

A Laboratory Handbook of Pulp and Paper Manufacture

By Dr. Julius Grant. Second edition. (Incorporating the fourth edition of Stevens's "Paper Mill Chemist".) Pp. vii+523. (London: Edward Arnold (Publishers), Ltd., 1961.) 80s. net.

PAPER is so common that one forgets that, in comparison with metals, plastics and other sheet materials, it has some very peculiar properties. It is a fibrous assemblage and frequently contains more air than solids; it may vary widely in density, strength and other physical characteristics, and it may be treated with a large range of chemical additives.

This handbook, like Stevens's before it, is written for laboratory workers with some previous knowledge of paper. It should, nevertheless, appeal to a wider range of readers because it effectively summarizes the enormous amount of work put in by chemists into one industry. It outlines the essential pulp and paper processes, then describes, in more detail, the laboratory methods developed for the control of these processes, the analysis of raw materials and the physical testing and analysis of paper. Many methods are only briefly summarized, as numerous references are given to published standard methods, and to the original literature, which is now very large.

It must be difficult to decide what to leave out, and in one sense it is a pity that the book is confined so closely to practical laboratory methods. There is little reference to theory, to the large amount of published work on the visco-elastic properties of paper, or to the development of instruments for automatic control. There are some who believe that chemists have had their day in the paper industry and that the future lies with technologists trained in physics and engineering. Actually co-operation between all three will be essential, but a common ground of theory is vital to this. Even though present theory is incomplete it is a big help in the understanding of the properties of paper and of specifications for it.

There are three misprints in the brief section on statistical method; they would not upset a statistician but might confuse a laboratory worker unfamiliar with that subject. F. LYTH HUDSON

Papers on Bacterial Genetics

Selected by Edward A. Adelberg. Pp. xlvi+400. (Boston, Mass.: Little, Brown and Company, Inc., 1960.) 4.50 dollars.

Papers on Bacterial Viruses

Selected by Gunther S. Stent. Pp. xxx+365. (Boston, Mass.: Little, Brown and Company, Inc., 1960.) 4.50 dollars.

THESE companion paper-back volumes are worthy successors to the collection, *Papers in Microbial Genetics; Bacteria and Bacterial Viruses*, selected by Joshua Lederberg in 1951. Yet these two supplementing volumes only reflect a portion of the enormous activity devoted to this field in the decade since the first collection. Of the 51 papers now presented, only five have been retained from the former collection.

To abate the disappointment of many readers who, no doubt, would have selected differently in some instances, each collection is preceded by the selector's introduction, which reviews the main papers on each theme and includes a wide bibliography: on

viruses, 13-page review, 164 references; on bacterial genetics, 30-page review, 177 references.

The papers themselves are presented in their original type and style, from which a certain lack of uniformity results; there is dual pagination; but most clearly brought home by this method of presentation is the need for a standard method of reporting references.

The great benefit of this collection is that it provides for the student of microbial genetics a highly concentrated source of information on both the methods and the results of the main workers in this field. Also, the combination of the bibliography in the introduction and at the end of each paper, provides a fairly comprehensive guide to the other sources of related information.

To the specialist, therefore, these two volumes are almost 'essential'.

L. B. QUESNEL

A Laboratory Manual of Analytical Methods of Protein Chemistry

(Including Polypeptides). Edited by P. Alexander and R. J. Block. Vol. 1: The Separation and Isolation of Proteins. Pp. viii+254. (London and New York: Pergamon Press, 1960.) 50s. net.

THIS book is the first of three volumes devoted to practical techniques in the protein field, and contains seven chapters describing various methods for the separation and isolation of proteins. The first chapter (by Keller and Block) surveys the classical methods, such as precipitation with salts and organic solvents, for the separation of proteins. In chapter 2, Okunuki gives detailed descriptions of the methods, due mainly to Japanese workers, for the isolation of cytochromes, and bacterial α -amylase and proteinase. Chapter 3 comprises two sections. The first, by Keller and Block, reviews the techniques of adsorption and ion-exchange chromatography as applied to proteins, while the second, by Peterson and Sober, describes an ingenious variable-gradient device for column chromatography. In the next two chapters, Craig gives a full account of the use of dialysis and partition methods. The book ends with descriptions of the less commonly used techniques of multi-membrane decantation (Polson and Largier) and zonal density gradient electrophoresis (Svensson). It is to be hoped that the value of these methods will now be more widely recognized. Those readers who are not afraid of elementary mathematics will find that the theoretical bases of the various techniques are presented in a manner which does not engulf the practical aspects. A liberal number of plates and diagrams will enable workers in the less-affluent laboratories to construct much of the equipment described. In spite of a number of errors and a rather inadequate subject index, I feel that this volume will be extremely valuable to workers in the field of protein research.

D. T. ELMORE

An Introduction to the Chemistry of Heterocyclic Compounds

By R. M. Acheson. Pp. xiv+342. (New York: Interscience Publishers, Inc.; London: Interscience Publishers, Ltd., 1960.) 5 dollars; 35s.

THIS book has the laudable aim of supplying the student with a concise account of the properties and reactions of the more fundamental heterocyclic systems. In this it succeeds admirably. It covers the range from 3- to 6-membered heterocyclic compounds—with oxygen, sulphur, and nitrogen