the results of one of the most important branches of polymer chemistry and their practical application in the textile industry.

The book comprises five parts, subdivided into 37 chapters. The first part deals briefly with the fundamentals of fiber structures and serves as an introduction to the problems involved in fiber formation. Parts II and III describe fibers based on natural polymers (cellulose, alginates, and proteins). Part IV covers the truly synthetic fiber types (polyamides, polyesters, polyurethanes, vinyl, and acrylic fibers) as well as glass and coated fibers. The last part contains in condensed form some information on processing, including its analytic and economic aspects.

Moncrieff had to deal with a complex, widely branched field in which some technical information is withheld by the manufacturing interests involved. In a few instances, he has attempted to lift the veil by doing some guesswork. Although he was not particularly successful in some cases (for example, composition and melt spinning of an acrylic fiber, pp. 327–9), in other cases his predictions have proved to be correct (for example, elimination of fibrillation in another acrylic fiber, p. 326).

The book is well printed and contains literature references at the end of each chapter. The addition of an author index would be welcome. The present index does not contain all the authors' names.

Artificial Fibres can be warmly recommended to the student. The specialist will find it a valuable reference.

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Diagnosis and Improvement of Saline and Alkali Soils. U.S. Salinity Laboratory Staff; L. A. Richards, Ed. U.S. Dept. of Agriculture, Washington, D.C., rev. ed., 1954. vii + 160 pp. Illus. $2. (Order from Supt. of Documents, GPO, Washington 25, D.C.)

This is an enlarged, printed, hard-cover revision of the 1947 multilithed edition. It is written for the professional agricultural worker and provides an excellent discussion of the major problems associated with the characterization, improvement, and management of alkali soils for crop production. The first five chapters provide a basis for the evaluation and interpretation of measurements. Chapters 6, 7, and 8 present procedures and measuring methods in use at the U.S. Salinity Laboratory. No attempt is made to present methods from other sources, irrespective of their suitability. In many cases the handbook covers alternate methods of analysis, and the worker can select from these, depending on the equipment available and the accuracy of results desired. Each description of a method of analysis includes, when applicable, sections on apparatus or equipment, reagents, procedures, remarks, calculations, and references. More than 100 separate methods are discussed under the broad headings of soil characterization, plant culture and plant analysis, and analysis of irrigation water. Diagrams and charts are used extensively throughout. Although the publication deals specifically with alkali soils and the problems related to their use, the methods of analysis are applicable for broad use in the fields of soil chemistry and physics, plant physiology, and drainage engineering.

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Catalysis. vol. I. *Fundamental Principles* (pt. I). Paul H. Emmett, Ed. Reinhold, New York, 1954. 394 pp. Illus. $10.

In the past catalysis has been an important art, but within the last 30 years it has acquired a coating of scientific luster composed of all the research tools of science. The present series attempts to record in orderly fashion what is now known in regard to theory and practice. The chapter titles in order are "Physical adsorption," by Herman E. Ries, Jr.; "Measurement of the surface area of solid catalysts," by Paul H. Emmett; "Chemisorption," "Kinetic laws in surface catalysis," and "The absolute rates of surface reactions," all by Keith J. Laidler; "Catalyst carriers, promoters, accelerators, poisons, and inhibitors," by W. B. Innes; "Catalyst preparation," by F. G. Ciapetta and C. J. Plank; "Magnetism and catalysis," by P. W. Selwood.

The first two chapters give a pithy and well-organized résumé that will be useful to anyone interested in the subject. On reading chapters 3 and 4, I was struck by how much was accomplished by I. Langmuir in 1918, how his principal ideas still dominate the field, and how few new ideas about fundamental physical pictures have since been presented, even though the basic theory now appears in more erudite terms. Chapters 4 and 5 contain little that has not been previously explored in detail in many books.

One wonders if the dressing up of kinetic equations in terms of partition functions represents a real advance when, in the present state of knowledge, the component factors either have to be assumed or depend upon measurement of quantities that occur in the simpler forms.

Chapters 6 and 7 furnish much practical information on the morphology of catalysts and their preparation. Although reaction rates are markedly insensitive to magnetic influences as opposed to electrostatic influences, nevertheless, magnetic susceptibilities often do give information in respect to state of oxidation of the catalyst that cannot be obtained in any other way. The importance of magnetic analysis is just beginning to emerge.

My chief regret is that the editor did not write some of these chapters himself. A better result would have been obtained.

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