

Book Reviews

Proceedings of the First International Congress of Electron Microscopy. Paris: Editions de la Revue d'Optique, 1953. 768 pp. Illus. \$23.75.

The First International Congress of Electron Microscopy was held in Paris during September 1950 and was attended by more than 600 persons, mostly Europeans, from 17 different countries who contributed 135 papers. The papers have finally appeared in these *Proceedings* together with the inaugural addresses from L. de Broglie, G. I. Finch, and R. W. G. Wyckoff.

The volume is divided into five sections which consist of 240 pages on electron optics, 93 on electron diffraction, 91 on metallurgical applications, 93 on chemical applications, and 207 pages on biological applications. There are articles here which should be of interest to everyone concerned with the development of electron microscopy and the results obtained with this instrument. Some articles are only short notes, while others like that of Finch on Mechanical Wear and Lubrication review an entire field and the role that electron microscopy and electron diffraction have played in its recent development. In spite of rather poor paper the many illustrations are of excellent quality. It is to be hoped that printers of the proceedings of future Congresses will do as well, but in less time and at lower cost.

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Organic Chemistry: An Advanced Treatise, Vols. III and IV. Henry Gilman, Ed. New York: Wiley; London: Chapman & Hall, 1953. 1245 pp., illus. + indexes. \$8.75 a volume.

The well-known Volumes I and II edited by Gilman have gone through two editions in which different chapters appeared and advisory writers prepared parts in the two editions. This change in content of the two editions has necessitated some cross reference to the earlier edition. It is with pleasure that one notes the expansion of the series to Volumes III and IV with new material rather than classification of this new material as a new edition of Volumes I and II, and it is thus expected that future presentations in this series may continue as additional volumes. This will thus preserve the earlier contributions in this progressive series.

As in the earlier volumes, this work is directed by an editorial board under the able chairmanship of Henry Gilman, and each volume consists of specialized chapters or sections written by competent and well-chosen authorities in the subject assigned.

Volume III includes the following topics: The Study of Organic Reaction Mechanisms by Paul D. Bartlett; Application of Infrared and Ultraviolet Spectra to Organic Chemistry by Foil A. Miller; Lipids by J. C. Cowan

and H. E. Carter; Organic Dyes by H. W. Grimmel; Some Aspects of Chemotherapy by H. R. Ing; and Antibiotics by Lee C. Cheney.

Volume IV includes: The Terpenes by Richard H. Eastman and Carl R. Noller; Heterocyclic Chemistry by Richard H. Wiley; Starch by W. Z. Hassid; Chemistry of Explosives by George F. Wright; Reaction of Organic Gases Under Pressure by W. E. Hanford and D. E. Sargent; and Oxidation Processes by William A. Waters.

As in the previous volumes, there is a balance between specific classes of organic compounds, such as dyes, lipids, terpenes, and starch, and applications of mechanisms or measurement techniques such as antibiotics, explosives, oxidation processes, and infrared and ultraviolet absorption spectra measurements. The authoritative status of the separate authors in the fields they write on makes the series of volumes a required reference work for all students and research workers who are engaged in programs involving these fields.

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Science in Alaska, 1951. Proceedings of the Second Alaskan Science Conference, AAAS, Alaska Division, 1953. (Order from: Dr. Troy L. Péwé, Box 4004, College, Alaska.) 362 pp. \$3.00.

The second Alaska Science Congress, held in McKinley Park, was the first to be held in Alaska, the preceding meeting being in Washington, D. C.

This volume which contains the papers presented at the conference, will be a valuable reference for anyone interested in any phase of science in the Territory. It consists of reports of original research, a number of historical papers reviewing what has been done in the Territory in the past, and other papers outlining immediate needs in various major scientific fields.

A number of the original papers presented at this meeting came from the activities of the Arctic Health Research Institute, the Cooperative Wildlife Research Unit at the University of Alaska, and the Fish and Wildlife Service personnel in the Territory. The University of Alaska has also greatly expanded its activities in the scientific field and a wide range of activities have been carried on by defense personnel stationed in Alaska.

In addition to general and joint sessions the meeting was broken into nine subject matter units as follows:

1. Agriculture, Botany, and Forestry
2. Medicine, Physiology, and Public Health
3. Engineering, Industrial Science, and Aviation
4. Geology and Geography
5. Sociology, Economics, and Education
6. Anthropology
7. Geophysics
8. Meteorology and Oceanography
9. Wildlife and Zoology

Original research papers were especially numerous

in the field of public health and in wildlife and zoological problems, due unquestionably to the stimulating activity of the organizations mentioned above.

Papers covering original research are not confined to these two subjects but are rather widely scattered throughout the book. This book will be valuable to all students working in or proposing to work in Alaska, since it contains reports of progress and historical résumés of previous research which will provide a good starting point for students in many fields.

