Book Reviews

The Royal Society of London: The Evolution of Adaptation by Natural Selection.
London: The Royal Society 1979. 604 pp., 19 figs., 5 tabs. Hard bound £ 9.50

This book, a symposium volume of a Royal Society discussion meeting held in 1978, reports on research in evolutionary biology. After the editors' (Maynard Smith and Holliday) preface 10 papers are presented, followed by a concluding article in which Cain introduces the general discussion (not included in this volume).

In the first complex the molecular basis of evolution is discussed in three papers: Orgel – 'Selection in vitro', Hartley – 'evolution of enzyme structure', and Clarke – 'evolution of genetic diversity'. A transition to the other main complex, comprising problems of selective explanations for certain characteristics which seem not to increase the Darwinian fitness of individuals displaying them, is provided in the paper of Kirkwood and Holliday ('the evolution of ageing and longevity'), which includes both of the main topics of this symposium. By using methods of evolutionary game theory particular phenomena are studied by Maynard Smith (contest behaviour in animals) and Dawkins and Krebs ('arms races between and within species'). Problems of 'the evolutionary genetics of sexual systems in flowering plants' are discussed by D. and B. Charlesworth whereas Williams presents 'the question of adaptive sex ratio in outcrossed vertebrates'. Clutton-Brock and Harvey study the testability of adaptive theories in biology ('comparison and adaptation') and finally the importance of developmental constraints (Baupläne) is emphasized by Gould and Lewontin in a rather distinguished manner.

This symposium volume provides a good insight into recent evolutionary research in Great Britain. Summarizing the future development of evolutionary biology the editors especially stress the advantages of microorganisms for the experimental study of evolution.

K. Hammer, Gatersleben

Stephenson, W.K.: Grundlagen der Zellbiologie. Struktur-Moleküle-Stoffwechsel. Ein Lernprogramm.
Berlin, Hamburg: P. Parey 1980. 235 pp., 200 figs., Soft bound DM 30,–

This book is meant primarily as a programmed self-study course in cell biology. The material is organized into 36 study units; each such unit comprises a short (1-3 pages) introductory text, followed by a number of questions in one column, the answers in the adjacent column. In this part of each unit much extra data is provided. After 2 or more units a questionaire (with the answers) is provided for self-testing. The maximum score is indicated, together with the minimum to be scored for passing. In these units, the cell organelles and the main metabolic processes (glycolysis, citric acid cycle, respiratory chain and photosynthesis) are discussed.

Although the book is written from the view point that life is best described as an organized energy transfer system, with ATP being the main link, it is not made clear why ATP and the like are well suited for this role, nor how the bound energy in ATP is generated. A number of units treat subjects of elementary physical and organic chemistry. Enzymes are treated in a sub-elementary way, as are such processes as the hexose monophosphate shunt and fatty acid metabolism. Links between the separate processes and their (mutual) regulation are only weakly discussed and while the line drawings are very clear and instructive, the EM photographs are generally of poor quality. The text contains hardly any gross errors. Although one can differ in opinion on whether more or less should be presented in an introductory course on cell biology, I would be very happy if my students had the mastery of facts aimed at in this book. I think a thorough study of this book would substantially lower the number of failures in cell biology courses!

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