ogy. It is also pleasing the way he tries to give rational explanations for many of the minor points of procedure that have entered the mythology of protein chemistry.

While the book gives good coverage of automatic sequenator methods and applications, the author has sensible reservations about their use. He clearly does not subscribe to Walsh's pernicious concept (Annu. Rev. Biochem. 50 (1981) 261–284) of efficiency in protein chemistry being definable as the ratio of the number of residues placed in sequence to the number of fragments isolated to prove the sequence. As Allen points out (p. 258) redundant information is the safeguard against errors in interpretation or methodology.

While the author certainly recognizes the problem of accuracy in sequence analysis [e.g., p. 231: 'the quality of the data towards the C-terminus of a (30-residue) peptide is often poor'], I do not think that he appreciates the abundance of inaccurate published sequences. Of course (p. 260) 'the methods for amino acid sequence analysis should leave no room for error', but any investigation is a compromise between premature publication and excessive pedantry, and, alas, pedantry generally loses. Amide assignation, whether by direct identification of phenylthiohydantoins or from electrophoretic considerations (p. 219) is a particularly common source of error.

The author may be doing the subject a slight disservice by putting too much emphasis on the use of methods using small quantities of peptides and proteins. For many present day investigations, micromole quantities of protein are readily available, and to use nanomole or picomole methodology unnecessarily is to court problems from external contamination.

A few minor points are worth mentioning. The hydrolysis of some peptide bonds involving proline by trypsin (p. 53) can be rapid, as susceptibility is sequence-dependent. Probably most –Gly–Arg–Pro– bonds will be split at 'normal' rates. The separation of peptides by gel filtration in dilute acid (p. 88) usefully enhances the aromatic retardation effect as compared to using NH_4HCO_3, and is probably kinder to labile –Asn–Gly– sequences. The only disadvantage is the far-UV absorbance of the solvent. α-Nitroso-β-naphthol (p. 158) also detects tryptophan-containing peptides, which show as grey bands on the yellow background, although the sensitivity is less than for tyrosine.

The book is well produced, with abundant figures, good references and useful appendices. It is the only handbook on the subject that I have yet met that I am able to recommend wholeheartedly.

R. P. Ambler

Affinity Chromatography and Related Techniques

Analytical Chemistry Symposia Series, volume 9

Edited by T. C. J. Gribnau, J. Visser and R. J. F. Nivard
Elsevier Scientific; Amsterdam, New York, 1982
xviii + 584 pages. $83.00, Dfl 170.15

This volume is number 9 in the series on Analytical Chemistry Symposia. It adequately reflects the plenary proceedings of the fourth (biennial) International Symposium on Affinity Techniques. The book consists of seven sections: (I) Theoretical aspects; (II) Polymeric matrices and ligand immobilisation; (III) Applications, isolation and purification; (IV) Applications – diagnostic – biomedical; (V) Applications – organic dyes – dye ligands; (VI) Applications – high performance liquid chromatography – affinity partition – peptide synthesis; (VII) Posters.

The book contains only a listing of the titles and authors of the poster sessions, which is a shame because the many interesting and varied presentations at the meeting covered a far wider range of topics than the lectures. Unlike the latter, many poster presentations contained original unpublished results and as with many conferences provided the focus for some of the most important informal exchange of views and information.

An interesting and deliberate departure from previous affinity meetings which is reflected in this book is that the speakers were not from the obvious strongholds of the subject. The lectures also contain a healthy percentage of clinical and industrial biochemistry.

The book fittingly celebrates the sixtieth birthday of the father of the field – it is equally fitting that he should introduce the papers.

Scientifically pleasing is the final resolution of the cyanogen bromide activation chemistry. Wilchek's paper represents a milestone in our understanding of a reaction which has inspired almost every biochemist in the protein purification field.

A useful series of papers on polymeric matrices contains interesting accounts of agarose (Maddon), beaded cellulose (Stamberg), silica (Schustyser), polyvinyl alcohol (Manecke) and methacrylates (Coupek).

Particularly interesting new work was presented on the use of immobilised boronates (Wulff). Useful applications of affinity chromatography in blood, IgG, interferon and fibronectin purification are amongst the papers on the industrial side.

The section on use of dyes as ligands in dye ligand chromatography contains a wealth of novel data including affinity electrophoresis (Visser), nucleic acid-interacting dyes (Muller) and dyes in immunoassays (Gribnau).

Section VI (high performance affinity chromatography) is highlighted by an article from Kula's group on two phase aqueous systems. Although it would perhaps have been better to put this article in the dye section, I am sure readers will find it interesting.

In conclusion, I found this book to be well organised and informative, and lacking only in its coverage of the poster section.

P. D. G. Dean

Mechanics and Thermodynamics of Biomembranes

by Evan A. Evans and Richard Skalak
CRC Press; Boca Raton FL, 1980
254 pages. £26.00

For the last ten or fifteen years there has been much activity in understanding the basic structure of biomembranes. In the early 1960's there was confusion as to whether the Danielli–Davson model modified by Robertson was appropriate.

In recent years, this rather static view of membrane structure has been changed to include the concept of a fluid lipid bilayer structure, this being the dominant matrix into which intrinsic proteins are inserted. Progress in this field based on calorimetry, spectroscopy and a variety of biochemical and physical techniques have made our knowledge of biomembrane structure increasingly sophisticated.

Studies of the mechanical properties of biomembranes have been carried out for many years. Cole in 1932 studied sea urchin eggs and Norris in 1939 studied nucleated red blood cells. Many scientists have continued studies of the macroscopic properties of cell membranes. A particular favourite subject for such study has been red blood cells. The considerable deformability of red blood cells and the unusual shape which these cells can adopt had led many research workers to create imaginative experiments, such as the micropipette experiments, for investigating the mechanical and elastic properties of these structures.

In the monograph 'Mechanics and Thermodynamics of Biomembranes' Drs Evans and Skalak have combined their expertise in physics and engineering to consider the mechanics of biomembranes. They take into account the information which we now have available on biomembrane structure. They analyse the mechanical properties of biological membranes using continuum mechanics, thermodynamics and a knowledge of the mechanics of thin shells. Membrane deformation, mechanical equilibrium, viscoelasticity and viscoplasticity are all discussed. This is a rather specialised book and a knowledge of tensor and matrix mechanics as well as thermodynamics is required. The