

Book Reviews

A dictionary of genetics (3rd edition). Robert C. King and William D. Stansfield. Oxford University Press, New York. 1985. Pp. vi + 480. Price £15 PB, £25 HB.

When I first started out as a research student, I treated myself to a copy of the first edition of this dictionary. Its current battered appearance testifies to the use it has had over the ensuing years, so a new edition was more than welcome. The last 15 years have seen a rapid expansion in genetics and this is reflected in the increase of the number of entries from 3800 in the first edition to nearly 6000 in the third edition, due mostly to the burgeoning jargon of molecular genetics.

The general layout is good and the definitions and explanations well-written, although the choice of illustrations is somewhat idiosyncratic, as in any illustrated dictionary. The range of entries covered reflects the long pedigree of the dictionary and many hark back to a gentler era of genetics. For example; one finds entries for fowl (see poultry breeds), pullet, *Gallus domesticus*, chicken, cockerel (this being a North American production, cock does not appear) and an illustration of comb shapes, rubbing metaphorical shoulders with Southern blotting and Pribnow box.

As a reference volume, the turgid Germanic efficiency of the "Glossary of genetics and cytogenetics" probably has the edge over "A dictionary of genetics" because the original references are quoted for most entries. However, the last edition of the "Glossary" was published in 1976 and so pre-dates most of the important developments in molecular genetics. For some entries, clarity has been obtained at the expense of some rigour, but this is not necessarily a disadvantage when all one wants to know is what an unfamiliar term roughly means. But the omission of references to original definitions or usage does prove irritating when more detail or more formal definitions are required.

The last 55 pages are taken up with a series of useful appendices including a chronological list of significant developments and publications in evolutionary biology and genetics. To some extent this must be a personal view of the compilers, but it was noticeable that quantitative genetics received little attention.

Overall, this is a practical and up-to-date volume, but at £15 for the paperback edition, the price probably puts it out of the reach of undergraduates who would benefit from it most. I would certainly recommend it as a "good buy" for a library and those who can afford it.

REFERENCE

RIEGER, R., MICHAELIS, A. AND GREEN, M. M. 1976. *Glossary of genetics and cytogenetics: Classical and molecular*. Springer-Verlag, Berlin.

JOHN BARRETT
Department of Genetics
University of Cambridge

Mechanisms and regulation of carbohydrate transport in bacteria. Milton H. Saier, Jr. Academic Press, Orlando, Florida. 1985. Pp. xviii + 209. Price £39.00.

It has been recognised for well over a quarter of a century that carbohydrates are taken up by micro-organisms via specific proteins in the cell envelope that exhibit many of the kinetic properties of enzymes; this recognition underlies their original designation as "permeases" by the late Jacques Monod and his colleagues. But, although this also enabled numerous models to be constructed that attempted to describe in molecular terms how vectorial translocations might be achieved, and (even more importantly) that attempted to predict how such processes might be regulated in the cell, these models inevitably suffered from a paucity of hard evidence, associated with the difficulty of actually handling the proteins involved. It is only in recent years that techniques, pioneered largely in the U.S.A. by men such as E. P. Kennedy, L. A. Heppel and S. Roseman, have made it feasible to identify, purify and characterise these membrane-associated proteins; even newer techniques (e.g., gene amplification, cloning and DNA-sequencing) have enabled the primary structures of (as yet fewer than a handful) these materials to be elucidated. Clearly, the pace of advance has been accelerating and continues to accelerate; equally clearly, it is becoming increasingly difficult even for those in the field to retain a sense of perspective.

Dr Saier has, for a number of years, been conscious of this need. With C. D. Stiles, he wrote a book in 1975; he published a perceptive and influential review of one type of carbohydrate uptake mechanism—the PEP:sugar phosphotransferase system ("PTS" for short)—in 1977; he followed this up in 1978 and 1979