Stereochemistry

Stereochemistry: An Introductory Programme with Models. By J. Pearce and E. Glynn. Pp. 171+cut-out kit. (Wiley: London and New York, 1976.) £2.75; $5.

TEACHERS involved in imparting the basic principles of stereochemistry in organic molecules to their students are always faced with the problem of persuading the students to purchase sets of molecular models and to use them to build three-dimensional structures, thereby gaining a better understanding of stereochemistry. Pearce and Glynn have produced a kit of models and shapes together with a programmed text containing clear and detailed instructions, so that a student may work at his own pace, in discovering the essential principles of stereochemistry and conformation. A number of fascinating shapes are provided which enable the student to gain an understanding and appreciation of chirality and its importance in stereospecific reactions in both chemical and biochemical systems.

The models are of the well-known 'orbit' type and are easily assembled; cyclohexane and its derivatives in particular are easily constructed and manipulated. The programmed text includes a progressive series of questions for the student to answer, often as a result of the assembly and study of models or shapes. The answer is provided after each question and at the end of each section the essential principles relating to it are reviewed.

The text begins with a discussion of the various types of molecular models, and instructions relating to the construction of models of simple covalent molecules using the kit provided. Conformations of open-chain and ring compounds are discussed, followed by a consideration of chirality and restricted rotation. The various strategies for examining molecular shapes are explained, and the objectives of the learning program summarised. A series of appendices are provided at the end of the text, some of which the reviewer would have found more useful if given either at appropriate places in the text or at the beginning. The text might also have benefited from a more detailed consideration of the D/L and R/S conventions.

This is an excellent programmed text and set of models and shapes for a student to use in discovering the principles of stereochemistry. It is good value for money and can be strongly recommended. A larger set of models attached to the text, however, would be desirable for long-term use to enable the student to build larger models, pertaining to his own interests and possibly outside the range of the text.

D. I. Davies

D. I. Davies is Reader in Organic Chemistry at King's College, University of London, UK.

Aspects of hydrology

Facets of Hydrology. Edited by John Rodda. Pp. xvi+368. (Wiley: London and New York, 1976.) $39; £19.50.

THIS book is a bold attempt to bring together, in a single volume, papers describing much of the hydrological work which has been undertaken in the past decade. Most of the authors are internationally recognised experts, although a few are little known outside their own country.

The stated aim of the book is to provoke the interest of a range of readers, both researchers and practitioners, who are hydrologists or scientists working in allied fields. These aims are achieved with a fair measure of success but, as is often the case with a book produced for a wide and diverse audience, it is not entirely successful. At the one extreme some chapters may be regarded as superficial by experts in the particular subject; at the other there are chapters which are written for readers who themselves already have a very specialised knowledge.

Nevertheless, every reader will find much of interest in a book which will enable him to acquire knowledge of many of the facets of hydrology with which he was not familiar.

It is not possible to comment on each of the chapters in the book and to single out any particular chapter is simply to reflect the reviewer's own interests. The chapters on river gauging, water quality, basin studies, statistical methods, and law, however, each demonstrate in their own way, the diversity of material presented.

In the chapter on river gauging three new methods are discussed with a sensible balance between theory and practical applications. The fact that there is a chapter on water quality will be particularly welcomed by those people who have always argued that the division between water quality and water quantity is an artificial one. The chapter on basin studies presents a representative selection of the very wide range of work undertaken in recent years. That on statistical methods is one of the chapters requiring a fair degree of specialist knowledge. It tackles the problem of spatial variation in hydrological variables in a way which will be extremely useful to those people who are confronted with the problem. The chapter on law is a comprehensive review of the water law and will be of interest to all water resource engineers.

The overall impression is of a book which should find its way on to the shelves of most serious hydrologists and of all well stocked libraries.

M. J. Hamlin

M. J. Hamlin is Professor of Water Engineering at the University of Birmingham, UK.