deuterated analogues, that the configuration of polymer chains in bulk is undisturbed and Gaussian). Finally, Karl Ziegler and Giulio Natta, in the 1950s, dramatically introduced the new ionic and coordination polymerization procedures which led to novel and stereospecific polymers.

Notwithstanding the broad significance of polymers in both the life sciences and modern technology, and the intellectual challenge posed in the understanding of their structure, behaviour and function, recognition of polymer science as a distinct scientific discipline was only grudgingly accorded. Morawetz's book, which has the authority to be expected from a distinguished practitioner in the field, appears at an appropriate time to set the record straight. But while it will be of considerable interest to specialists in polymer science (of which there are many), I doubt if this highly condensed account will appeal to a more general reader wishing to find out what is going on at the other end of the corridor, much less in the building across the road.

In an all-too-short epilogue, Morawetz indicates that polymer science is alive and kicking. The theoretical emphasis is shifting to the condensed state, concentrated solutions and melts, and, on the practical side, there is our every-increasing ability to create a host of novel materials in the service of mankind. □

Henryk Eisenberg is Head of the Center for Structural Biology at the Weizmann Institute of Science, Rehovot 76 100, Israel.

Lead into LEED

D.P. Woodruff

Surface Crystallography: An Introduction to Low Energy Electron Diffraction. By L.J. Clarke. *Wiley:1985. Pp.329. £31.50, $49.95.*

THE investigation of surface crystallography, particularly of semiconductor surfaces and adsorbed molecular species on transition metals, has a key part in surface science (aimed, in these examples, at gaining a better understanding of semiconductor interfaces and of heterogeneous catalysis). Despite its rather general main title, Dr Clarke's book is concerned almost exclusively with only one of the techniques now used in this field, low energy electron diffraction (LEED). The increasingly important role of several other approaches is given only a token airing in the final chapter.

Two previous books have been published on LEED since its development as a quantitative technique in the 1970s, *Low Energy Electron Diffraction* by J.B. Pendry (Academic, 1974) and *Surface Crystallography by LEED* by M.A. Van Hove and S.Y. Tong (Springer-Verlag, 1979). Both of them are very much concerned with theory, and include computer codes for multiple scattering calculations of diffracted intensities versus electron energy for model structures — structure determination in LEED is achieved through comparison of these calculated intensities with experimental results. The present volume includes no such codes (which are now much more readily available) and rather attempts to present a more general introduction to the subject. The author has been involved in both the collection of experimental data and the running of computer codes, a situation more typical now than it was ten years ago when the theory was still developing.

Generally, Dr Clarke does present a balanced view of theory and experiment, of physical principles and practicalities. The treatment is not always exhaustive and the author's own interests sometimes intrude, but not unreasonably so. The book is not without its defects, however. At least one section of the audience to which it is directed, senior undergraduates, would appreciate a more ordered introduction to LEED in which more space is devoted to discussion of physical principles. Formulae are sometimes quoted without justification when they could be derived or rationalized quite simply. The basic notation for overlayer surface meshes, introduced by Elizabeth Wood in 1964 and in widespread use in surface science, is first used on p.14 but not explained until p.50. Similarly, early references to the notion of a "coherence length" in electron diffraction are only explained much later, and even then the author fails to clarify the essential error implied by the use of this terminology.

One further and especially unfortunate example of lack of attention to detail appears on the first page of the book. The pioneering LEED experiment of Davisson and Germer, which won them the Nobel Prize, was reported in 1927 in a paper where the authors clearly described the way in which they were led to investigate electron diffraction as a result of an accident which occurred while studying electron scattering. The story is a fascinating one, especially for students, and it is a pity that Dr Clarke incorrectly identifies the accident and the route of Davisson and Germer's discovery of the experimental evidence for the wave nature of electrons. He also promises, but fails to provide, a reference to a bibliography of this early work.

Nevertheless the book will prove valuable to both experienced and would-be surface crystallographers, who should read beyond this introduction but will find that it otherwise provides helpful background material. □

D.P. Woodruff is Senior Lecturer in the Department of Physics, University of Warwick, Coventry CV4 7AL, UK.

Collaboration in the revolution

Andrew McMichael

Histocompatibility Testing 1984. Edited by E. D. Albert, M. P. Baur and W. R. Mayr. *Springer-Verlag: 1985. Pp.764. DM 340, $98.*

THE international histocompatibility workshops, initiated over 20 years ago, are among the best examples of large-scale international scientific collaboration; for instance, it is unlikely that the serological complexity of the highly polymorphic HLA system could have been unravelled by now without such organized co-operation. Until the ninth workshop, reported in this volume, serology ruled (although cellular typing techniques made an important impact at the sixth meeting in 1975), and alloantisera, obtained by natural immunization during pregnancy, have been used in microcytotoxicity assays to define the A,B and C antigens of HLA Class I and the subsets of HLA Class II. This report, however, portends the revolution — monoclonal antibodies, two-dimensional gels and Southern blots feature alongside the customary two-by-two tables and correlation and frequency tables.

A prime function of the book, continuing the role of its predecessors, is to serve as the dictionary of HLA serology. This is achieved in a series of brief and lucid joint reports describing, in turn, each HLA antigen. Cytotoxic monoclonal antibodies now have an important role, and their present and future contribution is clearly assessed in a review by Julia Bodmer.

The pilot collaborative study on the use of two-dimensional gels to analyse HLA Class II antigens, precipitated with monoclonal antibodies, was surprisingly unsuccessful. There was unexpected heterogeneity in the results from different

Autumn books

The Autumn books review supplement will appear in two weeks time, in the 14 November issue of *Nature*.

The books to be reviewed include *The Background of Ecology, The Cosmological Distance Ladder, The Dialectical Biologist, Mathematical People, Vaulting Ambition: Sociobiology and the Quest for Human Nature, Seven Clues to the Origin of Life, The Joy of Science* and *Chemistry in America, 1876 – 1976.*

Textbooks

Nature's annual textbook review supplement (which in 1985 covered over 100 books for undergraduates and college students) will next year appear on 27 February. Publishers on both sides of the Atlantic are invited to send review copies of texts published during 1985 to the book review editor in the London office.