

such a way that it will be particularly useful for the student in toxicology since, although superficial in some aspects, it deals concisely and clearly with a fundamental problem in toxicology, namely how do we identify human carcinogens? It will also be

a useful work for both the industrial toxicologist and government official with an interest in safety evaluation of chemicals.

T.A. Connors

Inflammatory Diseases and Copper

Edited by J.R.J. Sorenson

Humana Press, Clifton, NJ, 1984

622 pages. £79.50

This book is a collection of short papers contributed by participants at a symposium on Inflammatory Diseases and Copper held in Arkansas, 1981. Rapid publication of over 50 presentations was achieved by the use of a 'camera-ready' format. The contents are listed under six main headings which include physiological and biochemical aspects of copper metabolism in normal and inflammatory states, the anti-inflammatory, anti-ulcer, antimicrobial and anticancer activities of copper complexes, therapy of rheumatic diseases and the possible mechanisms by which copper complexes act. Inevitably, as with all multi-author books, a uniform style of writing cannot be achieved. However, this difficulty has, in part, been overcome by restricting contributions to a concise and readable length.

Many interesting points, which cannot easily be found in the published literature, are quoted concerning copper and referenced in this book. It would appear that western diets may often be low in their copper content and that increasing our intake of liver, shellfish, mushrooms and nuts, which are high in copper, might change our copper levels. An important link between copper and normal iron metabolism was established by Frieden and his colleagues several years ago and reviewed by these authors at the symposium. However, this association does not appear to have been extensively explored by others at the symposium in spite of the marked abnormalities of iron metabolism characteristic of inflammatory diseases.

Zinc which, like copper, is viewed as a protective agent is given more attention than iron. Apart from a chapter on Wilson's disease and another dealing with copper-stimulated lipid peroxidation, copper salts and their complexes are seen mainly as beneficial. Indeed, considerable evidence from the Editor's laboratory supports the salutary effects of copper complexes in the treatment of inflammatory states. In addition, the copper-containing proteins, superoxide dismutase and caeruloplasmin, are known to play important antioxidant roles *in vivo*. It is easy to be critical in 1985, with hindsight, about work presented in 1981 particularly in the fast-moving field of oxygen radical research. Statements such as: "Several of the cellular copper proteins which have been isolated have been shown to possess superoxide anion radicals in actively metabolizing cells to O_2 and H_2O_2 ", will be confusing to most.

Interesting postulations about the possible causes of rheumatoid arthritis include: a mycoplasma infection which is influenced by copper complexes and a deficiency of an endogenous copper-containing stabilizer of immunoglobulin G. Probably the most intriguing piece of work presented was a scientific attempt to evaluate the copper bracelet in a controlled clinical trial. Its conclusions suggest that we should not be too ready to dismiss the claims of 'folk medicine'.

This is a well-edited collection of short symposium papers containing a wealth of information on copper and its changes in inflammatory states.

Its value is further enhanced by the inclusion of paper discussions at the end of each presentation. Unfortunately, its high price of £79.50 will severely

limit its wider appreciation.

John M.C. Gutteridge

Molecular Biology of Host-Parasite Interactions

Edited by N. Agabian and H. Eisen

Alan R. Liss; New York, 1984

xiv + 351 pages. £60.00

This book is a collection of the papers presented at the first UCLA Symposium on Molecular Biology of Host-Parasite Interactions held in Park City, Utah, in January/February 1983. As such, it by no means covers comprehensively the topics defined by its title, is very heterogeneous in content and style and is well on the way to being 3 years out of date. Its particular merit is that the meeting was attended by representatives of most of the large groups active in this field so that it provides interesting insights into what was in their minds in early 1983.

There are 5 main parts to the book: (I) parasite genomes, which, perhaps inevitably, deals only with trypanosome kinetoplast DNA and variant surface antigens; (II) biochemistry, subdivided into studies of surface antigens and metabolism; (III) parasite killing, subdivided into non-immune and immune mechanisms; (IV) microbial (sic) patho-

genesis; (V) problems in classification. Perhaps the most useful articles are the 4 workshop reports by Turner (molecular genetics of antigenic variations in African trypanosomes), Hudson and Holder (definition of relevant parasite antigens), Sherman (modification of host in response to parasitism) and Morel (problems and significance of parasite classification - molecular tools in classification and diagnosis).

More than half the articles have already been published in the *Journal of Cellular Biochemistry*. This means that the book has an unusual dual page-numbering system: one of *J. Cell. Biochem.* page numbers and one for this book! It also raises the question of whether it is worth paying £60 for the articles not already published.

W.E. Gutteridge

Host-Microbe Biology. Molecular Biology and Physiology. Novel Systems Biology Techniques. Early-Career Systems Microbiology Perspectives. Characterizations of parasite diversity and interactions with hosts as well as the development of effective control methods are among the chief goals of parasitology. In an era in which microbes (archaea, bacteria, fungi, protozoans, and viruses) are known to play varied roles in host health, Koch's postulates are notably under reconsideration in light of the effects of the microbiome and polymicrobial infections on disease (1, 2). Although researchers have historically focused on pathogenic aspects of microbes, it is now recognized that microbial communities within an organism.