# Book Reviews

***Progress in Organic Chemistry,*** Vol. II. J. W. Cook, Ed. New York: Academic Press; London: Butterworths, 1953. 212 pp. $7.00.

Volume 2 of *Progress in Organic Chemistry* consists of the following six chapters: Recent Developments in Theoretical Organic Chemistry, M. J. S. Dewar; Organic Fluorine Compounds, M. Stacey; Chemistry of the Triterpenoids, D. H. R. Barton; Partial Synthesis of Cortisone and Related Compounds from Accessible Steroids, F. S. Spring; Relationship of Natural Steroids to Carcinogenic Aromatic Compounds, H. H. Inhoffen; and Recent Developments in Pyridine Chemistry, J. P. Wibaut.

The chapters vary in length from 20 to 36 pages; the references cited vary in number from 17 in the first chapter to 172 in the sixth. The individual chapters serve their intended purpose of familiarizing the nonspecialist reader with current accomplishments and problems in the fields of chemistry covered, and the reviewer, as one such reader, expresses his thanks to the authors and editors.

To these thanks he would add one suggestion and one protest. The suggestion is that each chapter begin with a brief table of contents that would list the various subtopics to be discussed. The protest is against the practice of using chemical formulas instead of names in the text; for example, "$IF_5$ converted $CBr_4$ into a mixture of bromofluoromethanes and with $CI_4$ there was obtained the useful substance $CF_3I$, in good yield."

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***Les Proteines.*** Rapports et discussions. Neuvième Conseil de Chimie tenu a l'Université de Bruxelles du 6 au 14 avril 1953. Sous les auspices du Comité Scientifique de l'institut International de Chimie Solvay. Bruxelles: R. Stoops, 1953. 350 pp. Illus.

The University of Brussels and the Institut International de Chimie Solvay are host every third year to a conference on some aspect of chemistry. The ninth Solvay Conference, held in April 1953, was devoted to a consideration of protein chemistry. Nine prepared papers and the ensuing discussions by the invited participants have been beautifully published in this volume.

K. O. Pedersen presents a brief, critical discussion of the problems involved in the determination of molecular weights of proteins by osmotic pressure, ultracentrifuge, light scattering, and chemical methods. This paper includes tabulated data on 165 molecular weight determinations on various proteins and an extensive bibliography.

The paper of Linus Pauling is a discussion of proposed configurations of polypeptide chains in proteins. Consideration of x-ray diffraction data and known bond lengths and angles leads to the formulation of detailed helical structures for polypeptide chains, and to suggested associations of these helixes into multiple strand cables and fibers in proteins.

The third paper by Lawrence Bragg is a delightfully readable account of the problems involved in the analysis of the x-ray diffraction data for hemoglobin. In the interpretation of x-ray data, the cautious conservatism of the physicist is in interesting contrast to the optimistic precision of the chemist in the preceding paper

In his paper Chibnall considers the chemical constitution of proteins. After a brief review of amino acid analysis, the author discusses the problem of determining the number of peptide chains in the protein molecule. Methods for N-terminal residues, C-terminal residues, and terminal amide residues are considered as is the evidence of cyclic peptide chains. The separation of the component peptide chains of proteins and the determination of amino acid sequences in these chains are discussed

The paper of Synge is a consideration of the merits of various methods for the separation in pure form of relatively large fragments of proteins as a preliminary to detailed analysis of these fragments. Electrophoresis, chromatography, and diffusion are among the methods discussed in a paper which is suggestive of possible methods awaiting exploitation in this field.

The sixth paper by Desreux and Fredericq is devoted to the fractionation and purification of proteins and criteria of purity. The separation of proteins from organized biological materials and the problem of association and dissociation of proteins are considered. Purification by solubility, electrophoresis-convection, adsorption, and distribution methods are discussed. The need for additional, more general methods is emphasized.

A discussion of protein denaturation along classical and familiar lines is given by Anson. It is remarkable how little advance has been made in this field in recent years, in contrast to the rapid progress in other aspects of protein chemistry.

The degradation of proteins by enzymes is considered by Linderstrom-Lang. The major portion of the paper is devoted to kinetic treatment of a number of hypothetical cases of proteolysis. This is followed by a discussion of experimental studies of protein-enzyme interactions including peptic and tryptic hydrolysis of various purified proteins and the transformation of ovalbumin into plakalbumin.

The last paper by Theorell is devoted to experimental evidence about the chemical relations between proteins and prosthetic groups. Included are discussions of flavoproteins, pyridine nucleotide proteins, and hemoproteins, with emphasis on the effects of specific proteins on the properties of the prosthetic groups.

This book presents a broad picture of present knowledge of the structural chemistry of proteins.

The authors have in most cases attempted to predict future developments and to suggest specific fields in which work is needed. The restricted size of the papers is compensated by extensive bibliographies. The paper of Desreux and Frederieq and some of the discussions are in French, the rest of the book being in English. The book is well printed and bound, on good paper, and contains no more typographical errors than might be expected. It should be of considerable interest to students majoring in biochemistry and to anyone concerned with the various aspects of protein structure.

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# *Books Reviewed in* THE SCIENTIFIC MONTHLY

## January

***Galileo Galilei. Dialogue on the Great World Systems.*** In the translation of T. Salusbury. Revised and annotated by Giorgio de Santillana. Chicago: Univ. Chicago Press, 1953. 506 pp. Illus. $12.50.
Reviewed by Raymond J. Seeger.

***Galileo Galilei. Dialogue Concerning the Two Chief World Systems—Ptolemaic & Copernican.*** Trans. by Stillman Drake. Berkeley: Univ. California Press, 1953. 496 pp. $10.00.
Reviewed by Michael B. Shimkin.

