

This book comprises a very comprehensive account of the main chromatographic material currently in use. As such, it should provide informative background reading for practising chromatographers and perhaps encourage some re-evaluation of current thinking. It is interesting that the later chapters indicate the incomplete current understanding of the chromatographic process in spite of the detailed knowledge of the primary separation material.

R. B. TAYLOR

**Spectroscopic Methods and Analyses—NMR, Mass Spectrometry, and Metalloprotein Techniques:** C. JONES, B. MULLOY and A. H. THOMAS (editors), Humana, Totowa, 1993. Pages: x + 395. US\$59.50, (softback). ISBN 0-89603-215-9.

This book is the latest (17th) volume in the series "Methods in Molecular Biology" and describes the use of complex physical methods in the characterization of biological macromolecules. The application of three groups of technique are covered namely, (i) the use of nuclear magnetic resonance (NMR) techniques with respect to proteins, peptides, nucleic acids and carbohydrates, (ii) mass spectrometry (MS) and associated soft ionization techniques and (iii) a variety of physical methods which lend themselves to the characterization of the metal centre in metalloproteins including Mössbauer, Raman and Electron Paramagnetic Resonance Spectroscopy and X-Ray Absorption Spectroscopy. In the first two sections there is a chapter describing the fundamental principles underlying either NMR or MS followed by more descriptive chapters describing and illustrating their potential application to molecular characterization. In the third section theoretical considerations are dealt with in individual chapters which also include various examples and illustrations of potential uses.

Each chapter, produced by well known experts and in many cases eminent workers, is a well written work of reference but by necessity contains complex scientific and mathematical material and consequently this cannot be considered a beginners' guide to the use of these physical techniques in molecular biology as a knowledge of the underlying mathematical, physical and chemical concepts is required. Indeed, more time spent by the reader on the introductory chapters will yield significant benefits in this regard. However, there are good illustrative examples of the various applications, many excellent practical hints, lists of "dos" and "don'ts", good considerations of the technology required and methods of data interpretation and a comprehensive reference list. In essence, the material covered by this in many ways excellent volume whets the appetite for this subject area, stimulates thought and will certainly expand the horizons of many biochemists and molecular biologists with respect to the molecular characterization of macromolecules. However, the complexity of both subject, technology required and most importantly, correct experimental design and data interpretation, requires collaboration and cooperation with specialist centres, a message clearly stated in many places within the book.

P. H. WHITING