even the British Rubber and Plastics Research Association has found the collection of adequate trade data almost impossible to make available and anywhere near up-to-date in a central depository. This book, then, must be supplemented by other sources of information selected to meet individual interests and requirements. In another perplexing area, the U. S. user may be further disappointed, namely that of approaching the enormous literature of government sponsored research; to be sure some sources such as the U. S. military "Plastic" bibliographies are mentioned as well as the U. S. Department of Commerce, but many users might well use more detailed analysis of these sources and procurement procedures such as would be provided by a description of the Clearing House for Federal Scientific and Technical Information which offers early release of U. S. Government contract technical reports at cost (high), although this source is referenced.

Four indices covering 27 pages should help in locating desired information in the book. Editing seems well done, with no important errors readily located by this reviewer. The author is Librarian, Northern Polytechnic, London, which in turn offers one of the most ambitious curricula in rubber and plastics technology in the U.K. for career oriented professionals. It would be easy to emphasize the deficiencies of a little book such as this, even allowing for the large painstaking effort which the author must have devoted to it over the years. This reviewer, however, considers the book well conceived, well executed, and far too useful for anything but praise. In time a revision will be due, and it is hoped that the author or his successors will be encouraged and will be enthusiastic about this task, based on a wide recognition and acceptance of the first edition offered by Pergamon Press which, it should be mentioned, has published an attractive book up to their usual high standards.

I asked Hanna Friedenstein, Manager, Information Center, Cabot Corporation, for her comments on this review and have made a few corrections in consequence; she adds the following: "Chapter 15 on Standards and Specifications impresses me as very useful, especially in its coverage of European specifications. Something seems to have gone wrong with the bibliography to this chapter in that a whole series of A.S.T.M. and other U. S. specifications appear to be listed under the British Standards Institution. Perhaps a subheading got lost on Page 182. But this is a minor criticism.

"On the whole, I agree that this is a comprehensive, well-organized and remarkably error-free guide to the rubber and plastics literature, and the author is to be complimented on an excellent job."

J. H. Faull, Jr.

Office of Naval Research
Boston, Massachusetts

Statistical Mechanics of Chain Molecules. PAUL J. FLORY

The new book of Professor Paul Flory is an important event in polymer physics. An outstanding scientist who has made many valuable contributions to the field has written a book which not only completes the structure of statistical mechanics of chain molecules but contains much new information obtained during recent years—mainly by the author and his collaborators.

In the first chapter the spatial configurations of chain molecules are analyzed and the most important theoretical models are treated. The book does not contain the details of the theory of excluded volume effect. However the general physical ideas about the "theta point" and "theta solvents" suggested by Flory two decades ago are exposed in a very clear and exact form. The same must be said about the temperature coefficients of dimensions of macromolecules. The interdependence of internal rotation in the chain is treated in the third chapter, containing an elegant mathematical description of the

configurational statistics of chain molecules based both on rotational isomerism and on the concept of cooperativity. Very interesting and important results obtained recently by Flory and Jernigan concerning statistical properties of finite length chains are also included in this chapter. It ends with a very educational analysis of the difference between Markoff chains and polymeric chains with configurational statistics.

Chapter IV presents the mathematical treatment of the moments of chain molecules which are needed for the calculations of a series of geometrical and physical properties. This chapter contains also an important theory of Markoffian copolymers and an application of the theoretical physics of macromolecules to the chemistry of polymer synthesis. The method given by Flory will have important applications also in molecular biophysics and in the theory of biochemical evolution.

Chapter V is entitled "Symmetric Chains." It contains the detailed mathematical description of internal rotation in a series of most important chain molecules such as polymethylene, polytetrafluorethylene, polymeric sulfur, polyoxymethylene, polyoxethylene, polydimethylsiloxane, polyamides, polyesters, polyisobutylene, and butadienes and isoprene polymers. This list shows that the general theory is not an abstract concept but an extremely useful tool for the analysis of the properties of most real polymers.

Chapter VI deals with the asymmetric stereo regular vinyl polymers. The reader will find here many new results such as, for instance, a refined theory of equilibrium configuration statistics. Chapter VII is particulary important not only for polymer science but also for molecular biology and biophysics since it deals with polypeptides, proteins, and related substances. Many new data were obtained by the author and his associates concerning the configurational properties of several amido acid residues and also of the lactic acid unit. The theory of average dimensions of copolypeptides and the theory of configurational transitions are also included in this chapter.

Chapter VIII treats the statistical distribution of configurations and contains the comparison of various model chains with real molecules. The last chapter is dedicated to the optical properties and to the radiation scattering of polymeric systems; it represents a valuable contribution to polymer physics.

This is a beautiful book which excels by the depths of its approach, by the clarity of its presentation, and by the abundance of stimulating ideas which will pave the way for further developments. I cannot refrain from a brief personal remark: a scientist gets his greatest satisfactions when his ideas are acknowledged and further developed by his colleagues. It gives great pleasure to me and my associates that much of our work was used by Professor Flory when he created this new classic volume of polymer science.

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