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Small Particle Statistics. Gustav Herdan; with a guide to the experimental design of particle size determinations by M. L. Smith. Amsterdam-Houston: Elsevier, 1953. 520 pp. Illus. \$12.00.

The subtitle of this book is "An account of statistical methods for the investigation of finely divided materials—with a guide to the experimental design of particle size determinations." This last guide (pt. v) is written by M. L. Smith and gives a comprehensive survey of the most important methods for determining the distribution of particle sizes with special reference to the errors which are specific to the different methods. The following methods are discussed in slightly more detail: the microscope method (ch. 18), sedimentation methods (ch. 19), permeability method (ch. 20), photo-extinction method (ch. 21), and adsorption methods (ch. 22).

The main part of the book is devoted to a discussion of the statistical aspects of particle size determinations. This subject plays an important role in cement, glass, ceramic, rubber, and linoleum industries, industries dealing with polymerized materials, soil science, and sedimentary petrography. The author has tried, and as far as I can judge, succeeded in developing his subject without assuming any prior knowledge either of statistics or of advanced mathematics.

Part I of the book deals with the determination of the fineness of solids. Chapter headings are: Particles in the Sieve and Sub-Sieve Size Range; Some Fundamental Concepts of Statistics; The Units of Particle Statistics and the Principles of Particle Size Measurement; The Distributions of Particle Sizes and Their Averages; Sampling Procedures for Particle Size Determinations; Some Standard Forms of the Distribution Function; Graphical Representation; Statistical Testing and Analysis of Differences Between Determination Results.

Part II describes the technological importance of the fineness of solids with the following chapter headings: Methods for Ascertaining the Relations Between Variable Characteristics of Materials; Testing the Dependence of Properties of Materials upon Particle Size by Correlation Methods; Fundamental Relations Between Particle Size and Other Characteristics of Materials as Particulate Matter; Physical and Chemical Properties of Materials in Their Dependence upon the Characteristics of These Materials as Particulate Universes.

Part III discusses how a specific fineness (ch. 13) and

homogeneity (ch. 14) can be attained. In chapter 15 the inhomogeneity of polymers is discussed.

Part IV is entitled Principles of Statistics of Coarse Disperse Systems. Chapter 16 discusses the principles of statistical theory and chapter 17 the statistical design of investigations of particulate materials.

The book is extremely well written and seems to cover a large amount of ground. It is difficult to single out particular chapters but the most interesting, and probably the most useful, chapters seem to me to be the ones dealing with a discussion of the relative merits of different methods of determining particle size distributions (ch. 8), the chapter discussing correlation methods (ch. 10), the chapter describing how the molecular weight distribution curve of polymers can be found (ch. 15), and the chapter dealing with the statistical design of experiments (ch. 17). By far the weakest chapter to my mind is chapter 16 where the discussion lacks the sharpness and precision which characterizes the rest of the book.

It seems that the author has succeeded in producing a handbook for people working in the field and both he and the publishers can be congratulated. The production is excellent and extensive indexes and a list of principal symbols further enhance the usefulness of this volume.

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New Books

Professional People in England. Roy Lewis and Angus Maude. Cambridge, Mass.: Harvard Univ. Press, 1953. 284 pp. \$4.00.

Astronomical Photoelectric Photometry. Symposium presented on December 31, 1951, at the Philadelphia meeting of the AAAS. Frank Bradshaw Wood, Ed. Washington, D.C.: American Association for the Advancement of Science, 1953. 141 pp. Illus. \$3.75.

A Brief Survey of Modern Algebra. Shorter version of *A Survey of Modern Algebra*. Garrett Birkhoff and Saunders MacLane. New York: Macmillan, 1953. 276 pp. Illus. \$4.75.

Ideologie und Forschung in der Sowjetischen Naturwissenschaft. Arnold Buchholz. Stuttgart, Germany: Deutsche Verlags, 1953. 126 pp.

Relativity and Reality. A re-interpretation of anomalies appearing in the theories of relativity. E. G. Barter. New York: Philosophical Library, 1953. 131 pp. \$4.75.

Primates: Comparative Anatomy and Taxonomy; Vol. I: Strepsirhini. W. C. Osman Hill. New York: Interscience; Edinburgh: University Press, 1953. 798 pp. Illus. + plates. \$12.50.

Physical Chemistry: For Students of Biology and Medicine. 4th ed. David Ingersoll Hitchcock. Boston: Little, Brown, 1953. 266 pp. Illus. \$5.00.

Ways of Mammals: In Fact and Fancy. Clifford B. Moore. New York: Ronald Press, 1953. 273 pp. \$3.50.

Man, Time and Fossils: The Story of Evolution. Ruth Moore. New York: Knopf, 1953. 411 pp. + index. Illus. + plates. \$5.75.

Notions Élémentaires de Chimie Générale: A la Lumière des Théories Modernes. Paul Pascal. Paris: Masson, 1953. 550 pp. Illus. + plates. 3,600 fr.