• *New Books*

ATOMIC RADIATION AND POLYMERS, by A. Charlesby (The Pergamon Press Inc. xii and 556 pp., 1960, $17.50). Atomic radiation can form new bonds in organic compounds, or it can break old ones. With polymers the first process results in making the polymer higher melting and less soluble. The breakdown results in a softer, less viscous material. Charlesby has summarized the literature on the effect of atomic and electrical radiation and has explored the mechanism of the changes which occur. The possible structure of polymeric materials is extensively described. The treatment is very largely theoretical.

A general introduction opens the book and is followed by five chapters on sources of radiation and their measurement. Then follow five chapters on the structure and properties of high polymers. The effect of radiation on organic molecules, on polyethylene, on rubber, on polystyrene, on silicones, polyisobutylene, polymethylmethacrylate, Teflon, and on other crosslinking polymers are considered, each in its own chapter. Three chapters are devoted to radiation-induced chain reactions. Four chapters cover the mechanism of crosslinking and scission, and a final chapter describes radiation damage at high intensities.

This is a new field, and radiation intensity is expressed in many different systems, which makes comparison between various reports difficult. Also in several instances results from different investigators show considerable discrepancy. Part of this may result from the difficulty in calculating exactly the energy deposition of a nuclear reactor. In most instances the author attempts to correlate the changes in the polymer with the amount of radiation absorbed and to clarify the mechanism of the reaction.

The book is well made and well written. Literature references in the text are by author and year at the end of the chapters. However the author index refers to the list and not the page in the text of the reference. Much space has been devoted to polymer structure, most of which is familiar and readily available elsewhere.

The author, who has made many contributions to this field, has assembled the significant work through 1958. The volume will be invaluable to research workers in this field.

P. O. POWERS, Pennsylvania Industrial Chemical Corporation, Clairton, Pa.

COLOUR IN INDUSTRY TODAY, by Robert F. Wilson (The Macmillan Company, New York, 90 pp., 1960, $8). This book deals, in a practical manner, with the use of color in factories, processing plants, hospitals, etc. It will be of value to any member of the management team who is concerned with or interested in selecting or planning color schemes for painting of factory, equipment, or offices.

Ten chapters deal with the principles and psychology of color, the uses and value of color, color and lighting, planning, and suggested color schemes. A final chapter deals specifically with color in schools and hospitals. The examples used are all from the United Kingdom, where the author was a prominent color consultant. The author is not concerned however with advancing any specific examples. Rather he sticks pretty well to a discussion of principles, which gives the book a much wider application. The chapters dealing with the principles of color contain good definitions of the various terms used in connection with color. The chapter on psychology of color is also very concise and stimulating. In dealing with practical aspects, the author suggests approaches and stresses the necessity of "knowing your people" and seeking good advice.

To this reviewer the main deficiency of the work is in the short treatment given to the important field of color measurement. The basis of the color measurement systems currently used deserve more attention than they get. The reproduction of the color photographs also seems, in an otherwise well-made and attractive book, to be poor. Aside from this, the book will be a good reference work for any industrial library.

G. K. PARMAN, Hoffmann-La Roche Inc., Nutley, N.J.

NATURHARZE TERPENTINÖL, TALLÖL, CHEMIE, UND TECHNOLOGIE, by W. Sandermann (Springer-Verlag, Berlin/Göttingen/Heidelberg, 1960, vii and 483 pp., 16.5 x 23.5 cm., DM 62.40). Table of contents is a brief outline of the six main sections of the book. The longer sections are divided into as many as three orders of subsections. The main sections or subsections have separate bibliographies. Two or more short consecutive subsections in the same section may have a common bibliography. There is a total of 677 references. The author index has references both to the text and to the bibliographies. The 14-page subject index appears to be quite adequate.

Type is clear and large enough for easy reading. Graphs, drawings, and structural formulas are well done and generally can be understood without reference to the text. Photographs also are of excellent quality and well labelled. The paper is thin, with a smooth, hard finish. The book is linen bound.

Through the use of 147 tables, many of which occupy several pages, and a total of 172 photographs, drawings, and graphs, besides a large number of structural formulas, the author has been able to pack a tremendous amount of information into a relatively small book. Some of this information could have been made more easily available for many readers if less common abbreviations and terms had been more conspicuously defined. Errors, almost inevitable in a new book, are comparatively rare.

The author's purpose is not to write a comprehensive chemistry of rosin, and terpenes, such as the works of Simonsen, but rather to emphasize the chemical processes which have achieved industrial importance or which may do so. More or less thoroughly described (depending on commercial use or potential) are the technologically important chemical and physical processes involved in obtaining tall oil, pine gum, and several less common natural materials and in their purification, separation, and conversion into the host of useful products possible from these sources. Where a full description might be too long or involved, the reader is referred to original literature.