

INTERPRETIVE ENZYMOLOGY By J. G. Batsakis and J. G. Briere. (Pp. xv + 291; 96 figures. \$12.50.) Springfield, Illinois: Charles C. Thomas. 1967. There are already a number of good books and reviews available on this popular subject. I had hoped that this book would be good, but was disappointed.

The authors have made a thorough survey of the use of enzyme assays in diagnosis to which they have added their own experiences. After a short general introduction, and a sensible chapter on the significance of isoenzyme assay, the rest of the book is arranged by organs. Thus the book is more easily helpful to the clinician who wishes to find what alterations of enzyme values are found in a given condition, than to the biochemist who is more likely to be interested in the factors altering the distribution of a given enzyme. As well as the usual systems, diseases of erythrocytes are included but not diseases of leucocytes or platelets; nor is the growing field of enzyme assay in biopsy samples considered. There are no major omissions on the changes of enzyme X in disease Y, few errors, and reasonable differences of opinion. There is a great deal of information which is well laid out, though the index could be improved. The reference list is comprehensive, though last page numbers would help readers who are concerned whether a reference might be a short description or a long review. I found this book useful but it fails at the highest standards on several grounds. It reads too much like a compilation, without sufficient basic considerations concerning the relation between cellular chemical pathology and the derivation of the compiled information by measuring changes in the extracellular fluid. It is too long, both due to much repetition and to the inclusion of irrelevant matter such as muscle biopsy photomicrographs. Yet although the book is on interpretive enzymology it stills needs (and there is inconsistent omission) additional important background biochemistry, such as the nature of the transaminase reaction and its relation to methodology and therefore to results. The I.U.B. nomenclature *does* exist and has been accepted, and the authors should use at least its trivial nomenclature (such as creatine kinase and *not* creatine phosphokinase). Their abbreviations are inconsistent: *eg* LDH but ICD; SGOT but never SOCT).

The book is well produced but expensive, and the foreword is non-contributory.

D. N. BARON

PROGRESS IN ALLERGY Volume XI. Edited by P. Kallos and B. H. Waksman. (Pp. xx + 184; 40 figures; 21 tables. sFr./DM. 41.00.) Basel and New York: S. Karger AG. 1967.

The annual volumes of 'Progress in Allergy' provide valuable summaries of both clinically orientated and fundamental work in immunology. This year is no exception. In the preface Kallos gives a brief and interesting survey of recent advances in immunology and emphasizes the extent to which immunological phenomena can now be explained in molecular terms.

The first article is by Charles Cochrane of the Scripps Clinic and Research Foundation, La Jolla, California. It describes the mechanism whereby the combination of

antigen with complement-fixing antibody leads to the production of factors chemotactic for polymorphs. The polymorphs then cause local tissue damage especially to blood vessel. This work is relevant to nephritis and the nephrotic syndrome caused by circulation antigen antibody complexes and probably to certain forms of arteritis in humans.

The second article is by Epstein and deals with granulomatous hypersensitivity. He maintains that two sorts of reactions may be seen to particulate material which can be distinguished histologically. One form exemplified by silicosis is due to a non-immunological reaction, while the other form, exemplified by zirconium and beryllium granuloma and sarcoidosis, is due to an immune response. The immunological mechanism involved is still unclear.

Mackanness discussed the mechanism of cellular immunity, including delayed hypersensitivity skin reactions, graft rejection, and the killing of microorganisms. He suggests that these reactions are due to antibody carried by cells and suggests that these cells (*eg*, lymphocytes) may have made the antibody themselves or may, like macrophages, have acquired the antibody from lymphocytes. He also suggests that the antibody responsible may be a macroglobulin.

The last article by Kelus and Gell, from the Department of Experimental Pathology, Birmingham, describes the genetically determined allotypic differences between immunoglobulins. It is particularly interesting that antibody against an allotype can be abolished by giving antisera during the neonatal period.

This book is well produced. All the articles are of interest to workers studying the cause of human disease and to immunologists. The first two articles deserve a wider audience.

G. L. ASHERSON

QUANTITIES AND UNITS IN CLINICAL CHEMISTRY By R. Dybkaer and K. Jørgensen. Pp. x + 102. D.Kr. 60.00. Copenhagen: Munksgaard. 1967.

The slow replacement of Imperial units by metric units in British medicine and industry has one compensation, namely, that these metric units will derive from the SI (Système International) range of basic unit. The SI units for length, mass, and time are the metre, kilogram, and second; others concern temperature (degree Kelvin), electric current (ampere) and luminous intensity (candela). Often scientific workers have used the centimetre, gram, second (c.g.s.) system and are now recommended to change to the new system. The SI units are now the only legally accepted system in many countries and are recommended by all the international bodies concerned with the physical sciences. To the six basic units, those bodies concerned with chemistry have added the unit for the amount of a substance (mole). A variety of supplementary units are defined in terms of these basic units and deal with such concepts as energy, volume, density, pressure etc. It is recommended that multiples or fractions of the basic units shall be indicated by a series of prefixes, of which adjacent members of the series indicate changes of 1000 fold. Thus, mm,  $\mu\text{m}$ , nm, designate  $10^{-3}$ ,  $10^{-6}$  and  $10^{-9}$  metres, but cm is not recommended

as it contravenes the 1000-fold step. Fortunately for clinical workers, the litre and its subdivisions are permitted as a unit for volume as an alternative to the cubic metre (100 l.) and cubic millimetre ( $\mu\text{l}$ ) which are inconvenient for many purposes. In fact the litre was redefined in 1964 to be exactly 1 cubic decimetre ( $\text{dm}^3$ ) and not 1.000028  $\text{dm}^3$  as it had been.

