

This material will also be useful to teachers who wish to introduce students to the practical significance of haemoglobin studies. The viewpoint, however, is very much that of the protein chemist rather than the clinician – sickle-cell *anaemia* is not now the commonly used term, for example, because *anaemia* is not the most significant feature of the disease. This disease remains a standing reproach to the proponents of a rational approach to drug design. One could hardly ask for a clearer understanding of the structures of the molecules involved, or of their pathological properties, but despite considerable research effort no effective and safe treatment has been found.

Sandwiched between these two chapters is a third, on globin evolution. This chapter is mainly concerned with protein sequences, and the deduction and interpretation of phylogenies based on the differences between them.

Overall the treatment is very successful, but there are several serious disappointments. The first is with the first chapter, which is meant to provide a quick introduction to protein structures in general. This material is inadequate and out of date. Indeed the text and pictures draw very heavily on the authors' earlier collaboration. This is surprisingly true of the early parts of the second chapter as well; I cannot resist pointing out how much cheaper one could buy these same words and pictures 14 years ago.

The final disappointment covers a much wider area than the present book. The drawing style developed by Geis, like some of the computer drawing programs used by others, produces extremely clear images, which are often beautiful. However, I always find it very hard to get any great feeling for the mechanism of the function of macromolecules from drawings of this kind, and I am sure this is not merely a personal handicap. There is a challenge to illustrators to devise diagrams which might be less superficially representational but which could give a better understanding to the student of the statics and dynamics of real proteins.

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The Cartoon Guide to Genetics. By LARRY GONICK and MARK WHEELIS. London: Harper and Row. £3.50 (paperback). ISBN 0 L6 460416 0

This book provides a historical treatment of the broad discipline of genetics, commencing with prehistoric and biblical times, and extending to the applications of recombinant DNA technology. On the way there is good coverage of Mendel's laws, linkage, the genetic code, and synthesis of informational macromolecules. The contributions of a number of major and a few minor historical figures are outlined and the interaction of science and society touched upon. The content and level of coverage is appropriate to first- or second-year undergraduates at a British university and if all my own second-year biology students knew the contents of this book I would be happy.

However, as the title indicates, this is not a serious book. It is a series of strip cartoons with captions, speech in balloons, thoughts in bubbles, 'snap', 'ugh' and 'gulp'. Who would dare to recommend such a book to students? One fears that they might never take us or our subject seriously afterwards. I, for one, am prepared to take that risk. The science is sound, there is a brief but balanced bibliography and a good index. My only complaint is that T. H. Morgan gets no mention, though the treatment of mapping and recombination is otherwise good.

I am not sure how effective the cartoon style might be in communicating the material to students in the absence of further reading or instruction, but for revision the light touch of this book might well be very effective.

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