up-to-date. Chapters which the present reviewer found especially interesting include those devoted to the application of latices to carpets, to latex paints and to adhesives, and the chapter concerned with latex dipping processes. The chapter dealing with latices in carpet manufacture is particularly useful in giving a timely survey of current practices in what is undoubtedly one of the major areas of application for polymer latices at present.

One disappointment to the present reviewer was the absence of any discussion of possible new and potentially significant applications for polymer latices, such as applications which seek to exploit the large polymer-aqueous phase specific surface area of latices, and applications which seek to exploit the electrical dissymmetry which is present at the interface between polymer and aqueous phase in the case of electrostatically-stabilized latices. Nor is any reference made to the efforts which have so far been made to exploit for medical purposes the absorptive and binding potentialities of the large area of polymer–aqueous phase interface which is present in latices. Another disappointment is the inadequate treatment of artificial latices and their potentialities. However, in spite of these criticisms, this book can be commended as a broad and authorative survey of many of the important aspects of modern latex technology.

D. C. Blackley

Plastics vs. Corrosives

R. B. Seymour

J. Wiley & Sons, New York, 1982

'Plastics vs. Corrosives' is a volume in the SPE Monograph series, and an updated and expanded version of the classic 'Plastics for Corrosion Resistant Applications' (1955). It contains the following fourteen chapters:

—Introduction;
—Fundamentals of plastics;
—Physical properties of polymers;
—Relationship of molecular structure to chemical resistance;
—Effect of solvents on polymers;
—Tests for corrosive resistant coatings;
—Testing of plastics for chemical resistance;
—Protective coatings;
—High solids composites, plastisols, pastes, powders and caulking composites;
—Faoms, castings and plastic mortars;
—Polymeric linings and thermoplastic and structures;
—Reinforced plastic pipe tank and structures;
—Selection guide: typical thermal and physical properties of commercial plastics;
—Selection guide: chemical resistance data for typical commercial plastics.

The first chapters give an extensive introduction to the problem and insist on the structural aspects more related to the chemical resistance of plastics. After discussions in the following chapters on the effect of solvents and the tests for coatings and plastics the author has insisted on a series of important industrial products made of polymers.

The last two chapters provide very useful data regarding the thermal stability of plastics.

The volume is recommended to all professions who must make decisions on the selection specification and use of corrosion resistnat plastics as materials of construction.

D. Feldman

Molecular Motion in High Polymers

R. T. Bailey, A. M. North, R. R. Pethrick

415+xvi pp., Clarendon Press, Oxford 1981

The study of polymers is a growth area since they are rich in properties, with many different phases, and they are central in many technologies, and in other sciences. The size of a high polymer molecule places it intermediate to normal small molecules and to continuum materials, so that the study of an assembly of polymers by some tool characterized by a wavelength will yield results which need skill in detailed chemistry at the short wavelength end, and skill in continuum analysis and mechanics at the long wavelength end. One has a rich field of study even if one completely ignores the fine structure of a polymer, and regard it as a featureless chain characterized only by an effective step length and an effective interaction. On the other hand, properties in the glassy state and very high frequency measurement or effect, say fracture mechanics, also offers a rich but different field of study. Writing a book on the field is not easy, for a comprehensive treatment requires a library. The present book concentrates on molecular motion and provides a valuable survey of the aspects of motion and of the tools that study them. It is not definitive in its scope, but takes the reader through excellent outlines of each field leading him up to the point where the specialist literature can be tackled. The book starts with a straight-forward but essential discussion of vibrations and light scattering extending this to damped motion which are related to statistical theories. There then follows a series of studies of investigative techniques: dielectric, photo luminescence, viscoelastic relaxation, ultrasonic relaxation, n.m.r., e.s.r., mechanical relaxation, spectroscopic studies, neutron scattering and finally there is a chapter on diffusion controlled reactions.

The reviewer found the book eminently readable and can warmly recommend it both to established workers who want a comprehensive survey of polymer motions, and to the beginner graduate student who is faced with ferocious original papers or grossly over simplified reviews.

S. F. Edwards

Stress Analysis for Polymers (2nd Edition)

J. G. Williams

John Wiley and Sons, 1981, £24.50

This book gives a thorough, and for the most part very clear coverage of the analysis of stress and strain (Chapter 1), time independent elasticity and plasticity (Chapter 2), viscoelasticity (Chapter 3), bending problems (Chapter 4), axial symmetry in elasticity and plasticity (Chapter 5), stress functions (Chapter 6) and fracture mechanics (Chapter 7).

The most important changes in the book from the 1st edition have been made in order to expand the treatment of fracture mechanics—a subject in which Professor Williams is an acknowledged expert. This has been achieved by a division of the last chapter of the 1st edition into two substantial chapters on stress-functions and fracture mechanics respectively. As with the first edition I must admit to feeling slightly misled by the inclusion of the word 'polymers' in the title; there really is only a small fraction of the book which is specifically addressing polymer behaviour, and this is done mainly implicitly, *via* the topics of finite strain and time dependence. The reader is presented with a substantial amount of algebraic complexity based on idealised mechanical models which are perhaps only approximations to the behaviour of real polymers. No attempt is made to indicate the magnitudes of the deviations of the various types of polymers from more classical elasticity and plasticity.

This second edition contains several typographical errors, some carried through from the first edition, and others notably in the new chapter 6. Some problems for students working from this text may arise from these errors, and from the occasional changes of notation between the two editions and the recent major review of fracture mechanics by the same author.

Despite these criticisms I welcome this new edition which is undoubtedly an improvement on an already useful book. It fills an important gap in the literature available for teaching stress analysis to engineers.

R. A. Duckett