Scattering Properties. II." by Marion D. Barnes and Victor K. LaMer; "The Method of Purifying and Concentrating Colloidal Dispersions by Electrodecantation" by Paul Stamberger; "Structure of Soap Micelles as Indicated by X-Rays and Interpreted by the Theory of Molecular Orientation. II." by William D. Harkins, Richard W. Mattoon and Myron L. Corrin. One wonders why there was not a paper on plastics in the first number and why there were two papers by the Editor-in-Chief. Plastics is a very important field in the colloid science of today.

WILDER D. BANCROFT

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**Colorimetry for Chemists.** By M. G. MELLON, Ph.D., Sc.D., Professor of Analytical Chemistry, Purdue University. The G. Frederick Smith Chemical Company, 867 McKinley Avenue, Columbus, Ohio, 1945. 15.5 × 23 cm. 133 pp. 51 figs. Price, $1.00 for bound copies. Paper copies free on request.

The still growing importance of optical methods for quantitative analysis is exemplified by this compact and suggestive volume. After a careful delineation of the scope of colorimetric methods, there is a description of typical instruments, their manipulation and limitations. Much attention is devoted to tabulation and plotting of experimental data, and the relative advantages of various coördinates are discussed. There is a section dealing with color analysis and psychophysical specification. The final chapter outlines a number of experiments designed for development of technical skill. The bibliography of two hundred and fifty references is well chosen and up to date. Those who digest this booklet can undertake colorimetric and spectrophotometric procedures with added efficiency and confidence.

GEORGE S. FORBES

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**L'Effet Soret. Diffusion Thermique dans Les Phases Condensées.** By S. R. DE GROOT, Doctor of Science. N. V. Noord-Hollandsche Uitgevers Maatschappij, Amsterdam, Holland, 1945. 191 pp. 42 illustrations. 15 × 23 cm.

This book, the author's doctoral thesis, reviews the experimental and theoretical literature on the Soret effect and thermal diffusion in the liquid phase and contains a report of the author's own experimental work on thermal diffusion in aqueous salt solutions.

After an introductory chapter, the experimental procedures and results, which have been obtained in investigations of the pure Soret effect, are discussed in some detail. Then follows a discussion of the thermal diffusion method of Clusius and Dickel, called the thermogravitational procedure by the author. Results of its application to liquid phase separations obtained by the author and other investigators are presented.

The following chapters are devoted to a lengthy review of the theoretical interpretation of the Soret effect and thermal diffusion. The thermodynamic theories, analogous to those of the thermo-electric effect and the relations between thermoelectric potentials and Peltier heats, are presented in some detail. It is shown how the Onsager reciprocal relations, based upon the principle of microscopic reversibility and the theory of fluctuations, may be used to supplement the purely phenomenological theory to yield significant results.

The kinetic theories of the Soret effect are also presented, and the results which can be obtained from them are summarized. Unfortunately, no entirely adequate molecular theory of thermal diffusion exists except that of Chapman and Enskog for gases of low density, to which Maxwell-Boltzmann transport equation is applicable.

The book should prove useful to those interested in having at hand a summary of existing information and an extensive bibliography on the Soret effect and thermal diffusion.

JOHN G. KIRKWOOD

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**Wood Chemistry.** LOUIS E. WISE, Editor. The Institute of Paper Chemistry, Appleton, Wisconsin. With Fourteen Contributing Authors. (American Chemical Society Monograph Series, No. 97) Reinhold Publishing Corporation, 330 West 42nd St., New York, N. Y., 1944. x + 900 pp. Illustrated. 15.5 × 23.5 cm. Price, $11.50.

> Poems are made by fools like me,
> But only God can make a tree.
>
> —JOYCE KILMER

Here we have a group of prosaic scientists actually trying to determine how the Lord really did make a tree. The conclusions of the poet are contained in two lines of fourteen words and possess a certain air of finality; those of the scientists require a book of 910 pages and no air of finality is detectable therein. This book replaces "The Chemistry of Wood" (Monograph 28) by L. F. Hawley and the present editor. Under the leadership of the great laboratories at Madison (Forest Products Laboratory, U. S. Department of Agriculture), Syracuse (New York State College of Forestry) and Appleton (Institute of Paper Chemistry), American investigators have made many contributions to the scientific interpretation of the technology of the wood industries. The chapter authors of the present book have been drawn largely from the personnel of these laboratories. The text is therefore authoritative. The cover ge of the literature varies through 1940 to 1943 with some chapters carrying addenda. This is a reflection of the difficulties of writing and publishing a book of plural authorship during the war years. Information yet to be released on advances made during these years, particularly in such phases as saccharification and wood cellulose purification, will set a further limitation. Nevertheless, the editor is to be congratulated on completing the work under these trying circumstances and the result is an important and useful compilation in a large and significant field.

