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Book Review

Natural and Synthetic Polymers by Henry L. Bolker
Marcel Dekker, Inc., New York, 1974

Natural and Synthetic Polymers is the first book, in my judgment, to bring Weltanschauung to the polymer field. Ravve's Organic Chemistry of Macromolecules, now in revision, approached this perspective, although its objectives were more limited.

Bolker correctly points out that chemists erect barriers where none exist, as between carbohydrate and protein chemistry on the one hand and synthetic organic polymers on the other.

Flory (Principles of Polymer Chemistry, Cornell University Press, Ithaca, New York, 1953) has noted:

"The earliest reported studies of polymeric substances...were carried out by two essentially independent groups of investigators. On the one hand, there were those concerned with the physical and chemical constitution of the natural polymers—starch, plant fibrous material (cellulose), proteins, and rubber. The other group consisted of the synthetic organic chemists of the latter half of the nineteenth century who, though not primarily interested in polymeric substances, inadvertently came upon synthetic polymers incidentally to the pursuit of other objectives. Neither group appears to have been aware of the significance with reference to the naturally occurring polymers of these occasionally reported syntheses of polymeric products."

Natural and Synthetic Polymers boldly intermixes the two fields, freely drawing analogies and parallels where appropriate.

The Preface and Introduction include such topics as the polymers of life, the polymers of commerce, some basic definitions, and some history.

Next comes Part I: Linear Polymers, where the polysaccharides receive detailed treatment. Synthetic condensation polymers, addition polymers, and stereoregularity in addition polymers are also surveyed here.

Part II: Branching and Molecular Heterogeneity deals with branched polyethylene, poly(vinyl acetate), amylopectin, plant gums, nucleic acids, and copolymers of numerous types.

Finally, Part III treats cross-linking and cross-linked polymers. Included are, for example, phenol-formaldehyde, vulcanized rubbers, proteins, and lignins.

Dr. Bolker is to be complimented for the completeness and lucidity of this general treatise. Although the specialist will not find all he needs in this work, most chemists will be pleased and stimulated by this instructive book.

George E. Ham