

one else, preferably from another institution). *Learning Pharmacology Through MCQ* is attractively set-out and includes almost 200 wide-ranging and generally good multiple choice questions, together with answers and concise explanations, but it contains a number of unfortunate errors which should have been caught at some stage.

Question 67, for example, is marred by the substitution of an α for a β in the opening statement, and students will be puzzled by item 4 of Question 22, where the statement that the affinity constant of an antagonist will be a larger numerical value the more potent the antagonist is said to be false. It is also inappropriate to include proprietary with non-proprietary names, as in the trick completion to Question 119, item 1, where the reader is asked to compare the hypnotic powers of nitrazepam and Mogadon! A corrected and expanded edition would be valuable, though my own experience has been that

MCQs are likely to be of more help in teaching than in learning.

Finally, Gaddum. This book has long been the standard introduction to pharmacology and the comprehensively revised new edition will continue to serve this role. The authors have managed to introduce much fresh material (for example on peptide neurotransmitters, interestingly renamed as neuromessengers), while at the same time retaining the essence of Gaddum's succinct, balanced style, and his emphasis on principles and experimental evidence. This book will form an excellent complement to more detailed texts such as Katzung's *Basic & Clinical Pharmacology*, a second edition of which appeared in 1984, and the forthcoming successor to Schild's *Applied Pharmacology*, now in press. □

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On cancer's track

I. Bernard Weinstein

The Molecular Basis of Cancer. Edited by Peter B. Farmer and John M. Walker. Croom Helm/Wiley: 1985. Pp.349. Hbk £25; pbk £12.95, \$29.95.

RUDOLF VIRCHOW, the father of cellular pathology, stated that no one, even under threat of torture, could define cancer. Approximately one hundred years later we are, at last, approaching a definition of the disease at both the cellular and molecular levels. These developments provide the subject matter for *The Molecular Basis of Cancer*, a text designed for students entering cancer research who are already conversant with basic biochemistry. The book is quite comprehensive, and spans the range from clinical and pathological features of the disease to biochemical details of cancer causation and therapy. As a collection of chapters by six authors, however, it suffers from repetition and lack of overall coherence.

Cancer research is moving so rapidly that although there is a detailed description of the cell surface, exciting new information on receptors, growth factors, protein kinases and signal transduction is not covered. The reader will also have to look elsewhere to learn of the intriguing roles that certain oncogenes play in controlling the transcription of specific genes. The plethora of oncogene changes now revealed in rodent and human tumours also supersedes much of the information given here. Furthermore, the pre-eminent role often assigned to dominant acting oncogenes must be reconsidered, in view of the fact that in certain hereditary can-

cers (retinoblastoma and Wilm's tumours) the loss of function of recessive genes (perhaps anti-oncogenes) plays a role in tumour formation. Normal genes that can suppress the tumour phenotype are also being revealed in cell hybrid studies.

Absent too is the new information on human tumour viruses, including the causative role of human papilloma viruses in cervical cancer and HTLV II in hairy cell leukaemia. Similarly, although the accounts of chemical and radiation carcinogenesis and short term bioassays are highly informative as far as they go, they do not discuss the roles of activated forms of oxygen in cancer causation, the role of protein kinase C and phosphoinositol turnover in tumour promotion, the development of highly sensitive immunoassays and post-labelling methods to detect carcinogen-DNA adducts, and the opportunities offered by "molecular epidemiology" for defining more precisely the roles of environmental factors in the aetiology of human cancers.

Very recent advances related to diagnosis and therapy are also not included, but it would be churlish to continue with a catalogue of omissions from the book. Rather, the above comments should be taken not so much as criticism of the various authors but to indicate the impossibility of compiling a fully up-to-date account of cancer research. As it stands, the book is a valuable primer for students entering the field. But they will have to read the contemporary literature assiduously to track the lightning pace at which cancer is being defined in molecular terms. □

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Old and Primrose come of age

Stephen Oliver

Principles of Gene Manipulation: An Introduction to Genetic Engineering, 3rd Edn. By R.W. Old and S.B. Primrose. Blackwell Scientific:1985. Pp.409. Pbk £11.80, \$21.

IT HAS become commonplace for organizers of symposia on molecular biology to open proceedings by showing a slide to illustrate the exponential increase in the thickness of the abstracts books through successive meetings. Something similar is happening to Old and Primrose's *Principles of Gene Manipulation*; the third edition is twice the size of the second. However, this standard text has not merely put on weight it has also, like the subject it describes, gained in maturity. This shows itself in a greater sureness of touch in the opening chapter, where the basic techniques are laid out, and also in a greater willingness to discuss the problems and pitfalls in using gene technology and how these may be solved or circumvented.

New chapters have been added on bacteria other than *Escherichia coli*, and on yeast and other microbial eukaryotes; on microinjection of DNA; and on industrial applications (including patent law). Other chapters, such as those on cloning in plant and animal cells, are much expanded. Ironically, but inevitably, some of the newest sections seem the most dated. This is particularly true of the account of site-directed mutagenesis, an area in which there has been rapid progress since the end of 1983 when the literature search for this volume appears to have been completed. There are also some surprising omissions. Cloning in *Streptomyces* is dismissed as being too similar to *E. coli* and, in any case, reviewed elsewhere. This biologically distinctive and industrially important group of organisms surely deserves more extensive treatment in the fourth edition.

The increased size of the volume has permitted the authors more space to describe the biology of the systems they deal with. This makes for stimulating reading which places the technology in context. In the chapters on applications, it is stressed that the main importance of recombinant DNA technology has been to extend and deepen our knowledge of molecular biology. This third edition will do the same for a new generation of students, who will also appreciate its reasonable price tag and clear, informative diagrams. □

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