Book Reviews

The science of plastics: a comprehensive source book based on the original literature for 1942–1946. (Vol. 1.) H. Mark and E. S. Proskauer. (Eds.) (With the collaboration of P. M. Doty, V. J. Frilette and B. H. Zimm.) New York-London: Interscience, 1948. Pp. 632. (Illustrated.) $9.00.

The development of the theory of high polymers in the late 1930s furnished the research chemists and physicists in the fields of plastics, rubbers, and fibers with a very useful and powerful tool. This, together with the practical importance of the products, has induced considerable research activity, the results of which have been published in almost 100 different scientific journals.

The importance of these results, especially to workers on plastics, rubbers, and fibers, and the difficulty of keeping in touch with developments so widely published was appreciated by Prof. Mark and his associates. In consequence, in 1942 they started an abstract service, "Resins, Rubbers, Plastics." This service has been outstanding, due to the fact that not only have all the principal research papers been covered, but the abstracts include pertinent experimental and test data, curves, equations, cuts of special apparatus, and the like. Such details the regular abstracts, such as *Chemical Abstracts,* could not be expected to include, and they have been so well organized and presented that in most cases it is unnecessary to refer to the original publication.

Prof. Mark and his associates now feel that they can be of further assistance to the profession by organizing this vast number of abstracts, providing proper cross-references, and putting them in a form for quick and easy consultation. In the present volume, the first to be put out, are grouped abstracts of papers that deal with the more general aspects of the plastic state, under four principal headings. These, together with the subheadings, are so significant that they are quoted from the Table of Contents: "I. Properties and Evaluation of Plastics. A. Commentaries and General Studies. B. Tensile and Impact Strength. C. Elastic Behavior. D. Plasticity and Flow. E. Wearing Qualities. F. Electrical Properties. G. Thermal Expansion and Related Phenomena. H. Permeability and Sorption. II. Physical Chemistry of Polymer Systems. A. The Solid State. B. Solutions: Fundamental Theory. C. Solutions: Molecular Weight. D. Solutions: Viscosity. E. Solutions: Osmotic Pressure. F. Solutions: Light-Scattering. III. Kinetics of Polymerization Reactions. A. Mechanism and Kinetics of Visual Polymerization. B. Copolymerization Theory. C. Three-dimensional Polymers and Gelation. IV. Plastics Engineering. A. Solvents and Plasticizers. B. Laminates. C. Radio-Frequency Heating." The value of this classification to workers in the field is obvious.

The editors state that "papers that are restricted to studies on single plastics are reserved for Volume II. The chapters in the second volume accordingly will have titles such as 'Polystyrene,' 'Cellulose Plastics,' etc." Thus, it will be possible for workers to have or to consult just the phase of the field most important to them.

The format is the same as that of the original loose-leaf abstracts put out by the Resins, Rubbers, Plastics service; the type is a little small, but clear and readily readable, and the reproduction of the curves, cuts, etc. is quite good. The editors state that this was done to hold the cost down and thus bring the book within the reach of more persons who need it—a commendable consideration that will be generally appreciated. The book is sturdy and well bound and appears capable of taking the constant handling it is sure to get.

For all research workers in the field of polymer chemistry, this book is highly recommended. This could well include those working with proteins, cellulose, and other natural polymers as well as those developing synthetic resins. Essentially it is an up-to-date reference library on the theory and properties of high polymers.

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Scientific Book Register

BURCHARD, JOHN. *M.I.T. in World War II: Q.E.D.* New York: John Wiley; London: Chapman & Hall, 1948. Pp. xvi + 354. (Illustrated.) $3.50.

HAHN, HANS, and ROSENTHAL, ARTHUR. *Set functions.* Albuquerque, N. Mex.: Univ. of New Mexico Press, 1948. Pp. ix + 324. $12.50.

HAMMER, BERNARD W. *Dairy bacteriology.* (3rd ed.) New York: John Wiley; London: Chapman & Hall, 1948. Pp. ix + 593. (Illustrated.) $6.00.

HARVEY, WM. CLUNIE, and HILL, HARRY. *Insect pests.* (2nd ed.) New York–London: Paul B. Hoeber, 1948. Pp. xi + 347. (Illustrated.) $5.00.

LASSWELL, HAROLD DWIGHT. *Power and personality.* New York: W. W. Norton, 1948. Pp. 262. $3.00.

RADÓ, TIBOR. *Length and area.* (American Mathematical Society Colloquium Publications, Vol. XXX.) New York: American Mathematical Society, 1948. Pp. v + 572. $6.75.

SARTON, GEORGE. *Introduction to the history of science.* Vol. III: *Science and learning in the Fourteenth Century* (in two parts). Baltimore: Williams & Wilkins, 1947. Pp. xxxv + 1018, Part I; xi + 1019–2155, Part II. (Illustrated.) $20.00 per set.

SIRI, WILLIAM (with contributions by Ellsworth C. Dougherty, *et al.*). *Handbook of radioactivity and tracer methodology.* (AF Tech. Rep. No. 5669.) Dayton, Ohio: Department of the Air Force Air Materiel Command, 1948. Pp. 867.

TRUESDELL, C. *An essay toward a unified theory of special functions based upon the functional equation* $\frac{\partial}{\partial z}F(z,\alpha) = F(z,\alpha+1)$. (Annals of Mathematics, No. 18.) Princeton, N. J.: Princeton Univ. Press; London: Geoffrey Cumberlege, Oxford Univ. Press, 1948. Pp. iv + 182. $3.00.