exercises that would make a suitable course. The appendixes include a brief summary of the principal mechanical properties of the more-important metals and non-metallic constructional materials. The book would form a good guide to a technical college course on mechanical testing, but would not be suitable in a university curriculum except as a reference book to American methods. K. J. PASCOE

DETERGENTS IN THE FACTORY

Industrial Detergency

Edited by Wm. W. Niven, Jr. Pp. iv+340. (New York: Reinhold Publishing Corporation; London: Chapman and Hall, Ltd., 1955.) 70*s*. net.

CLEANING is an operation widely employed in industry. As the introduction to this book points out, it may constitute the major basis of the industry as in laundering; it may be an inherent part of the process by which the finished product is made, as in metal plating; it may safeguard the quality of the finished product, as in the food industry; or it may add to general efficiency, as in plant maintenance. Great technological advances have been made during recent years, and the declared aim of the book is to give a comprehensive treatment of industrial detergency, a subject to which few books have been devoted in their entirety.

A very brief chapter is entitled "The Fundamentals of Detergency". The author admits that this may be a misnomer and that no attempt has been made to discuss the physical chemistry of detergent systems. Other texts need to be studied to obtain a proper understanding of the subject. The chapter on detergent materials is more adequate. Evidence is given to rebut a commonly held belief that the action of synthetic detergents is unaffected by water hardness, and it is emphasized that not all surface-active compounds are detergents. Examples of commercial products are restricted mainly to those of American manufacture.

All cleaning operations must be designed according to the characteristics of the substrate being cleaned, and therefore classification according to industry has been adopted, seven authors contributing to this section of the book. Because of this, some overlapping has occurred, for example, in the chapters on detergent materials and the laundry industry. The latter chapter deals almost exclusively with practice in the United States. The advantages of including a controlled amount of water in dry-cleaning baths are becoming more and more appreciated, and some discussion is given of the theory underlying this addition, although I do not agree that dirt redeposition is adversely affected by the presence of limited amounts of adsorbed moisture on wool in certain detergent systems.

Subsequent chapters deal with detergency in the textile and food industries. Little is known of the effect on man of the ingestion of small quantities of detergents over a prolonged period, and it is therefore appropriate to emphasize the importance of thoroughly rinsing away detergents, so that subsequent contamination of foodstuffs prepared in plant cleaned by them does not occur. Much that is said in the individual chapters on foods and beverages, the dairy industry and dish-washing applies equally to all these applications and could more conveniently have been dealt with under one main heading. The final chapters are devoted to the metals industries and to general industrial cleaning, which covers a range of applications from simple floor-cleaning to the complex treatment of aircraft.

One of the problems in any application of detergents is the selection of those products which are most suitable for the purpose. The evaluation of detergents is not dealt with for every application described in the book, and although the information is available elsewhere, its inclusion would be appropriate in a comprehensive manual of this nature. Nevertheless, the book contains a great deal of useful information concerning American methods in a wide range of cleaning processes. R. E. WAGG

ORGANIC REACTIONS

Organic Reactions

Edited by Roger Adams, A. H. Blatt, Arthur C. Cope, David Y. Curtin, Frank C. McGrew and Carl Niemann. Vol. 7; pp. viii+440; 72*s*. net. Vol. 8; pp. viii+437; 96*s*. net.
(New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1953–54.)

EACH of the volumes in this series consists of a number of chapters, dealing severally with a single reaction capable of wide application, or sometimes even with a particular phase of such a reaction. The series was begun in 1942, and from its inception it has progressed under the wise direction of Prof. Roger Adams as editor-in-chief, assisted by changing teams of skilled and experienced collaborators.

These successive volumes provide a welcome aid to the practising organic chemist, having his habitation in these latter days in the midst of a deep and rapid river of literature which threatens to rise and engulf him. The life-line of "Beilstein" and similar publications so often falls short of his needs that supplementary devices have become essential if he is to keep his head above water. In other words, the practitioner of organic chemistry needs something that will enable him to make a quick, comprehensive and up-to-date survey of the current position in his particular field of work. "Organic Reactions" renders this kind of service by assembling the requisite information under the heads of specific reactions of outstanding importance, thereby bringing about a dissection of a vast body of published material into manageable units. Experience has shown the great practical value of this method of classification, although, of course, it cannot be claimed to meet every need.

The limited goal of each chapter renders possible a surprisingly thorough coverage of the material and publications concerned. Chapter 6 in Vol. 8, on the metalation reactions with organolithium compounds, may be taken as a typical example. A section of forty-seven pages includes an introduction followed by concise accounts of the mechanism and scope of the reaction. Other types of metalating agents are then mentioned; and details of experimental conditions and procedures are followed by a tabulated summary of such reactions to be found in the literature up to the end of 1952, the yield and literature reference for each of a couple of hundred compounds being given. The seven chapters of Vol. 7 include, among others, the Pechmann reaction, the Skraup synthesis, the von Braun cyanogen