SCIENCE

How profoundly has chance shaped life on earth? And what, precisely, do we mean by chance?

Bringing together biologists, philosophers of science, and historians of science, this is the first book to untangle the far-reaching effects of chance, contingency, and randomness on the evolution of life. *Chance in Evolution* begins by placing chance in historical context, starting with the ancients and moving through Darwin and his contemporaries, documenting how the understanding of chance changed as Darwin's theory of evolution by natural selection developed into the modern synthesis, and how the acceptance of chance in Darwinian theory affected theological resistance to it. Subsequent chapters detail the role of chance in contemporary evolutionary theory—in particular, in connection with the concepts of genetic drift, mutation, and parallel evolution—as well as recent empirical work in the experimental evolution of microbes and in paleobiology. By engaging in collaboration across biology, history, philosophy, and theology, this book offers a comprehensive and synthetic overview both of the history of chance in evolution and of our current best understanding of the impact of chance on life on earth.

"Chance is pervasive in evolution and manifests in multiple ways, yet those ways have not always been clear. Without an exploration of chance in evolution, we do not truly understand evolutionary biology, so research in this area is crucial. This book will be highly valuable to biologists, philosophers, historians, and religious thinkers alike; each will gain a more complete picture of the meanings of chance in evolution and the empirical work on its prevalence. Productively bringing together scholars from several disciplines, the book's many clear, compelling, interesting, provocative, and illuminating chapters push the discussion forward."
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"A volume like this is overdue and could potentially have an important impact. The range of topics *Chance in Evolution* addresses is a big part of what makes it interesting and valuable. From quite good historical chapters to a section on chance in the history of life, which fills a fairly serious gap in the contemporary literature, this book will be well suited to student and professional biologists, and historians and philosophers of biology."
JONATHAN MICHAEL KAPLAN, Oregon State University

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