

## BOOK REVIEW

*Cell Cycle and Cell Differentiation*

Edited by J. Reinert and H. Holtzer  
Springer-Verlag; Berlin, Heidelberg, New York, 1975  
xii + 331 pages. DM 69.00, \$ 29.70

This book consists of 18 review articles, each one of which is written by an acknowledged expert in his field. The unifying concept which links the chapters together is the role of the cell cycle in cell differentiation. Each contributor reviews the relevant experiments on cell lineages in a particular developing system. The editors are to be recommended for their choice of contributors, as the latter's expertise covers a wide range of topics from differentiation of mammalian cells, higher plant cells, insect cells, neurogenesis in the amphibian embryo, insect oogenesis, to the life cycle of *Neurospora* and dimorphism in a prokaryote. A chapter on the role of histones in the regulation of the cell cycle is also included.

The contributors are not all in agreement as to whether cell division is a necessary accompaniment to cell differentiation, and widely differing views are presented. However, a general agreement is reached that a single eukaryotic cell cannot give rise to a large number of divergent cell types in its *immediate* progeny. The

cell is restricted to one pattern of development by progression through a cell lineage. Disagreements arise on the controversial subject of 'quantal' cell cycles. A 'quantal' cell cycle is defined as one which produces two daughter cells having a different synthetic capacity from the mother cell. The evidence in his own field is reviewed by each contributor, for or against the necessity of passage through the cell cycle for the appearance of new cell functions, and the whole spectrum of viewpoints is represented in the different chapters.

As more is known about gene expression many biologists and chemists will be debating the role of the cell cycle in activation of quiescent genes. This book very adequately relates what is known on the subject in a wide range of systems and should provide 'food for thought' (and future possible experiments). It also provides a valuable reference work for those engaged in research in the area of gene expression during development.

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