

Encyclopedia of Polymer Science and Technology

Plastics, Resins, Rubbers, Fibres. Edited by Herman F. Mark, Norman G. Gaylord, Norbet M. Bikales. Vol. 2: Amino Resins to Casein. Pp. xiii+871. (New York and London: Interscience Publications, a Division of John Wiley and Sons, Inc., 1965.) 375s.

THE object of this ten-volume encyclopedia is no less than the coverage of both the science and technology of polymers. Volume 1 started with "Ablative Polymers" and in some 893 pages reached "Amino Acids". Volume 2 takes us to "Casein" in a similar large number of large pages. Fifty topics are dealt with according to the space the various contributors and the editors consider they merit, from one sentence for "A-Stage" (resins) to 95 pages for "Amino Resins". The difference in page lengths is a reflexion of the efficient cross-reference system where, for example, "A-Stage" resins are dealt with in the articles dealing with the various types of resin.

These reviews can bring one from a vague background to a good general knowledge of the topics dealt with. Supplemented by the bibliographies with each article, one has enough literature background for starting original work. It so happened that I was able to test this out on a real case since antistatic agents and antiozonants are new subjects of interest to my laboratories. The articles in the *Encyclopedia* were very timely.

The articles would probably continue to serve this purpose for perhaps five years in this rapidly expanding phase of polymer work. No doubt Interscience Publishers look forward with pleasurable anticipation to the *Encyclopedia* being rather like the Forth Bridge.

The claim to cover both science and technology is met by the contents of this volume. The authors are mainly senior scientists in the industrial laboratories in the United States, where much of the fundamental science is going on and where so little opportunity for exploitation is lost. The articles vary greatly in the proportions of science and technology and have a heartening attitude not to make any artificial separation of them. Subjects such as "Amino Resins" and "Aqueous Polymerisation" are mainly organic chemistry while "Bag Molding" and "Calendering" are predominantly production technology.

Librarians serving polymer laboratories and the larger science laboratories will wish to purchase these volumes. Apart from being very handsome and beautifully produced editions for the libraries, they will be among the books most frequently not on the shelves. The integration of the fundamentals with their application should be of particular value to teachers in the polymer field, from their own experience being familiar with only some of the aspects of the subject, and to students in gaining a foretaste of the best industrial attitude.

W. F. WATSON

Complement

Edited by G. E. W. Wolstenholme and Julie Knight. (Ciba Foundation Symposium.) Pp. xiii+388. (London: J. and A. Churchill, Ltd., 1965.) 60s.

IN 1948 Heidelberger and Mayer wrote: "It is happily a rare thing to find in scientific literature a vast body of writings so confused and so mutually contradictory as those on the manifold activities of complement". Since then, the literature on complement has become even vaster, and the symposium held in May 1964, under the auspices of the Ciba Foundation, served a most useful purpose in charting the position of research into some of the many processes in which complement plays a part.

Probably most of the work on complement has been directed to unravelling the complicated process of immune haemolysis, because this system lends itself to precise quantitative experimentation. Information gained from

such studies about the many components of complement and their eventual characterization will find applications in the investigation of the action of complement in other immune processes which may be of more immediate value to the organism.

The opening paper by Mayer reviews present-day concepts of the mechanism of immune haemolysis and shows the complicated stages through which a red cell passes before its haemoglobin is finally liberated and it becomes a 'ghost'. A beautifully illustrated paper on electron-microscope studies of lysed cells complements this and shows the actual holes through which the haemoglobin presumably leaks out of the cell. Other papers in this field are on small molecular weight inhibitors of complement, and, perhaps of more interest to clinicians, on haemolytic processes *in vivo* and on the paroxysmal haemoglobinuria red cell. Of more general immunological interest are the contributions on the role of complement in bacteriolysis and phagocytic activity, immune adherence and coagulation and on the site of formation of complement components.

This symposium provides a very useful and up-to-date survey of present-day ideas on many aspects of complement activity. It is well produced and has a good index. A welcome feature is the very full reporting of the discussions which each paper generated; these add greatly to the interest and value of the papers themselves.

A. E. WILKINSON

Light: Physical and Biological Action

By Howard H. Selinger and William D. McElroy. (Monograph Series on Radiation Biology.) Pp. xi+417. (New York: Academic Press, Inc.; London: Academic Press, Inc. (London), Ltd., 1965.) 96s.

LIGHT: Physical and Biological Action is one of a number of volumes designed to further the reciprocal exchange of information between the physical and biological sciences, according to the foreword by the director of this series. And it is bound to serve this function well. For this very reason, I do not think that it is particularly suited to the needs of the general student of biology with a smattering interest in photobiology, though, by picking and choosing, he may find much to interest him.

The authors have performed the service of putting together data from various fields and sources, and arranging them in tabular form, ready for use at a moment's notice. The first chapter, entitled "Measurement and Characterization of Light", is filled with tables, and six appendixes summarize the relevant physical constants and conversion factors, as well as filter data, methods for measuring light intensity, the use of firefly luminescence as an assay for ATP, and the theory and availability of various lasers.

The main text is divided into four chapters: Chapter 2, "Excitation of Molecules by Light"; Chapter 3, "Chemiluminescence—Reactions and Mechanisms"; Chapter 4, "Bioluminescence—Enzyme-catalysed Chemiluminescence"; and Chapter 5, "Biological Action of Light".

Chapter 2 is a lucid introduction to modern photochemistry and presents data in useful schematic and tabular form. Chapters 3 and 4, in which the authors are writing out of their own experience, to my mind constitute the main intellectual contribution of the book. Chapter 5 touches on such diverse topics as the anatomy of biological photoreceptors, the mechanisms of plant photosynthesis and phototropisms, vision, killing by radiation, photo-reativation, and others. Because of its breadth and the greater distance of the authors from many of the fields it touches on, this chapter is more uneven than the others. It is, however, amply supplied with references to guide the interested reader to the original literature in each of these spheres.

RUTH HUBBARD