The present book puts forward the recommendation of various international bodies for the application of these principles to clinical biochemistry and haematology. The recommendations, intended to be universally adopted, are very clearly presented and discussed with examples. Many are immediately acceptable, being similar to current practice. Two areas call for comment. First, where possible, concentrations should be reported in mol/l. or subunits thereof, instead of the traditional wide range of units as: mg/100 ml, g% (w/v), p.p.m, m-equiv/l., M (molarity) and N (normality). Apart from standardization of units this also gives a clearer insight into the physiological and pathological implications of concentration. Thus the normal serum concentrations of urea, glucose, and cholesterol are all around 5 m mol/l. The second difficulty concerns enzymes. There is no SI unit for enzyme activity but the proposal of the IUB to designate one unit (U) as the transformation of 1  $\mu$  mole of substrate per minute is gaining ground. This book considers an alternative unit, the catal, which is essentially the conversion of 1 mole per second. There are difficulties enough in clinical enzymology units without this further unit, especially as there is ambiguity about which is recommended.

Internationally approved recommendations for the contents of a laboratory report are also made. These are the kind of system analysed (*eg*, serum), the component (*eg*, Na), and the kind of quantity (*eg*, molar concentration) followed by a figure and the unit (*eg*, m mol/l.). Details of arrangement are optional and a list of suggested abbreviations is given which would be useful for automatic data processing. Thus, serum-sodium, molar concentration = 142 m mol/l. would be recognized by many clinicians, but '(B) Ery-Haemoglobin (Fe), ams. (mean) = 2.0 fmol' is calculated to bewilder the unwary physician requesting a mean corpuscular haemoglobin determination.

The acceptance of the approved recommendations, which are worthy of close study, will take time and would be eased if they were approved by editors of scientific and medical journals. Unfortunately the book is expensive and a shortened version of the recommendations would be a useful adjunct for wider study.

A. H. GOWENLOCK

HANDBOOK OF LABORATORY SAFETY Edited by N. V. Steere. (Pp. xii + 568; illustrated. £10 10s.) Oxford: Blackwell Scientific Publications. 1967.

Here we have at last a very comprehensive book on laboratory safety. The Editor, discussing responsibility, says that little, if any, time in chemistry courses is devoted to toxicology. This is only a very small part of the failure in responsibility. Very few laboratory workers in hospital laboratories have any idea of what the total hazard is. Many pathologists are well aware of the danger

of infection from pathological materials and from animal experimentation but few would be able to teach by precept or example the safety measures proposed as a minimum in this manual.

Simple injuries, fire, and hazardous wastes are well described and chapters are devoted to first aid for minor disasters including cardiopulmonary resuscitation measures. These should be taken out, classified into progressive procedures, and hung large on the walls of every laboratory. Perhaps our architects and laboratory planners should also read the vital chapter on shields and barricades and particularly on ventilation and exhaust systems. These are so often forgotten that working conditions even in newly built laboratories are conducive to accidents. Impossible temperatures and inner working rooms not air conditioned are all hazardous. Several chapters are devoted to the handling of chemicals which are flammable, explosive, or produce toxic vapours. Further advice is given on electrical safety, safe handling of isotopes, and dangers from glassware.

In the section on biological dangers there is a remarkable table showing the aerosols and the number of bacteriological colonies produced by them in 14 routine procedures such as centrifugation, in which 10 steps are separately assessed 100 consecutive times. Although the findings that the highest counts are found on decanting (apart from breakages) it is as well to see that each step in such a simple procedure has a hazard of aerosol contamination.

The book includes at the end 111 tabulated pages of the dangerous characteristics of 1,094 chemical substances.

This book is invaluable to any director of a laboratory or chief technical officer. Although not written primarily for the new laboratories it is very relevant to all aspects of our work.

Although sponsored by the Chemical Rubber Company in Cleveland it is handled by Blackwell Scientific Publications. It is certainly worth its price but would have a wider appeal if this could have been more reasonable.

A. GORDON SIGNY

PATHOLOGY OF RATS AND MICE Edited by F. J. C. Roe. (Pp. xxiii + 848; illustrated. £7 15s.) Oxford: Blackwell Scientific Publications Ltd. 1967.

A number of experts were invited by the Nuffield Foundation to contribute well illustrated papers on specified aspects of the spontaneous diseases of laboratory rats and mice. The papers presented at the conference (April 1966) are published in this volume, together with the abbreviated or summarized discussions on them. The work may be described as an advanced text on the special pathology of rats and mice. The presentation varies with the interests of the individual investigator.

All sections are clearly written and usefully illustrated. The sheer volume of information is impressive. Some chapters are reviews (*eg*, Russfield on the endocrine system, ovary and testis) whilst others tend to bibliography or the catalogue.

The discussion reports are clearly the victims of editorial scissors, but occasionally the liveliness of the original persists; there is a delightful argument, quite