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EDITED BY

Howard Ochman

University of Texas



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Preface

MICROBIAL LIFE WAS ONCE NEARLY ENTIRELY IGNORED by evolutionary biologists, who focused on organisms with blatantly visible polymorphisms, like flies and birds and plants. And for their part, microbiologists of the past ignored evolutionary biology, despite some early attempts at classification, for largely epidemiological purposes. The resulting vacuum presented incredible opportunities for new discovery, and for the second—or third or fourth—acts of their careers, a curiously large number of biologists have switched their attention to microbial evolution. Whatever their motivation, they include population and evolutionary biologists who look to bacteria as new study organisms, as well as die-hard bacterial geneticists who have begun considering the evolutionary aspects of their favorite bug. Of course, there are the few who were wise enough all along to ponder these issues and got a head start on the rest of us.

The contributors to this volume fall into all of these categories and bring varied perspectives to the topic. Each was asked to write about anything that they thought interesting or provocative within the broad sphere of microbial evolution. Microbes have provided a new understanding of evolution that would have seemed inconceivable a few decades ago. Microbial evolution as a field began with early attempts to resolve the relationships between bacteria and acknowledgment that these single-celled organisms—termed Bacteria, Prokaryotes, or Monera—constituted the earliest life forms. Later elucidation of the varied processes contributing to their diversity and population structure combined aspects of evolutionary biology, ecology, epidemiology, systematics, and molecular genetics. There have been so many revolutions and revelations in this field that one of the invited authors jumped topics twice (before, I should note, abandoning the project altogether). Myself . . . I am still trying to cope with the knowledge that I am Archaeal, though it is comforting to know that some bacterial genes remain in the mix.

The overarching goal of this volume was to span a range of topics and viewpoints, but also to produce a timeless work, one that would not be rendered obsolete by the next deluge of sequence data. To that end, I am deeply indebted to the contributors, who had the foresight to include a historical perspective to illustrate how their topic evolved. Finally, a special thanks goes to Barbara Acosta for the scores of consistently polite and non-intrusive e-mails that kept this author alert and this book on track.

HOWARD OCHMAN

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