Cooperation and its Evolution is a collection of twenty-six newly written essays. Four of the essays are by the editors of the volume. Eighteen of the essays are single-authored and eight are collaborative essays. The book is divided into two sections: Agents and Environments and Agents and Mechanisms. The former section focuses on the environmental conditions that support and allow for cooperation. The latter deals with he mechanisms at work in various stages of evolution.

The papers vary in length. Some contain extensive discussion of a topic. Others raise fewer points and issues, focusing on a specific aspect of cooperation. There are essays that put forward some modest positions without making strong conclusions regarding a given subject. In other words, the aims of some of these essays are modest. Many of the essays in this volume offer no more than tentative conclusions and suggestions for further research. As the editors acknowledge in their introduction, "[t]here is a great deal about the evolution of cooperation that is not understood" (Sterelny, Joyce, Calcott, and Fraser 2013, 9).

Admirably, many of the authors make clear what aspects of an issue are unresolved and what matters are unknown. While all of the work in this volume is grounded in extensive empirical research, even the editors suggest that some of the models on offer involve "some shameless speculation" (ibid., 1).

The scope of the notion of cooperation is quite broad here. Cooperation at the level of single cells, within plants, throughout the entire animal kingdom, and all the way up the great chain of being to humans is under consideration here. Certain chapters focus on specific types of living being, such as bacteria or birds. The essays focus on the issue of cooperation to different degrees: some essays make very broad claims regarding the forces behind the evolution of cooperation in general, others focus more narrowly on particular factors or mechanisms, such as the transmission of information, that play some role in making cooperation possible.

One of the aims of this volume, as the editors state in the introduction, is to explain cooperation in terms of its benefits to individuals. There is less focus than is usual in the literature on the disadvantages of being uncooperative. The editors claim that there is a "bias in the literature in its focus on defection and free riding" (ibid., 10). An excellent example of this shift of emphasis to benefits is "Timescales, Symmetry, and Uncertainty Reduction in the Origins of Hierarchy in Biological Systems," by Jessica C. Flack and her coauthors. Flack et. al. explain the evolution of cooperation based upon the reduction of uncertainty regarding the environment. The contribution by Ronald Noë and Bernhard Voekl, "Cooperation and Biological Markets: The Power of Partner Choice," is explicitly critical of tit-for-tat, prisoners' dilemma explanations of cooperation. Instead, the authors account for cooperation as a kind of cost required to enter into a beneficial relationship. Haim Ofek's "MHC-Mediated Benefits of Trade: A Biomolecular Approach to Cooperation in the Marketplace" explains the unique level of cooperation among humans (as opposed to other vertebrates) in terms of the role of the market.

Ofek's appeal to the market exemplifies a tendency of the authors in this volume: resources from a range of disciplines are used to explain cooperation. Ofek, like others, draws on economics. The idea of living beings as self-interested actors whose cooperation is a mystery in need of explanation lurks behind many of these essays, although Don Ross, in "The Evolution of Individualistic Norms," raises some skeptical points regarding this background assumption of individualism. Ofek's essay also concerns one of the central mysteries of this book: why there is so much more cooperation among humans than among the other great apes.

The authors have commissioned some essays that pair nicely. Kim Sterelny's "Life in Interesting Times: Cooperation and Collective Action in the Holocene" notes the puzzling nature of the transformation of human societies from relatively egalitarian foraging groups to hierarchically arranged societies during the dawn of agriculture. The free riding of powerful elites

upon the work of unskilled agricultural laborers, without any punishment of the powerful free riders, is a mystery. Paul Seabright, in "The Birth of Hierarchy," tries to resolve this mystery, offering a number of possible explanations for the emergence and stability of hierarchically arranged societies.

Some of these essays will be of interest to nonspecialists. Topics such as the proper explanation of altruism or of property rights should interest moral philosophers and researchers in a range of fields. Other essays relate to and continue literatures that will be mostly of interest to specialists. For instance, Adam Hart's "Task Partitioning: Is it a Useful Concept?" concerns the issue of whether, in consideration the division of labor, two activities ought to be considered separate tasks or subtasks of a larger task. Andrew Cockburn's essay on cooperative breeding in birds addresses some issues regarding how to explain this phenomenon, promoting some methods of explanation and raising issues for others. While these sorts of debates and issues might interest specialists more than nonspecialists, it seems to be a guiding idea of many of these essays that cooperation at any level of living beings may be of relevance to explaining cooperation at other levels. Perhaps these essays will be of more relevance to researchers not engaged with these specific issues than they appear to be at first sight.

The style of writing in different essays seems to reflect the aim of the authors to write for specific audiences. Without naming names, some of the authors use a great deal of technical jargon, leaving some key notions unexplained. Essays by these authors would be only accessible to the nonspecialists with some effort. Other authors have written crystal clear essays that could be written for any audience whatsoever. Had the editors of this volume stressed accessibility, the book might have been of even broader interest than it already is.

This volume will be of great interest to researchers working on the evolution of cooperation. With a great deal of guidance, it could be of use in a graduate or very advanced undergraduate seminar on the topic. The more accessible and clear essays in this volume ought to be read widely by scholars and students who are working on this topic. The highly technical essays will be of interest to researchers in the relevant subfields.

Kim Sterelny, Richard Joyce, Brett Calcott, and Ben Fraser. 2013. *Cooperation and its Evolution*. Cambridge, Massachusetts: The MIT Press.