

knowledge of calculus, for example additional maths at "O" level in the UK or an introductory year college math course in the USA.

Because of the wide range of natural phenomena discussed, the theory that can be developed in the commendably brief compass of 275 pages is necessarily kept at a lowish level. The penalty is that arguments are sometimes terminated a little prematurely. For example, in Chapter 3 on fluids, the forces acting in a Newtonian liquid flowing in a rigid tube are clearly deduced, but then used only in the special case of a constant pressure gradient. This precludes any application of such

theory in discussing arterial haemodynamics in the next chapter. However, it does provide a clear "launching point" for any lecturer using the book as a class text.

It is my impression that this book will present first- and second-year students of physics, biology or medicine with challenging reading and I look forward to using it with such classes next year. It may prove a useful introduction to any courses concerned with the application of classical physics to biomedical problems. □

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## Food — science and politics

J.W.T. Dickerson

*Nutrition: in Perspective.* By Patricia A. Kreutler. Pp.700. (Prentice-Hall: 1980.) £12.30, \$18.95. Workbook also available.

THERE has recently been something of a spate of books on nutrition, and new ones must therefore face increased competition. The market itself has also increased, for we are becoming much more aware of the relevance of food to life and health in the modern world. Moreover, all shades of interest and competence, from the lay reader to the academic, can profit from the study of the subject. This book has been aimed somewhere in the middle of the range. It "has been written to provide students with an understanding of the science of nutrition"; to acquaint them "with the issues facing nutritionists, scientific and government leaders, and consumers in contemporary society", and "to enable students to translate knowledge into practice".

The first part of the book is concerned with the scientific principles of nutrition, and contains nine chapters. The second part discusses aspects of nutrition for everyday living, in seven chapters. The author and publishers are to be congratulated on the plan and layout of the book. The text is clear, direct and liberally illustrated throughout with tables, figures, photographs and the occasional cartoon. The author is clearly an expert communicator of her subject. References in the text have been kept to a minimum and are listed, with recommendations for additional reading, at the end of each chapter.

A feature of the book is the introduction, as appropriate, of "Perspectives" — applications to health or topics of contemporary concern. Thus, in the chapter on carbohydrates, the perspectives are sugars in foods, diabetes and hypoglycaemia, and dietary fibre. The chapter on lipids contains a perspective on diet and

heart disease. Perspectives on sodium and hypertension, iron enrichment and the politics of fluoridation are inserted in the chapter on minerals, whereas fad diets are discussed in the chapter on food in contemporary society.

The whole book is a pleasure to read. It is interesting, informative and contains a great deal of valuable information. □

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## Chemistry for life

Peter Garratt

*Essential Organic Chemistry for Students of the Life Sciences.* By A.P. Ryles, K. Smith and R.S. Ward. Pp.306. (Wiley: 1980.) Hbk £14.90, \$44.10; pbk £5.25, \$15.75. *Organic Chemistry: The Basis of Life.* By Bernard Miller. Pp.472. (Benjamin/Cummings/Addison-Wesley: 1980.) \$18.95, £11.85.

THE problem of teaching chemistry to students in the biological sciences is one of striking a balance between relevance and comprehension. The student, who probably has no great interest or aptitude for chemistry, wants only that material which is immediately relevant to his biological studies, whereas the teacher knows that to have any appreciation of the role of chemistry in biology the student must understand the concepts and principles on which the subject is based. These two books, although emanating from different continents and very different educational systems, clearly illustrate that this problem is also felt by writers of texts for such students.

Both books deal, as their titles imply, only with the organic component of the

chemistry required by biologists. RSW (for short) has three introductory chapters, the first on bonding, functional groups and mechanism, the second on stereochemistry and the third on techniques. Then follow nine chapters presenting a conventional and systematic treatment of organic chemistry from the alkanes to the proteins and nucleic acids. The last three chapters deal with tetrapyrroles, physiologically important compounds and metabolism and biosynthesis. Miller has an introductory chapter in which "basic principles" are sketchily and sometimes erroneously treated, followed by a chapter on the alkanes which includes further introductory material on bonding. The remaining 16 chapters give a similar outline of organic chemistry to that found in RSW, except that the ordering of material differs. For example, chirality is introduced on p.23 in RSW but not until p.197 in Miller, rather late for a book subtitled the *Basis of Life*. Miller integrates the biological examples more intimately with the chemistry than do the British authors, and each chapter ends with a summary of the important principles and concepts found therein. Both texts have problems distributed within the chapters, and there is a student study guide available for Miller and one promised for RSW.

The layout, appearance and style of a text are important to its student user. Both texts are well produced, Miller being a two-colour printing, in which the colour has been judiciously used, while RSW is in monochrome. Miller has clear structural diagrams and well drawn, and therefore useful, representations of space-filling models, but it also has unnecessary photographs of oil rigs and similar irrelevant objects. RSW has, in general, clear structural formulae except for those representing the conformations of cyclohexane and for ascorbic acid, the nicotinamide co-enzymes and co-enzyme A. RSW also uses Haworth rather than conformational formulae for the carbohydrates. Since shape is so important for biological activity, conformational structures are much more instructive, and the treatment in Miller, which uses such structures, is clearly superior.

Both of these texts would form a satisfactory basis for a course in organic chemistry for biologists, but whether much would be gained over using a standard chemistry text such as Solomons' *Organic Chemistry* (Wiley, 2nd Edn 1980 — see over for review) is a moot point. Miller certainly makes a more direct attempt to show the relevance of the chemistry to biological molecules and processes than does RSW and the style is easier to read, but the sections on orbitals and bonding would require remedial attention from the lecturer. □

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