Biochemistry of Alcohol and Alcoholism

by L. J. Kricka and P. M. S. Clark
Ellis Horwood; Chichester, 1979
285 pages. £19.50

This book makes a valuable contribution to the already extensive literature on alcohol. Written by two clinical biochemists it brings together, in a form not previously seen by this reviewer, all of the pertinent information relating to the ways in which alcohol affects the various substances that are, or can be measured in blood and other body fluids for the purpose of diagnosis and the improvement of understanding of disease. Perhaps the most valuable of the seven chapters is the one devoted to biochemical tests for the detection and assessment of alcohol abuse. How to diagnose alcoholism is a perennial problem and one which few authors of books on alcohol have previously tackled, partly because until comparatively recently few reliable data were available on how to do it, but mainly because of the inherent difficulties. Even the present authors have had to admit that 'as yet no simple and reliable biochemical test to distinguish the ethanol abuser from the non-abuser is available'. This is singularly unfortunate since one of the hallmarks of the alcoholic is his inherent dishonesty – at least in relation to alcohol – so that reliance upon the clinical history, the mainstay of medical practice is misplaced in this condition. Nevertheless, prudent use of the information collected together in this book goes some considerable way towards resolving the problem.

Other chapters in this easy-to-read, well-laid-out book deal with the biochemistry of alcohol metabolism in man, the acute toxicity of alcoholic drinks and the effect of alcohol abuse upon metabolic processes in general. There are brief chapters on the definition of alcoholism and on diseases associated with it. This is, however, primarily a book about the clinical biochemistry of alcohol. It is up to date and well referenced. It can be thoroughly recommended to anyone with a more than social interest in alcohol, but particularly to those who encounter alcoholism professionally whether in the clinic or laboratory.

V. Marks

Vitamin D

Edited by D. E. M. Lawson
Academic Press; London, New York, San Francisco, 1978
x + 433 pages. $42.40, £20.50

Over the past decade there have been enormous strides made in our understanding of the mode of action of the fat-soluble vitamins (notably vitamins D and K) which had until then lagged far behind the detailed knowledge available for most, although not all, of their water-soluble counterparts. In the case of vitamin D this explosion of knowledge has demonstrated clearly the nature of the relationship between the regulation of serum Ca^{2+} concentration and the adequacy of dietary supply which was implicit from the earlier nutritional studies. However the studies have also revealed a unique situation in which a substance classified as a vitamin is transformed by successive tissue metabolism to an active principle which promotes input of Ca^{2+} to the blood both from the diet via its effects on the intestinal mucosa and also

apparently from bone, the body's major calcium store. In the intestine at least 1α,25-dihydroxycholecalciferol, the active form of the vitamin, acts in a manner closely analogous, if not identical, to that utilised by other steroid hormones, i.e., entry into the cell and combination with a cytosolic receptor which then undergoes nuclear translocation and modulates transcription of cellular DNA. It is also of interest that progress in understanding the hormonal mechanisms responsible for regulation of serum Ca^{+} concentration has been paralleled by appreciation of the role of intracellular Ca^{2+} movements and of cytosolic Ca^{2+} concentration in stimulus–response coupling.

Numerous publications have been devoted to progress in our understanding of the metabolism and modes of action of vitamin D including, for example, the proceedings of a symposium of the Biochemical Society (1974) and of a very extensive workshop on vitamin D (1977). However, so far as I am aware, this is the first comprehensive multi-author text devoted to the vitamin which incorporates our newer understanding of its biochemistry and physiology. The treatment is very thorough, ranging from detailed consideration of the chemistry of vitamin D and its derivatives (Bell) to assessment of the clinical implications of vitamin D metabolism in treatment of a range of conditions mostly associated with bone demineralisation (Stanbury and Mawer).

Between these extremes are articles devoted to vitamin D metabolism (Holick and Deluca); to the effects of the vitamin and its metabolites on the intestine (Lawson; Norman) and on bone (Barnes and Lawson) and to the interaction between vitamin D and its metabolites and the peptide hormones also involved in maintenance of serum Ca^{2+} concentration (Parsons) as well as the obligatory discourse on the intracellular vitamin D-dependent Ca^{2+} binding protein by Wasserman and his coworkers. The article by Holick and Deluca gives some idea of the recent historical developments in respect to vitamin D metabolism and also of the difficulties faced in isolation and identification of the various metabolites. In this and other articles it is also apparent that current progress has far from solved all the problems in this field. For example, although we have some degree of understanding now of the mode of action of 1α,25-dihydroxycholecalciferol, especially in the intestine, other metabolites, notably 24,25-dihydroxycholecalciferol and 1,24,25-trihydroxycholecalciferol, have as yet no defined role despite the fact that the former is the major circulating form of the vitamin D metabolites. Furthermore, while it is apparent from the articles by Norman and by Lawson that understanding of the role of 1α,25-dihydroxycholecalciferol in regulation of intestinal Ca^{2+} transport is approaching the molecular level this is far from the case for bone. Indeed the article on this aspect of the system by Barnes and Lawson makes clear the degree of confusion still existing as to whether or not a primary effect exists and whether this is on resorption or on deposition or both.

This book represents then a detailed treatment of the chemistry, metabolism and physiology of vitamin D and its relationship to other systems. Given the rate of current progress in this area it will, I fear, soon become rather dated especially since few papers published later then 1976 are referenced. However it will certainly serve as a useful source of information on what may be described as phase 1 of recent developments in vitamin D research and as such should be made widely available.

M. C. Scrutton

Development of Therapeutic Agents for Sickle Cell Disease

Edited by J. Rosa, Y. Beuzard and J. Hercules
Elsevier/North-Holland; Amsterdam, New York, 1979
xviii + 262 pages. $44.00, Dfl 90.00

This book records the proceedings of the international meeting on Development of Therapeutic Agents for Sickle Cell Disease held in Paris July 1978. It has been produced with great speed and accuracy