

inform the general reader rather than impress the specialist. A wide range of topics is covered and it is perhaps significant that three of the twelve papers are concerned with biomedical aspects. Of the remaining chapters, two deal with surface analytical techniques (Luminescence Techniques and SIMS), one with the plasma modification of polymer surfaces, whereas a further four chapters are concerned in one way or another with the interaction of polymers or resins with various substrates. Other less readily categorizable topics include multiphase polymer syntheses and Langmuir-Blodgett films. The editors and the individual authors are to be congratulated for producing a book of a uniformly high standard in which a large number of complex topics are presented in a concise yet highly readable form. Literature coverage is on the whole very good, many authors including references up to 1985. The book can be unreservedly recommended to chemists and materials scientists with an interest in adhesion, biomaterials, polymer dispersions and molecular engineering.

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### Principles of Polymer Engineering

*N. G. McCrum, C. P. Buckley and C. B. Bucknall*  
Oxford University Press, Oxford,  
1988, xii+391 pages, hardback  
£35.00; paperback £15.00  
ISBN 019-856155-5

It is always of considerable interest to review a book which attempts a new synthesis of a subject area. In the present case, the authors have brought together many aspects of polymer science and engineering to provide a core text book

for students in engineering or materials science. The main thrust of the book is to the fabrication and mechanical properties of polymers with special regard to their engineering applications. The authors recognize from the outset that several parallel and interrelated objectives must be fulfilled. First, there should be a sound grounding in polymer chemistry and polymer physics. This requirement is met by several introductory chapters dealing with such topics as polymerization, chemical and physical structure, entropy elasticity, linear viscoelasticity, yield and fracture. Second, the student requires an introduction to fabrication and design. Three very substantial chapters, about one half of the total text, provide a comprehensive account of reinforced polymers, extrusion, injection moulding, thermoforming and many aspects of designing polymers for specific end-uses. Finally, it is recognized that a trained engineer must be able to make quantitative studies of every problem, if a genuine engineering application is to be satisfied. The student reading this textbook is therefore invited at every stage to test his understanding by very well constructed theoretical problems and by many worked examples.

I hope that in this summary of the contents and aims of this book I have conveyed its very detailed and comprehensive nature. One further important point should be made. There is a distinctly original flavour to the presentation of the subject matter which comes from the clever interweaving of fundamental science, practical technology and quantitative calculations. This provides a continuous challenge to the reader and the present reviewer found the book to be a very stimulating read. In conclusion, the authors are to be congratulated on a valuable contribution to the scientific literature and their textbook can be strongly recommended.

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### Integration of Fundamental Polymer Science and Technology—2

*P. Lemstra and L. Kleintjens*  
(Eds.)

Elsevier Applied Science, Barking,  
1988, xviii+607 pages, £65.00  
ISBN 1-85166-208-1

This book contains the texts of papers presented at the 2nd International 'Rolduc' Conference, held at the Abbey of that name in the Netherlands in April 1987. The object of that conference was to 'stimulate discussion between academic and industrial scientists and engineers' aiming towards a better 'integration of science and technology'; surely a very worthy aim. The book is organized, by subject, into eight sections: chemistry; chain-dynamics/conformation; thermodynamics/blends; networks/gels; crystallization; structure/morphology; rheology/processing; fibres/composites. There are 89 contributions in all, including both review articles and shorter contributions on specific research programmes. The authors come, as intended, from both University and Industry and it is reassuring to see how the interests and emphases of the two groups do, in fact, complement each other. Most (but not quite all) of the papers are clearly written; the review articles are all particularly helpful. There is an author index, and a clear list of contributions at the front, but I found the lack of a further subject index frustrating; for example, it is impossible to identify all papers on neutron scattering without reading every abstract. As is often the case, the price is a serious drawback to the purchase of this useful, but perhaps not essential, volume.

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