C, epidemiological aspects of vitamin A and cancer, metabolic bone disease associated with total parenteral nutrition, nutrition and protein turnover in man, clinical implications of dietary fibre, the role of selenium in Keshan disease, sucrose–isomaltose malabsorption and nutrient absorption in gnotobiotic animals.

Clearly this volume contains a mixture of interesting essays, and should appeal to the clinical and laboratory nutritionist or biochemist alike. The Editor is to be congratulated on assembling a team of distinguished researchers to write these essays, and on guiding them well enough to ensure that the end result is a readable and useful volume. I look forward to seeing further volumes in future years.

DAVID A. BENDER


ERNEST BEUTLER
Grune and Stratton, Inc. New York, 1984, pp. 188, £19 (paperback)

This manual first appeared in 1971 with a second edition in 1975. The format of the present third edition is similar to earlier editions; no assays have been deleted but several have been modernized and seven introduced. New assays are glutathione S-transferase, superoxide dismutase, phosphoglycolate, phosphatase, Na⁺–K⁺ and Mg₂⁺-ATPase, pyrimidine-5'-nucleotidase (assay and screening test), creatine and glucose. These additions reflect to some extent recent trends in red-cell studies. The late inclusion of creatine is surprising considering that it was established and soon utilized as a sensitive criterion of a young red-cell popu-

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tion by Griffiths & Fitzpatrick in 1967, 4 years before the first edition. The title has always been misleading; this book is a laboratory manual for the assay of red-cell enzymes and intermediates and is not concerned with metabolism except for a three-page transplant on this topic from earlier editions in which Meyerhof continues to be spelt Meyerhoff.

As before, the third edition is filled with useful data on normal values, molecular weights, reagents, buffers, preparation of haemolysates and extracts, and general laboratory practice. The assays have been checked and this reviewer has satisfactorily used many of them. This book is to be thoroughly recommended.

A. GRIMES

Basement Membranes and Cell Movement, Ciba Foundation Symposium 108

R. PORTER and J. WHELAN (Editors)

This book is the result of a Symposium held at the Ciba Foundation in January 1984. The theme of basement membranes and cell movement is well served in the range of viewpoints represented by the 14 contributed papers from the 27 listed participants. Most of the papers are commendably concise and concentrate on results and implications rather than the details of experimental procedures (which are nevertheless available from the references). As with many published proceedings of symposia, often the more interesting information comes up in the discussions which also give a flavour of the participants' personalities, and their interaction. Merton Bernfield, as chairman, sets the scene with general comments on the structure and function of basement membranes and his guiding hand can be seen in the discussions.

The book covers two main areas, with some papers dealing with the structure and biochemistry of the various basement membrane components and others dealing with the interactions of these components both with themselves and with cells in morphogenesis, maturation and disease. For the biochemist, the list of authors for the first part is impressive and the information in the papers remains up-to-date and benefits from their occasional speculations. There are good papers from the groups led by Timpl and Hogan, and especially from Hynes, who explains how the alternative splicing of the mRNA from the single fibronectin gene can give rise to different protein sequences. These microheterogeneities may well be important to the various functions of the protein, indeed there is more recent evidence outlining similar microheterogeneities in laminin, so at least the complexity of the situation is becoming clearer. Martin's paper on the 'matrisome', a stable supramolecular complex of several basement membrane components, clearly emphasizes a theme which often crops up in the discussions, that while we are gaining more and more information on the structure of some components, the time is coming that we must assess their interactions. This is not only because they might reinforce each other's stability (Hook describes how the interaction between collagen and fibronectin is stabilized by proteoglycans) but also because these complexes are what the cells actually see.

There is some concentration on the mechanism of attachment of cells to various basement membrane components, with discussion of receptors for laminin (Liotta) and type IV collagen (Hogan, von der Mark). However, as pointed out by Furcht, attachment of cells may be important, but the migration of attached cells is undoubtedly more important. This brings up the observation that while much of the Symposium concentrated on 'Basement Membranes', the second half of the title 'and Cell Movement' was not so fully served. This may mean that not so much is known about it or perhaps basement membranes do not affect cell movement besides merely containing populations of cells. There are some instances where cells do cross basement membranes, notably in metastasis, and some papers do address the problem of how cells get through these structures (perhaps by localized digestion by specific enzymes). However, there is clearly much to be done on this topic.

Finally, four specific basement membranes (submandibular gland, muscle, kidney and skin) are described in some detail, showing how knowledge of their composition and structure can help in understanding both their development (glandular formation) and their involvement in disease (autoantibodies in nephritis and skin blistering disease).

In summary, an excellent book with much to offer biochemists interested in basement membranes, not only in their own field (and with Timpl estimating some 50 components in basement membranes, there is clearly much still to be investigated) but also in the somewhat wider field of cell–matrix interactions.

G. B. SHELLSWELL