

## Book reviews

**Pritchard, D. J.: Foundations of Developmental Genetics.** London, Philadelphia: Taylor and Francis 1986. 372 pp. Soft bound £ 14.00.

Developmental genetics is one of the most fascinating, and at the same time, one of the most rapidly developing fields in biology. There exists, however, a remarkable shortage of suitable textbooks. I am always extremely curious, therefore, to examine any new approach for presenting developmental genetics at the basic level.

My impression of Pritchard's book can be summarized by saying that while it contains a great deal of fundamental information and encompasses many areas of developmental biology, it remains, on the whole, at too fundamental a level. In my opinion, this presentation is not suitable for use as a text in a university course on developmental genetics; it may just contain sufficient information for a basic lecture course in general biology. One of my criticisms concerns the decision of the author to include very comprehensive presentations on basic molecular biology, which does not really belong to this type of textbook. In addition, this part of the presentation is by necessity extremely compact and does not even supply the necessary knowledge to the reader. It could, therefore, be omitted, and the space gained used to elaborate on developmental problems. To give an example, it is useless to try explaining the bithorax gene complex of *Drosophila* and its background on two pages. I feel that the present edition of this book would make an excellent basis for an extended textbook on developmental biology which is so urgently required.

W. Hennig, Nijmegen

**Oliver, S. G.; Ward, J. M.: Wörterbuch der Gentechnik** (translated from the English edition by S. Bertram). VIII/221 pp. 49 figs. 5 tabs. Stuttgart: G. Fischer 1988. DM 29.80.

The gap between genetics and genetic engineering is growing. One effort to bridge this gap was the publication of the *Dictionary of Genetic Engineering* by Stephen G. Oliver and John M. Ward (Cambridge University Press, 1985), of which there is now a German translation. This is a true dictionary which defines, in alphabetical order, the most common technical language and laboratory slang used in this branch of applied genetics. From "adapter" to "two-step ligation", more than 600 terms are defined and visualized. The reader is able to acquire a familiarity with a technical language which is even beginning to penetrate into the media. In addition, this handy booklet provides a list of restriction enzymes, restriction maps, DNA markers, genetic nomenclature and maps of *E. coli*, *B. subtilis* and *S. cerevisiae*, the genetic code (also for mitochondrial DNA), and the abbreviations for the amino acids. An English-German index improves access to the English literature. This booklet will be a useful aid to students, lecturers, and researchers in cellular and molecular biology, biotechnology, and genetics.

H. F. Linskens, Nijmegen

**Li, K.; Lewis, L. A.: A Novel Approach to the Evolution of Microorganisms.** New York, Atlanta: Vantage Press 1987. 61 pp. 12 figs. 21 tabs. Hard bound. \$ 10.00.

Li and Lewis, the authors of the book under review, propose a Lamarckian theory of evolution. From experiments on the

induction of gentamicin resistance in bacteria, they conclude that environmental conditions do not act as selective agents, but as inductive ones, directly causing adaptive mutations. Li and Lewis will probably not convince many of their readers, since their own explanation of the observed adaptation (which is the incorporation of plasmid-DNA into the chromosome) does not involve a directed mutation, but represents a special kind of epigenetic change. This is also shown by the rapid reversion to the original state.

For plant physiologists, the book contains an illustrative appendix. It is generally thought that the development of adventitious shoots and roots reflects the totipotency of plant cells. Li and Lewis are apparently unaware of this and wonder whether the development of new, adventitious roots and shoots on coleus cuttings is "... caused by mechanism of spontaneous mutation and natural selection? Is the 'civilized' New York City water used in this experiment mutagenic, causing these changes?"

G. J. de Klerk, Lisse

**Preuss, F.: Der Aufbau des Menschlichen – Die Mitschöpfung der Lebewesen an ihrer Gestaltung.** Berlin, Hamburg: Parey 1987. 222 pp. 5 figs. Soft bound. DM 28,-.

The author tells us that the evolutionary theory presented in this book is a "completely new biological-philosophical theory" and represents an alternative to all other theories, which are, according to him, either atomistic-mechanical or mythical-religious.

Like many others, Preuss proposes that nature should be divided into three realms: the inorganic, the organic and the mental. The organic realm has emerged from the inorganic, and the mental from the organic. This emphasis on emergence is common in present-day biophilosophy. As Francois Jacob puts it in his "Logic du vivant": "... at every level of integration some new characteristics come to light" which "can be explained by the properties of the components; they cannot be deduced from them."

Unlike most biophilosophers, Preuss then argues that each realm has its own kind of energy, viz., the physical, vital, and mental energies, respectively. These energies direct the evolution within their realm. Thus, evolution is not the result of non-directed mutations and selection, but of the action of organisms towards adaptation. Preuss' vital and mental energies look much like the ghost-in-the-machine force that characterized nineteenth-century vitalism, as well as Lamarck's evolutionary theory, and they are accordingly both scientifically and philosophically erroneous.

Preuss is a well-known embryologist. The number of philosophizing books by prominent biologists is growing steadily. Some of these books are exciting and valuable, but others do not offer much of the deeper intellectual perspective they promise. Preuss' book belongs to the latter category. Furthermore, although the bibliography is quite extensive, it only quotes two or three of the more important biophilosophical works, and does not indicate a serious, scholarly analysis. Finally, this is undoubtedly one of the most tedious books on biophilosophy.

G. J. de Klerk, Lisse