Although a wealth of chemical compounds is found in wood, economic exigencies lead to emphasis upon that component of greatest industrial significance. This is cellulose. The editor gives a succinct summary of the chemical evidence regarding its constitution. The significant work of Hudson and Jackson (1938) relating to the hydrolytic products of periodate-oxidized cellulose is omitted as is also the structurally definitive synthesis of cellobiose by Haskins, Hann and Hudson (1942). *aldehydo*-D-Glucose heptaacetate, as found by Freudenberg and Soff (1937), should be added to the list of known cellulose acetolysis products. The chapter on cellulose (from plants) is followed by one on plant cellulose, an arrangement which left this reviewer in a state of perplexity. More interesting was the chapter by Norman on "hemicelluloses," a difficult field in need of more research papers. A chapter on the chemistry of lignin carries an interpretation of the results of the Freudenberg and Hibbert Laboratories by an impartial commentator, Max Phillips, a significant contributor in his own right to the elucidation of the chemical nature of the building stones upholding the structure of the present conception of the chemical nature of lignin. Chapters on "extraneous components" (Kurth), cellulose derivatives (Jahn), chemically modified cellulose (Wise), wood pyrolysis (Hawley) and wood delignification (Hisey) complete the major portion of the sections bearing strictly on the chemistry of wood. Contributions to the physics of wood and cellulose are made by Forsaith, Mark and Stamm while Freeman and Phillips write on the chemical analysis of wood. The chapter by Mark gives an especially detailed historical treatment of cellulose X-ray work. Certain biological aspects of wood chemistry are treated by Brown, Harlow and Waksman. The anatomy of wood is well delineated. The reviewer would have preferred to have seen more biological exposition from the viewpoint of plant physiology. The integration of the various chapters is good although plural authorship inevitably leads to some inconsistencies. Thus, Dr. Ritter's mysterious term "holocellulose" is introduced on page 99 and defined by Freeman on page 608. What is called anhydrous cellulose by Mark in chapter 5 is designated cellulose hydrate in a later chapter.

To summarize, the reviewer believes that the editor and his fourteen assistants have very adequately modernized under trying circumstances this authoritative monograph on wood chemistry.

M. L. WOLFROM

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## BOOKS RECEIVED

March 10, 1946–April 10, 1946

JEROME ALEXANDER, Editor. "Colloid Chemistry, Theoretical and Applied." Vol. VI. Reinhold Publishing Corporation, 330 West 42nd Street, New York, N. Y. 1215 pp. $20.00.

M. L. ANSON AND JOHN T. EDSALL, Editors. "Advances in Protein Chemistry." Volume II. Academic Press, Inc., Publishers, 125 East 23rd Street, New York, N. Y. 443 pp. $6.50.

R. BELCHER AND A. L. GODBERT. "Semi-micro Quantitative Organic Analysis," Longmans, Green and Co., Inc., 55 Fifth Ave., New York, N. Y. 168 pp. $3.00.

A. N. GRAY. "Phosphates and Superphosphate." Interscience Publishers, Inc., 215 Fourth Avenue, New York 3, N. Y. 416 pp. $7.00.

JULIUS D. HELDMAN. "Techniques of Glass Manipulation in Scientific Research." Prentice-Hall, Inc., 70 Fifth Avenue, New York 11, N. Y. 132 pp. $3.60.

ARTHUR D. HERRICK. "New Drugs." Revere Publishing Company, New York 4, N. Y. 303 pp. $4.00.

D. D. KARVE AND G. D. ADVANI. "Selected Topics from Organic Chemistry." Dastane Brothers' Home Service, 456, Raviwar Peth, Poona 2, India. 284 pp. 15/Sh. or $4.00.

THEODORE C. OHART. "Elements of Ammunition." John Wiley and Sons, Inc., 440 4th Avenue, New York 16, N. Y. 412 pp. $6.00.

FRITZ PREGL. "Quantitative Organic Microanalysis." Fourth English Edition. Completely revised and edited by Julius Grant. The Blakiston Company, Philadelphia 5, Pa. 238 pp. $5.00.

E. W. R. STEACIE. "Atomic and Free Radical Reactions." (A. C. S. Monograph Series.) Reinhold Publishing Corporation, 330 West 42nd Street, New York, N. Y. 548 pp. $8.00.

VICTOR VON RICHTER. "The Chemistry of the Carbon Compounds." Vol. III. "The Aromatic Compounds." Edited by the late Professor Richard Anschütz. Elsevier Publishing Co., Inc., 215 Fourth Avenue, New York, N. Y. 794 pp. $15.00.

"Abstract Bulletin. N. S. No. 2. Abstracts of Current Information on Insect and Rodent Control." Insect Control Committee. Coördination Center. National Research Council, Washington 25, D. C. 66 pp.

"Bulletin of the Agricultural and Mechanical College of Texas." Fourth Series, Vol. 15, September 1, 1944, No. 11. Bulletin No. 83. Bibliography on the Petroleum Industry. By E. DeGolyer, Consulting Geologist, and Harold Vance, Head, Petroleum Engineering Department. School of Engineering, Texas Engineering Experiment Station, College Station, Texas. 730 pp. Price: (cloth) $3.00; (paper) $2.00.