Adaptationism and Optimality

The debate over the relative importance of natural selection as compared to other forces affecting the evolution of organisms is a long-standing and central controversy in evolutionary biology. Adaptationism is the view that natural selection is so important, and nonselective forces so unimportant, that accurate explanations and predictions of the phenotypes of organisms can be obtained by simplified models in which selection is represented and nonselective forces are ignored. Adaptationists and their critics disagree about this proposition concerning the history of life, and they also disagree about the methodologies that are needed to address this biological question. Many questions remain unresolved, and the terms of the debate are still sometimes unclear.

Adaptationism and Optimality presents an up-to-date view of this controversy and reflects the dramatic changes in our understanding of evolution that have occurred in the past 20 years. The volume combines contributions from biologists and philosophers and offers a systematic treatment of foundational, conceptual, and methodological issues. The essays examine recent developments in topics such as phylogenetic analysis, the theory of optimality and ESS models, and the methodology of hypothesis testing in evolutionary biology. The contributors’ disagreement on fundamental aspects of this subject represents the diversity of opinion that makes this controversy so highly charged. These essays are intended to provide useful advice to “biologists in the trenches” but also to assess the larger theoretical and conceptual issues that form the basis of the current controversy.

This volume will serve to substantially advance the debate over adaptationism. It will be of interest to biologists, philosophers and historians of biology, anthropologists, psychologists, and cognitive scientists.

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Adaptationism and Optimality

Edited by

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ELLIOTT SOBER
University of Wisconsin, Madison
To Ed Ricketts,
because he loved true things
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It was important for us that the content of this volume reflect more than the claims and opinions of the authors. The intent of this volume is to promote dialog. For this reason, each chapter received three or four reviews by other scientists. In many instances, we chose reviewers whose views were quite distinct from those of the authors. The efforts of these reviewers greatly improved the quality of each chapter and of the book as a whole. We are grateful to all. The reviewers were Carl Bergstrom, Jane Brockmann, Dale Clayton, Bill Etges, Steve Frank, Sasha Gimelfarb, Jaco Greeff, Brian Hall, Thomas Hansen, Gordon Hines, Kevin Johnson, Mark Johnston, Alexey Kondrashov, Mary McKittrick, Deborah McLennan, Alan Molumby, Paul Ode, Mark Pagel, Dave Parker, Tim Prout, David Rivers, Derek Roff, Jay Rosenheim, Michael Ryan, Dolph Schluter, Jon Seger, Larry Shapiro, Neil Shubin, Andrew Simons, Chris Stephens, Bill Stubblefield, Shripad Tuljapurkar, Michael Turelli, Gunther Wagner, Stephen Weeks, and David Sloan Wilson.

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