

inherent in the production of a book of this kind, it represents a valuable quick reference volume for any organization actively engaged in geochemistry. A vast quantity of basic geochemical data is contained in readily accessible form within its pages.

P. J. MOORE
D. OSTLE

Heat and Stability

Chemical Thermodynamics. Volume I. Senior Reporter M. L. McGlashan. (A Review of Recent Literature published up to December 1971.) Pp. xii+362. (The Chemical Society: London, February 1973.) £8.

APART from the introductory chapter contributed by Professor M. L. McGlashan, the whole of this book has been written by members of the thermodynamics group of the Division of Chemical Standards of the National Physical Laboratory. This has given it a cohesion which would otherwise have been difficult to achieve, and all those concerned may justifiably take a collective pride in the quality of the volume they have produced.

This first specialist report on chemical thermodynamics is concerned primarily with the determination and manipulation of thermodynamic quantities relating to chemical equilibria. This accounts for what would otherwise have seemed rather artificial criteria for limiting the scope of particular chapters. Thus, the admirable essay by Dr D. Ambrose on "Vapour Pressures" makes no mention of recent precise comparative studies of the vapour pressures of isotopic species. Low-temperature calorimetry is described in Dr J. F. Martin's lucid chapter on "The Heat Capacities of Organic Compounds", but because there is usually no need to make measurements on such compounds below 10 K to obtain reliable values for the standard entropy, there is nothing in this chapter on recently developed techniques for measuring heat capacities below 10 K or from, say, 400 K to 600 K. Nor will the reader generally find much discussion of what one contributor calls "the use of thermodynamics in the systematic understanding of chemistry", though the account by Drs S. G. Frankiss and J. H. S. Green on "Statistical Methods for Calculating Thermodynamic Functions" has a thorough survey of methods of this kind for determining potential barriers to intramolecular rotation, and Drs J. D. Cox and I. J. Lawrenson in their chapter on "The P, V, T Behaviour of Single Gases" discuss the connexion between second virial coefficients and intermolecular potential energy functions.

The value of this book lies chiefly (but by no means exclusively) in the wealth

of practical advice that it contains. Random examples of this are the detailed information given by Dr A. J. Head, writing on "Combustion and Reaction Calorimetry", on the methods used to contain samples for combustion, and the description of a flow calorimeter given by Dr J. F. Counsell. No one concerned with manometry, however experienced he may think himself, could fail to profit by the account of this technique given by Dr Ambrose, who also has some helpful suggestions to offer on fitting experimental results to equations. Dr E. F. G. Herington, in a chapter on "Thermodynamic Quantities, Thermodynamic Data and their Uses", discusses relevant books published in recent years, as well as tabulations of thermodynamic data, and his chapter will therefore be useful to lecturers and teachers in this subject as well as to those who, while not themselves making thermodynamic measurements, use thermodynamic data. Finally, Drs O. Kubaschewski, P. J. Spencer and W. A. Dench, at the end of their chapter on "Metallurgical Thermochemistry at High Temperatures", remark on the challenges presented to the rising generation of chemists by the problems in their field. This remark could be generalized, for no young chemist looking through this book should fail to realize that experimental thermodynamics, so far from being a moribund subject, still offers tremendous scope for human ingenuity. L. A. K. STAVELEY

Chemical Genetics

Molecular Biology: An Introduction to Chemical Genetics. By J. M. Barry and E. M. Barry. Pp. xiii+142. (Prentice-Hall: Englewood, Cliffs, New Jersey, 1973.)

An Introduction to Chemical Genetics is a second, updated edition of a volume in the *Concepts of Modern Biology* series. The material presented covers the development of classical genetics, structure of nucleic acids and proteins, evidence of the chemical nature of the gene, the Watson-Crick hypothesis and its implications, and gene regulation in bacteria.

It seems a pity that with the opportunity to update their book, the authors did not extend their coverage to the problems of eukaryotes, since they comment that "the mechanism of gene regulation in higher organisms is a mystery whose solution is an important task for molecular biologists over the coming years". I would have liked to see some comment on such problems as the stability of messenger RNA in eukaryotes, and the evidence from experiments of Harris using cell fusion techniques regarding the influence of cytoplasmic

components on nuclear activity. Organellar inheritance is now an important feature in cell genetics and some mention of these systems would have been useful.

Concentration on the evidence from bacteria and viruses tends to mislead the student into thinking that all problems in molecular genetics are solved. This book is, however, a suitable introduction to chemical genetics for students starting courses in cell or molecular biology or genetics. It would also be useful for teachers of advanced biology in schools.

SHIRLEY E. HAWKINS

Brain Metabolism

Metabolic Compartmentation in the Brain. Edited by R. Balázs and J. E. Cremer. (Proceedings of a Symposium on Metabolic Compartmentation at the Rockefeller Foundation, Bellagio, Italy, July 1971.) Pp. xii+383. (Macmillan: London and Basingstoke, February 1973.) £9.

THE editors of this symposium and several of its twenty-eight contributors pay tribute to Heinrich Waelsch as giving much stimulus around 1960 to the study of compartmentation in neural systems. Waelsch certainly did so, as part of his larger interests in the structure and functioning of neural systems: a subject which has now so greatly developed that reviews of its current status occupy a five-volume still-growing treatise of Bourne.

To what extent can metabolic compartmentation in the brain be valuably described as a subject in itself? This book suggests the answer—to a limited extent only, though that may not have been the intention of the editors nor is it necessarily my opinion. The book under review begins with a subject central to its titular theme: kinetics of precursor-product relationships, studied isotopically (S. Berl) and in situations which suggest distinct metabolite pools. This is followed by accounts many of which do not deduce, but take as premise, the existence of specified regions; and indeed by accounts, as those of Palay and Gleeves, which carry few or no metabolic data but describe investigations of structure by orthodox histological and electron-microscopic methods.

Most of the book, as its title specifies, concerns the brain but this does not apply to the group of contributions headed "Intracellular Compartmentation" of which the greater part concerns liver mitochondria; nor to that on "Some Metabolic Characteristics of Organs other than the Brain". Several accounts are given of the distribution of glutamate and its metabolites, and mathematically based models for metabolite distribution are included. Al-