it is open to question whether speed of publication, important though it is, should be the only, or even the major, determining factor. Thus this volume comes with only a minimal index (4 pages) (although perhaps one should be happy that there is one at all) and with no record of the discussion which presumably followed each paper. However, possibly there was no time for discussion since 42 presentations appeared to have been packed into the two days of the conference. Either the participants worked very long hours or the sessions must have borne a close resemblance to the old-style FASEB meetings. Under such conditions it seems rather extraordinary that no less than 9 of the papers presented have one of the editors as a co-author, especially since there are some notable omissions. For example, although thrombin binding to platelets is discussed at length in several articles, there is no contribution from P. W. Majerus and his coworkers who have done perhaps the best studies in this area. Indeed the whole area of platelet–thrombin interaction is not at all well covered with the exception of the article by Detwiler and Wasiewski which presents a much more integrative account of this particular topic than is the case for most of the other articles. It would have been very interesting to have had Majerus' comments on the same topic in this volume as well as the discussion between these two workers which would undoubtedly have ensued.

However, studies on platelet–thrombin interaction form a relatively minor component of the volume which is largely devoted to studies on the structural chemistry and enzymic properties of the various forms of thrombin and to the properties of interaction of thrombin with the various proteins which may modulate its activity in vivo. Too many of these articles are either very brief quasi-abstracts or mini-research journal papers and all too few attempt to bring together and correlate information so as to provide a coherent view of the field. I cannot therefore think that this book will be of much use except possibly to the specialist with a particular interest in the properties or mode of action of thrombin. However, since most of the information is likely to appear in properly edited primary journals, one wonders whether even this audience will find the book to be sufficient value to warrant its purchase.

M. C. Scrutton

Plasma Proteins. Analytical and Preparative Techniques

by P. C. Allen, E. A. Hill and A. M. Stokes
Blackwell Scientific; Oxford, 1977
ix + 254 pages. £11.75

The best that can be said about this book is that it contains some information of value to those interested in the plasma proteins. This is almost inevitable because, as is stated in the preface, 'most of the information given is derived ostensibly from the operating instructions issued by the various manufacturers concerned'. As the rest of the book suffers from serious defects, the above quote must raise the question whether, to rely on the manufacturers operating instructions, which are free, would not be a better decision than to purchase the book.

In a brief review only a few of the many errors can be noted: a particularly awful one is the statement on page 191 that 'proteinase is a proteolytic enzyme acting on the middle linkages of peptides. Pepsin and trypsin are examples'. Isoelectric focussing is described as an analytical and as a preparative technique, but without mention of the important work of Radola. Apparently the authors have heard of isoelectric focussing in layers of G-75 Sephadex, which in fact has been practiced both analytically and preparatively for at least 7 years. On page 72 they remark, 'the use of thin layers of Sephadex has considerable future potential in this context'.

Finally, it must be said that some of the operating instructions do not make sense, for example, on page 103, as part of the description of the preparation of kappa light chains from Bench Jones urine, there is an instruction to weigh a damp ammonium sulphate precipitate, but there is no indication as to the use of the information so obtained.

A. H. Gordon

Superoxide and Superoxide Dismutases

Edited by A. M. Michelson, J. M. McCord and I. Fridovich
Academic Press; London, New York, San Francisco, 1977
xvi + 568 pages. £12.40; $24.25

Biological aspects of the superoxide radical anion were initiated by a single publication in 1969 by McCord and Fridovich, identifying the enzymatic activity of erythrocuprein. Since then this single enzymatic reaction and the biological significance of superoxide has been investigated intensively and the experimental data have been increased tremendously. However, I think one should not compare the first paper in this field and its consequences with the ingenious paper by Watson and Crick in 1953, as it is stated in the preface, even if it is a significant paper.

This book contains the lectures given during the first EMBO workshop on superoxide and superoxide dismutases held in June 1976 in Banyuls, France. It makes the broad scientific public familiar with a field which is rather new and in a strong development.

The topic was treated in 45 lectures of varying length (2–41 pages). All aspects were considered but, unfortunately, the discussions were not printed. This is the more regrettable because the field is in an intensive development and, therefore, controversial opinions exist which will be more manifest in a discussion than in a printed lecture. In addition, it would be helpful for the reader if the Contents had been subdivided and if the subject index had been supplemented by an author index.

Beginning with the history of the superoxide dismutase by Fridovich, the first part of the book describes the chemical and physical properties of superoxide. Then superoxide dismutases from different sources (three distinct types have been found: one contains both copper and zinc, while the second type contains iron and the third manganese at the active centre), chemical modification reactions on the enzyme proteins, X-ray analysis and primary structure investigations were discussed, followed by lectures concerning pharmacological and physiological aspects. Special papers treat the role of superoxide with respect to bioluminescence, chemiluminescence, mitochondrial metabolism, hydroxylation reactions, oxidation of NAD and photosynthesis.

In the epilogue the question is asked what are the precise roles of superoxide and superoxide dismutases in the properly functioning human organism. While evidence now exists which strongly supports the original hypothesis that the radical is a cytotoxic species, and is, therefore, something to be eliminated, is that the whole story? Does the radical play more subtle roles as well – roles of a beneficial nature? These questions may be answered in the future.

On the whole, one can say that this book represents the present state of our knowledge of this important enzyme system and superoxide which plays an important role in the metabolism. It is the first book on the whole field from very wide ranging approaches. It is also perhaps the last. Future meetings and reports will no doubt necessarily be concentrated on certain aspects of the subject, rather than a global view, the price to be paid by key developments which touch an ever-widening circle of interests. The more valuable is the general view of the proceedings of this symposium.

Horst Sund

The sample preparation step in an analytical process typically consists of an extraction procedure that results in the isolation and enrichment of components of interest from a sample matrix.Â For drug analysis in plasma or whole-blood samples, the sample preparation should thus remove the drug from the matrix for quantification, separate the drug from endogenous interfering components, and, if needed, concentrate the drug. To anyone practicing analytical chemistry, a sample preparation method should fulfil the following requirements: it should be easy to handle, be fast and robust, automated, and operated at a low cost/sample.Â Matrix components identified by different analytical techniques are shown in the Table below. Serum or plasma proteins are primarily synthesized in the liver; a smaller percentage due to immunoglobulins is produced by lymphocytes and plasma cells. Total protein consists of albumin, globulins, and fibrinogen (in plasma only). Proteins function to control oncotic pressure, transport substances (hemoglobin, lipids, calcium), and promote inflammation and the complement cascade. Changes in total protein levels are due mostly to changes in albumin concentration. Protein separation techniques have traditionally been used to isolate and to purify specific proteins in order to facilitate studies of their enzymatic, physical, chemical and structural properties. These kinds of studies are necessary in order to elucidate the biological role of individual proteins in the cell and to understand the mechanism by which the activity of specific enzymes are controlled. Because protein separation techniques are based on the chemical, physical and enzymatic properties of proteins, the behavior of a specific protein during a separation protocol can reveal a great de Among a number of plasma protein depletion techniques, the ProteoPrep. Â®. 20 represents the most powerful enabling technology currently available.Â Innovations in both sample preparation and protein analysis are therefore necessary to push the analytical capabilities towards the required 1012 dynamic range. In sample preparation, depletion of the abundant, mostly high molecular weight proteins is a necessity to enable loading of a much higher amount of the low copy and/or low molecular weight proteins for analysis. This strategy has been shown to effect a general enhancement of the intensity of the low abundance proteins, as discussed in greater detail in Section 2.