

Graham Bell, *The Evolution of Life*. Oxford University Press 2015. 488 pp. \$64.95 USD (Paperback ISBN 9780198712572).

Graham Bell is Professor and Chair of the Department of Biology at McGill University, where his research is focused on genetic variation and species diversity in environments that vary in space and time. He has published over 120 research papers and is also the author of *Selection: The Mechanism of Evolution* (OUP, 2007). *The Evolution of Life* was written by Bell following a decade of teaching the evolution course to students at McGill University. The students take the course because it is required, often times, by the curriculum. However, Bell consistently attempts to explain to his students that the course is more than just a requirement toward graduating. Most students, he notes, are familiar with the biology of individuals and with the principles that govern photosynthesis and DNA replication. However, they are often not familiar with the biology of variable populations, and therefore with the principles that govern evolutionary change. This book is a culmination of his attempts to elucidate these principles to his students.

The course that he designed this textbook for is about adaptive evolution, the intricate design of living bodies, and how they are exquisitely tailored for myriad ways of life. The main goal of a course on evolution, he contends, is to explain how very complex and highly integrated organism arose through a natural process, without the guiding hand of a supervenient intelligence. Students struggle to understand this aspect unless the mechanism of Darwinian evolution and its consequences form the framework of the course and inform all its aspects.

The various chapters of the book are grouped into six themed parts—Basics, History, Origins, Adaptation, Selection, and Interaction. Chapters within the Basics section cover the evidence for evolution and the engine of evolution. The three chapters within History cover the tree of life, the diversity of life, and the ancestry of life, respectively. Origins is composed of three chapters, which delineate the origin of variation, the origin of species, and the origin of innovation. The Adaptation section is similarly composed of three chapters and addresses adaptation and evolved design, evolving bodies, and the dynamic genome. The Selection section, again composed of three chapters, explicates artificial selection, experimental evolution, and selection in natural populations. Finally, the last section, Interaction, addresses sexual selection, cooperation and conflict, and symbiosis and struggle. The further reading that is suggested at the conclusion to each chapter is drawn mainly from secondary sources, consisting of reviews and syntheses that were written primarily to provide a non-technical introduction to a broad field. They are, however, based upon primary literature that reports original research findings. Said further readings provide a convenient entry point into the primary literature.

The text follows very closely the sequence of lectures in Bell's evolution course at McGill University. Its purpose is to provide a full course for university students who have not taken previous courses dedicated to evolution, with as little extraneous material as possible. This book is not intended to be a substitute for more specialized or more extensive treatments of its subject matter; rather, its sole purpose is to provide grounding in the main features of evolution on earth. It accomplishes this task and I highly recommend it for introductory biological courses, as well as for review by those who have been out of college for some time.

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