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

although the extremely small print may make it difficult late night browsing for all but the youngest of readers.

The volume is set out in three sections. The first deals with some aspects of structure/function relationships of haemoglobin S and also has some chapters on membrane function and red cell deformability in the sickling disorders. The second part is devoted entirely to a discussion of inhibitors of gelation and sickling and the final section covers the more clinical aspects of the anti-sickling agents including the still-vexed problem of extracorporeal carbamylation as an approach to the management of the disease.

The book is well produced, is full of new and interesting data and contains one or two particularly good chapters on the red cell membrane and the molecular mechanisms of sickling. Having read it one is struck by the fact that although there has been a vast amount of work done over the last few years we are still far from developing a useful agent for the management of sickle cell anaemia. However, this book should be available to everybody working in the sickle cell field and because it contains one or two excellent chapters on membrane function and structure/function relationships of haemoglobin, it will be of interest to an even wider audience.

D. J. Weatherall

A Clinical Companion to Biochemical Studies

by V. Schwarz
W. H. Freeman; San Francisco, 1978
xii + 116 pages. $13.50 (hardcover), $6.50 (softcover)

This book is designed to help the linking of biochemical knowledge to medicine with a view to improving the motivation of the preclinical student to learn the numerous concepts and data involved in biochemistry itself. It is hoped that it would dispel the doubts about the relevance of a biochemistry course to medicine. As a result clinical case presentations have been tried in many medical schools to illustrate the relevance and usefulness of biochemistry, both to the understanding of normal and also disease states.

There are a wide range of biochemical problems involved in clinical disorders which are amenable for study. It is quite obvious the choice cannot be comprehensive for the diseases with known biochemical factors are too numerous. The author chose to describe diseases which he thought led to insights into biochemistry and did not relate the choice either to the incidence of disease or the frequency with which a student was likely to meet it during his clinical studies. Another choice was made in that the disease descriptions are adequate for understanding the underlying basic biochemical disorder, but need to be supplemented with reading from standard biochemical texts. Because of these aims the great tendency was to investigate in detail inherited enzyme defects, in other words 'inborn errors of metabolism'.

The book begins with an investigation into lactase deficiency, fructose intolerance, galactosaemia, glycogen storage disease, glucose 6-phosphate dehydrogenase deficiency, phenylketonuria, homocystinuria, hyperammonaemia and orotic aciduria. Only hyperlipidaemia and myocardial infarction represent cardiovascular disorders. On the endocrine side thyrotoxicosis, diabetic ketosis, pseudohypoparathyroidism, congenital adrenal hyperplasia are dealt with. On the toxicological side, lead poisoning, alcoholism and monosodium glutamate toxicity are interestingly described. The haematological disorders include pernicious anaemia, sickle cell disease and hereditary spherocytosis. The clinical pictures are clearly and briefly delineated. However, the brief presentation tends to hide some of the clinical interest in the interpretation of data. The biochemical interpretations are clear and further reading indicated where necessary. On occasion results are given in the text but references have to be consulted for further information.

This is a fairly classical response to an important