

Cells to Civilizations

Cells to Civilizations is the first unified account of how life transforms itself--from the production of bacteria to the emergence of complex civilizations. What are the connections between evolving microbes, an egg that develops into an infant, and a child who learns to walk and talk? Award-winning scientist Enrico Coen synthesizes the growth of living systems and creative processes, and he reveals that the four great life transformations--evolution, development, learning, and human culture--while typically understood separately, actually all revolve around shared core principles and manifest the same fundamental recipe. Coen blends provocative discussion, the latest scientific research, and colorful examples to demonstrate the links between these critical stages in the history of life.

Coen tells a story rich with genes, embryos, neurons, and fascinating discoveries. He examines the development of the zebra, the adaptations of seaweed, the cave paintings of Lascaux, and the formulations of Alan Turing. He explores how dogs make predictions, how weeds tell the time of day, and how our brains distinguish a Modigliani from a Rembrandt. Locating commonalities in important findings, Coen gives readers a deeper understanding of key transformations and provides a bold portrait for how science both frames and is framed by human culture.

A compelling investigation into the relationships between our biological past and cultural progress, Cells to Civilizations presents a remarkable story of living change.



Enrico Coen was born in Liverpool in 1957 and studied genetics at the University of Cambridge. In 1984 he moved to the John Innes Centre, Norwich, where he is today, working on the genetic control of plant development. He is the author of "The Art of Genes", a critically acclaimed popular science book on the principles of development. His awards include the Science for Art Prize (1996), the EMBO Medal (1996), Linnean Gold Medal (1997) and Royal Society Darwin Medal (2004). In 1999 he was made Professor in Biology at the University of East Anglia. Professor Coen was elected a Fellow of the Royal Society (1998) and Foreign Associate of the US National Academy of Science (2001).