

## Book Review

### **The Way of the Cell Molecules, Organisms, and the Order of Life**

Franklin M. Harold (Ed.); Oxford University Press, Oxford, 2001, 320 pages, ISBN 0-19-513512-1, £19.95

A response to the question, 'What is life?' is one of the grand themes that resonate through the scientific conversation of this century. The study of life as a natural phenomenon, a fundamental feature of the universe must not be allowed to slip into the black hole. The purpose of the author is to assess how far we have come toward a scientific understanding of the phenomenon of life.

Franklin Harold is Emeritus Professor of biochemistry and molecular biology at Colorado State University. He is an investigator, scholar, philosopher and expositor. His book is a richly detailed, meticulously crafted account of what modern science can tell us about life as well as one scientist's personal attempt to wring understanding from the tide of knowledge.

- What is the relationship of living things to the inanimate realm of chemistry and physics?
- How do lifeless but special chemicals come together to form those intricate dynamic ensembles that we recognise as life?

To shed light on these questions, the author focuses on microorganisms, because the cell is the simplest level of

organisation that manifest all the features of the phenomenon of life.

Microorganism can make a biosphere all by themselves, and did so for billions of years when the earth was young. Franklin Harold shows that as simple as they appear when compared to ourselves, every cell displays a dynamic pattern in space and time, orders of magnitude richer than its elements. It integrates the writings and couplings of billions of molecules into a coherent whole, draws matter and energy into itself, constructs and reproduces its own order and persists in this manner for numberless generations while continuously adapting to a changing world.

Professor H.J. Morowitz, George Mason University, recommends this book 'to those who do science and those who observe the work of scientists to better understand their world'.

M.R. Kosseva<sup>a</sup>  
J.F. Kennedy<sup>b,\*</sup>

<sup>a</sup>*Department of Chemical Engineering,  
The University of Birmingham,  
Centre for Bioprocess Engineering,  
Edgbaston B15 2TT, UK*

<sup>b</sup>*Chembiotech Laboratories,  
The University of Birmingham Research Park,  
Vincent Drive,  
Birmingham B15 2SQ, UK*

\* Corresponding author.