The Chemistry and Physics of Rubber-like Substances
Edited by L. BATEMAN

The Natural Rubber Producers' Research Association this year celebrates their silver jubilee and this book, which has been written by past and present members of the Research Association, gives an account of the main scientific studies undertaken by the Association since its inception twenty five years ago. Although the various contributions highlight the N.R.P.R.A. viewpoint, due regard has been paid to relevant work carried out elsewhere and the articles express the development and current state of the physics and chemistry of rubber-like substances. The book, as a whole, is a major contribution to the scientific knowledge of the nature and properties of rubber and elastomers generally. The subjects discussed which vary widely in character and scope cover all aspects of rubber science. These include chemical structure and cis-trans isomerism in natural polyisoprenes, structure and properties of latex, theories of rubber solution, rubber-like elasticity, and viscoelastic behaviour and crystallization of natural rubber. On the more applied side there are articles on the strength of rubber, effect of fillers, ozone attack, abrasion and tyre wear. Informative accounts of the mastication and mechano-mechanical reactions of polymers, the chemistry of vulcanization, radiation chemistry and the detailed studies of the oxidation of olefins and sulphides summarize some of the more recent and significant studies carried out at the N.R.P.R.A. The final two chapters of the book deal with network degradation and the correlation of vulcanizate structure and properties.

This is a memorable publication. It is not only a record of the work of an outstanding research institute, but also a remarkable example of the power of the coordinated application of the disciplines of physics, chemistry and biology on a scientific problem and of the value of a fundamental approach to what appeared to be a practical and technological problem. The book is immense value to all workers interested in rubber whether academic or industrial and can be equally recommended to those concerned with the related technologies of plastics, oil and fats and paints. An appendix lists the 452 publications for the N.R.P.R.A. on rubber and related subjects.

C. E. H. BAWN

The Stabilization of Polyvinyl Chloride
F. CHEVASSUS and R. DE BROUTELLES
Translated by EICHORN and SARMIENTO

Two French authors of different experience and style have collaborated to produce a valuable book, the first which attempts to deal comprehensively with degradation and stabilization of PVC in a single volume.

Written in three Parts, the book contains (1) a theoretical study (some 100 pages), (2) a classified account of stabilizers and synergistic mixtures, with a list of U.S. and European manufacturers and their products (this Part amounts to more than 100 pages overall) and (3) a thorough assessment of practical points that arise in the important industrial fields. The latter Part (substantially over 100 pages) appears to be based on direct technical experience whereas the other two represent information collected from available sources.

It is easy to criticize any theoretical account of PVC since sharp differences of scientific interpretation still abound. Indeed, the present book provides the background for some future publication in which pertinent experimental work concerned with polymeric structure, propagation of linear conjugation, ring formation, peroxidation, and the action of different stabilizers under varied conditions of temperature, shear, metal salts, light, oxygen and time might be critically discussed in full mechanistic detail. As it is, the author of this Part deals with these matters as uncontroversially as possible by sketching the main facts and successively quoting from conclusions of many authors almost verbatim. A few passages are not easy