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Genesis: The Evolution of Biology

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GENESIS: THE EVOLUTION OF BIOLOGY.

By Jan Sapp. Oxford and New York: Oxford University Press. \$70.00 (hardcover); \$29.95 (paper). xix + 364 p; index. ISBN: 0-19-515618-8 (hc); 0-19-515619-6 (pb). 2003.

In this book, the author offers a masterful and refreshing demonstration of evolution's place within the history of biology. Unlike many histories of evolutionary biology, Sapp offers a broad perspective that demonstrates significant historical relationships among evolution and cell biology, developmental biology, molecular biology, and theories of association and symbiosis. Moreover, Sapp expertly explains why it is that certain ways of thinking about the history of biology have become so entrenched. These historiographic sections invite readers to rethink narratives of the neglect of Gregor Mendel, Archibald Garrod, or even cytoplasmic heredity and embryology.

Beginning with Lamarck and Darwin, the author considers evolution in its 19th century intellectual and social context. The transformation of evolution during this period is placed in the context of changing ideas of the cell, development, and heredity before considering the impact of Mendelism. Sapp then considers the formation of the evolutionary synthesis and its impact before turning to the rise of molecular biology and the further transformations wrought by molecular evolution and genomics. Throughout this book, the author blends his considerable understanding of biology with interesting analysis of its history, representation, and social, political, and cultural contexts.

Genesis is an engaging and enjoyable overview of the history of evolutionary biology. It is destined to become a standard textbook for history of biology classes and should be read by every biologist interested in the history of evolution.

MICHAEL R DIETRICH, *Biological Sciences, Dartmouth College, Hanover, New Hampshire*

EVOLUTION: THE HISTORY OF AN IDEA. *Third Edition.*

By Peter J Bowler. Berkeley (California): University of California Press. \$24.95 (paper). xix + 464 p; ill.; index. ISBN: 0-520-23693-9. 2003.

This new edition makes an already excellent book even better. The material set forth so ably in the two previous editions (1983, 1989) is updated with recent sources, plus the work is almost completely rewritten.

As before, Bowler's volume is separated into three parts. The early chapters survey evolution theories from the ancients onward, setting these in relation to traditional creationism. Particular attention is given to the period running from the 18th-century Enlightenment up to the eve of Charles

Darwin's *Origin of Species* (1859). The middle part of the book deals with the Darwinian revolution itself. The third part, which presents perhaps the biggest challenge to a writer surveying this subject, includes chapters on the "eclipse" of Darwin's selection theory in the period 1875-1925, the influence of evolution theories on society and culture in that era, the evolutionary synthesis forged by biologists in the 1930s and 1940s, and the debates in recent decades over topics such as sociobiology, cladistics, and punctuated equilibrium. Bowler has streamlined all of this material, reducing the number of chapters (11 and 12, respectively, in the earlier editions) to ten in the current volume.

Bowler synthesizes innumerable works by other historians of science in this book: the bibliography thus fills 62 pages and includes a substantial number of works from the 1990s and early 2000s. Yet Bowler also distills his own specialized and often pioneering studies of many of the topics he covers: his bibliography (quite justifiably) devotes an entire page to his own books and articles. Indeed, it is striking to note that Bowler's publication list runs parallel to the chronology covered in the volume itself, beginning with the 17th century and ending with the 20th. The later chapters of *Evolution: The History of an Idea* are, therefore, enriched by Bowler's most recent works, which are especially useful for making sense of the murky period subsequent to the rediscovery of Mendelian genetics, yet prior to the formation of the modern evolutionary synthesis.

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PLANT GENOME: BIODIVERSITY AND EVOLUTION. *Volume 1, Part A: Phanerogams.*

Edited by A K Sharma and A Sharma. Enfield (New Hampshire): Science Publishers. \$125.00. xiv + 386 p + 1 foldout; ill.; authors index. ISBN: 1-57808-238-2. 2003.

When I received this book, I opened it to discover 12 chapters, 386 pages, and a title that I did not understand. My colleagues enlightened me, indicating that "phanerogam is an outdated term for the Spermatophyta (angiosperms and gymnosperms)." Enlightened, I was surprised to discover that Chapter 10 is on bryophytes. It is one of the better chapters of the book and it reviews phylogenetic divergence in lower land plants. The volume's broad range of articles includes reviews of evolutionary processes operating at the level of families (Brassicaceae, Taxaceae, and Rosaceae), genera (*Triticum*, *Helianthus*, and *Chrysanthemum*), and species (*Betula*, *Aegilops*, and *Arabidopsis*). Most chapters include phylogenetic schemes. There is also a review on the role of in situ hybridization in understanding plant chromosome