***Fundamentals of Biology.*** W. J. Harbaugh and A. L. Goodrich, Eds. New York: Blakiston, 1953. 611 pp. Illus. $6.00.
Reviewed by Edward S. Castle.

***Franz Boas: The Science of Man in the Making.*** Melville J. Herskovits. New York: Scribner, 1953. 131 pp. $2.50.
Reviewed by Robert H. Lowie.

***Squaring the Circle and Other Monographs.*** E. W. Hobson *et al.* New York: Chelsea, 1953. 361 pp. Illus. $3.25.
Reviewed by N. T. Gridgeman.

***The Revolution in Physics.*** Louis de Broglie. Trans. by Ralph W. Niemeyer. New York: Noonday Press, 1953. 310 pp. $4.50.
Reviewed by G. Gamow.

***Studies in Econometric Method.*** Wm. C. Hood and Tjalling C. Koopmans, Eds. New York: Wiley, 1953. 323 pp. Illus. $5.50.
Reviewed by J. E. Morton.

***Plough and Pasture: The Early History of Farming.*** E. Cecil Curwen and Gudmund Hatt. New York: Schuman, 1953. 329 pp. Illus. + plates. $5.00.
Reviewed by E. Adamson Hoebel.

***Algal Culture from Laboratory to Pilot Plant.*** John S. Burlew, Ed. Washington, D.C.: Carnegie Institution, 1953. 357 pp. Illus. $1.25, paperbound.
Reviewed by Lewis Hanford Tiffany.

***American Constitutional Custom.*** Burleigh C. Rodick. New York: Philosophical Library, 1953. 244 pp. $4.75.
Reviewed by Philip B. Perlman.

***Prehistoric Settlement Patterns in the Virú Valley, Peru.*** Gordon R. Willey. Washington, D.C.: Government Printing Office, 1953. 453 pp. Illus. + maps and plates. $4.00.
Reviewed by Julian H. Steward.

***Life on the Earth.*** Rose Wyler and Gerald Ames. New York: Schuman, 1953. 143 pp. Illus. $2.50.
Reviewed by John Tyler Bonner.

***Climate, Vegetation and Man.*** Leonard Hadlow. New York: Philosophical Library, 1953. 288 pp. Illus. $4.75.
Reviewed by C. W. Thornthwaite.

***Brown Coal: Its Mining and Utilization.*** P. L. Henderson, Ed. Melbourne, Australia: Melbourne Univ. Press; New York: Cambridge Univ. Press, 1953. 351 pp. Illus. $7.50.
Reviewed by Arno C. Fieldner.

***The Study of Human Nature.*** David Lindsay Watson. Yellow Springs, Ohio: Antioch Press, 1953. 262 pp. $3.50.
Reviewed by John Macdonald.

***Experimental Studies in Psychiatric Art.*** E. Cunningham Dax. Philadelphia: Lippincott; London: Faber and Faber, 1953. 100 pp. Illus. $5.00.
Reviewed by Otto Billig.

***Twenty Years of Psychoanalysis.*** Franz Alexander and Helen Ross, Eds. New York: Norton, 1953. 309 pp. $3.75.
Reviewed by Philip R. Lehrman.

## February

***Quackery in the Public Schools.*** Albert Lynd. Boston: Atlantic-Little, Brown, 1953. 282 pp. $3.50.
Reviewed by George D. Stoddard.

***The Triumph of the Alphabet.*** Alfred C. Moorhouse. New York: Schuman, 1953. 223 pp. Illus. + plates. $4.00.
Reviewed by I. J. Gelb.

***Railroad Engineering,*** Vol. 1. William W. Hay. New York: Wiley; London: Chapman & Hall, 1953. 483 pp. Illus. + charts. $7.50.
Reviewed by Charles F. Peck, Jr.

***A Survey of Modern Algebra.*** Rev. ed. Garrett Birkhoff and Saunders MacLane. New York: Macmillan, 1953. 472 pp. Illus. $6.50.
Reviewed by L. M. Graves.

***A Refresher Course in Mathematics.*** F. J. Camm. New York: Emerson, 1953. 240 pp. Illus. $2.95.
Reviewed by Helen G. Russell.

***Infinity.*** Lillian R. Lieber. New York: Rinehart, 1953. 359 pp. $5.00.
Reviewed by S. B. Myers.

***The Philosophy of Nature.*** Andrew G. Van Melsen. Pittsburgh, Pa.: Duquesne Univ. Press, 1953. 253 pp. $4.50, cloth; $3.75, paper.
Reviewed by I. Bernard Cohen.

***Science in Synthesis.*** William H. Kane *et al.* River Forest, Ill.: Dominican House of Studies, 1953. 289 pp. $3.50.
Reviewed by I. Bernard Cohen.

***In Spite of.*** John Cowper Powys. New York: Philosophical Library, 1953. 312 pp. $5.00.
Reviewed by May Brodbeck.

***The Interpersonal Theory of Psychiatry.*** Harry Stack Sullivan. New York: Norton, 1953. 393 pp. $5.00.
Reviewed by John R. Reid.

***Groups in Harmony and Tension.*** Muzafer Sherif and Carolyn W. Sherif. New York: Harper, 1953. 316 pp. Illus. + plates. $3.50.
Reviewed by J. R. Kantor.

***Nationalism and Social Communication.*** Karl W. Deutsch. Boston: Technology Press, MIT; New York: Wiley, 1953. 292 pp. Illus. $5.00.
Reviewed by Halford L. Hoskins.