

that tend to be avoided by chemists. Hence it seems to me that Dr Walsh's book fills not only the gap in the treatment of the mechanism of biological redox reactions to which he alludes in the introduction but also a more subtle one in respect to treatment of the entire subject of enzymatic reaction mechanisms from a biochemical, as opposed to a chemical, point of view.

The thesis which underlines the organisation of this text is the fundamental similarity at the mechanistic level of many enzyme-catalysed reactions which may appear at first sight to have little in common to the uninitiated. Dr Walsh has exploited this theme well although in some cases one may quarrel with its application. However the benefits of rationalisation far outweigh the minor problems created. Hence following an initial section devoted to discussions of fundamental aspects of enzyme kinetics and catalysis there are four main sections devoted, respectively, to enzyme catalysis of group transfer; redox reactions, elimination, isomerisation and rearrangement; and carbon-carbon bond formation and breakage. Such a classification follows of course closely that used in the publication 'Enzyme Nomenclature' although several classes, which are separate there, are brought together in this book with considerable advantage.

Extensive cross-referencing is employed both within

and between sections so that relationships are made apparent for cases where a given enzyme may show mechanistic features characteristic of more than one category. The beginning of each section contains a summary of the concepts presented in that section and the text is liberally illustrated with simple diagrams which I found particularly easy to follow. In fact the text makes extremely facile reading and I was continually struck by the sympathetic and relaxed way in which the subject is presented. It may well be that the expert will accuse Dr Walsh of over-simplification in some areas but there is no doubt that he will draw students into this subject in a way that other authors have failed to do. Apart from some trivial misprints my only major reservation is a chapter on the chemical logic of metabolic pathways which forms a curious addendum to the final section and which adds nothing to the overall presentation. One hopes it might disappear in a revised version.

I have no hesitation therefore in recommending this book to anyone wishing to obtain a broad and basic understanding of the mechanisms of biological reactions. I think it will be of particular value to students and, although perhaps too bulky to serve as a required text, I hope it will be made widely available to them through library purchase.

M. C. Scrutton

Plasma Proteins

Edited by Birger Blombäck and Lars Å. Hanson
Wiley; Chichester, 1979
xvi + 401 pages. \$62.00, £22.50

This monograph, to which some twenty authors mostly Scandinavian have contributed, was published originally in Swedish in 1976. It suffers from occasional infelicitous translations which lead to ambiguity and to some erroneous statements. Since the subject matter is predominantly confined to a consideration of human plasma proteins the inclusion of 'human' in the title would have been apposite.

After a short historical introduction the book is divided into five main parts: industrial plasma fractionation methods; transport proteins; immunoglo-

bulins; proteins concerned with coagulation and fibrinolysis; and plasma proteins as diagnostic aids.

In addition to their fundamental structural biochemistry the more physiological and clinical aspects of the transport proteins is described in a well-balanced account, especially of those involved in haem metabolism. This pattern of arrangement is advantageously followed in other sections.

Under the heading of immunoglobulins there is a lengthy discussion of immunological mechanisms embracing such matters as cell-mediated immunity,

defence against infection, transplantation immunology and blood group serology. Although containing valuable information much of this material might be considered more relevant in a textbook of immunology. The account of the complement-system proteins does not include more recent knowledge relating to their structure.

The section on proteins of coagulation and fibrinolysis has an authoritative account of the structure of fibrinogen and of the various domains associated with its reactivity to thrombin, factor XIII and plasmin. The description of the vitamin K-dependent clotting factors and the impact of γ -carboxy glutamic acid on their functioning is fascinating as are also the structural similarities emerging between them and plasminogen.

I found the reference system cumbersome, the references being listed at the end of the book under the names of the authors of individual subsections. A large proportion of the references are to review articles rather than to original sources; some references mentioned in the text are missing from the final lists. There appears to have been no systematic attempt to up-date the references from the 1976 Swedish edition. There is a subject but no author index.

The scope of this monograph is necessarily more restricted than the three volume 'The Plasma Proteins' edited by F. W. Putnam, however it is written from a rather different and interesting point of view.

R. A. Kekwick

Snake Venoms

Edited by Chen-Yuan Lee

Springer; Berlin, Heidelberg, New York, 1979

xxxiii + 1130 pages. \$269.50, DM 490.00

This work represents the most complete review of our knowledge on snake venoms available at the present time. The text is generally well written and does not suffer from the fate experienced by so many multi-authored books, that of uneven style and layout. Most of the chapters contain well-assimilated information avoiding the inclusion of too much original data. Only chapters 5 and 14, on the chemistry of protein toxins and on haemorrhagins, respectively, can be faulted on this score. Chapters are well-referenced in the main; only chapter 10 on the effects of venom on nerve and muscle contains a poorly critical and unselected bibliography. There are two particularly useful sections; one of four chapters on the clinical aspects of snake bite and one group of four chapters on immunological aspects. This latter section provides a comprehensive and up-to-date survey of anti-venin production, snake venom-complement interaction and vaccination against envenomation. Only one chapter is disappointing, that by Seegers and Ouyang on snake venoms and

blood coagulation. In the first part of the chapter, the authors largely ignore the internationally-agreed conventions for blood coagulation factor nomenclature, instituting Dr Seeger's own terminology and theory for prothrombin conversion. Their subsequent discussion of snake venoms and coagulation is satisfactory.

There is no doubt that this work will become a major reference book for workers in the field but at a price of around £130 it must be beyond the resources of individuals and even some libraries. We may find that this expensive book will not compete satisfactorily with the work by Anthony Tu (Venoms, chemistry and molecular biology, published by Wiley, 1977) which although more limited in scope, is a good buy at around £30. Furthermore this latter book is suitable for the worker new to the field and experienced scientists alike whereas Lee's book is more for the specialist.

Neville Marsh