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Book Review

ALAN JONES

Chemistry: an introduction for medical and health sciences

John Wiley & Sons, 2005,
300 pp; price 37.90 Euro
ISBN 0-470-09289-0 (softcover)

A sound appreciation of concepts in the field of chemistry is a necessary prerequisite to understanding within the increasingly interdisciplinary medical and health sciences. Alan Jones' book is intended as a self-teaching introduction to chemical terms and concepts. This does not have instant appeal to those studying the medical and health sciences and the educational challenge for Jones was to encourage learning across disciplines.

Each chapter starts with some diagnostic questions that check chemical understanding, with answers given at the end of each chapter. Readers are encouraged to take in the 'feeling of chemistry' and to pace their progress through the material. Considerable encouragement for gaining genuine understanding of concepts is given. A glossary of words, concepts and definitions at the end of the text provides a readily accessible *aid memoir*. The bridging of concepts in chemistry to health issues occurs throughout the text, with real life 'stories' highlighted within boxes. There are many gems here that will have value to the student reader, but also the seasoned chemistry lecturer required to teach outside their primary discipline. Jones uses a mix of recent newspaper headlines and historical examples to illustrate chemistry concepts, and also draws on personal family experiences. Examples include Alan Baxter's loss of an Olympic metal because of his use of an American Vick inhaler (isomerism), Uncle Jack's death through antiseptic poisoning by phenol in hospital (acidic burning) and Alfred Nobel's death by heart attack (biological role of nitric acid). Towards the end of each chapter there are 'further questions'. These are generally imaginative, but their usefulness to intended readers would have been enhanced by provision of answers. The few references given at the end of most chapters are from the secondary literature, such as *New Scientist, Chemistry in Britain* and *Education in Chemistry*. These are useful sources of further reading, particularly for lecturers wishing to supplement their teaching materials.

The content is much as one might expect for a text of this type. An introductory chapter deals with terminology and processes used in drug manufacture, 'atoms and things', and chemical reaction and the periodic table. These aspects are little more than mentioned, with, for example, no consideration of the trends within the periodic table. There are five chapters covering organic compounds: Covalent; Alcohols and ethers; Carbonyl; N-contain; and Vitamins, steroids, hormones and enzymes. These are followed by the chapters: Ions, electrolytes, metals and ionic bonding; Water; Acids and bases; Oxidation and reduction; Analytical techniques; Radioactivity; Rates of reaction; and An overview of chemicals fighting disease. The fifteenth and final chapter considers 'numbers and quantities', and includes a suitably gentle treatment of logs and moles.

There are some disappointments and unnecessary replication. The same figure illustrating the lock and key model for enzyme catalysis appears in two chapters, yet there is no mention of other models of enzyme action. There is also unnecessary replication of material on aspirin, which features (appropriately) at various points within the text. Treatment of pH seems dull in comparison with the other lively descriptions and, surprisingly, there is no cross reference to the consideration of logs later in the text. Not all abbreviations are explained at first mention, which the intended readers will no doubt find frustrating.

Despite some limitations, this text is a gentle introduction to concepts in chemistry and a useful facilitator of cross-disciplinary learning within the medical and health sciences. It is also recommended as a source of illustrative examples for teachers wishing to make inspiring links between chemistry and modern health issues.

Richard O. Jenkins
De Montfort University, Leicester, UK

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