and analysis to conservation biology and resource management.

The book does an excellent job of introducing topics in a historical framework giving readers the background for the growth of thinking on the particular topic. By its nature, life-history analysis has a mathematical basis, but Hutchings provides considerable clarity on the mathematical underpinnings while keeping equations to a minimum. The volume is certainly accessible to graduate students and would be appropriate as the basis of a course on life history.

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THE GENE'S-EYE VIEW OF EVOLUTION.

By J. Arvid Ågren. Oxford and New York: Oxford University Press. $39.95. xiv + 242 p.; ill.; index. ISBN: 978-0-19-886226-0. 2021.

Early in this volume, the author writes: "I have written the book I wish already existed" (p. 6). My goodness, do I know that feeling. Some 50 years ago, being a philosopher inspired by Thomas Kuhn, I spent some 10 years boning up on the Darwinian Revolution. I decided to write just such a book as Ågren's, namely one on the Darwinian Revolution that I wish I could have read 10 years previously. Soon, I found I was doing much more than a disinterested survey, for my real intent was to show that Darwin was a great scientist and that the Darwinian Revolution was a vital event, in culture as much as in science. The current book is similar. It is a survey of Richard Dawkins's metaphor of the selfish gene and the debates it occasioned. As or more importantly, it is a defense of Dawkins's way of thinking.

Let me say, unambiguously, it is a very successful defense, thorough and balanced. This is not hagiography, but serious discussion about a serious issue. To this end, we start with the historical background to selfish gene thinking. Dawkins was not fashioned from mud on the Seventh Day, but an important end result of thinking that goes back to the Scientific Revolution. Next, we get an exposition of the selfish gene concept (or metaphor), explaining claims and ferreting out misconceptions. We continue with a discussion of the difficulties that the concept raises, going on then to how Darwin's work fits with contemporary discussions of the same issues, most specifically William Hamilton's notion of "inclusive fitness." The volume concludes with a survey of the empirical implications of selfish gene thinking, together with a brief epilogue looking back on the whole debate around the metaphor, questioning whether it is worth trying to make out the exact history. What relevance does such an effort have for today?

Working through what is truly a very interesting and informative book, a couple of somewhat critical points come to mind. First, the author is very keen to give a comprehensive survey and, to this end, we get reference after reference to pertinent work. At one level, for readers, this is very satisfying. I am sure I am not the only person who goes straight to the end of a volume to see how many references there are to me and my work (a somewhat deflating experience because I am sure I am not alone in finding, inevitably, I have fewer than one-tenth of the references to Stephen Jay Gould). At another level, I wish at times that Ågren had paused and looked more deeply into what was happening and why. Take the fact (noted by the author) that Edward O. Wilson, toward the end of his career, had to the amazement of most of his fellow evolutionists come out strongly in favor of group selection. Given Ågren's genuine interest in history, it is a pity that he did not speculate on the fact that Wilson was always more impressed by Herbert Spencer than Charles Darwin and this led him to organicist holism away from Newtonian reductionism. Groups over individuals was nigh axiomatic.

My second complaint is that the author makes little effort to help the nonmathematical with the sometimes-formidable work of the population geneticists. For instance, in discussing R. A. Fisher's work, without help we are expected to understand what is meant by a "least-square regression approach," leading to the consequences that "any variation not included in the variance captured by the linear regression should not be considered genetic" (p. 28). And this before we get to the symbols. It is all a bit like someone introducing the Kantian notion of the "synthetic a priori" without translation into English of a kind the rest of us can understand. I do wish that Ågren had given verbal discussions in the main text, with the mathematics left to appendixes.

These comments are not meant to detract from the virtues of *The Gene's-Eye View of Evolution.* It deserves a wide readership beyond the community of professional evolutionists. If I were offering a course on the philosophy of biology, my required textbooks would be Darwin's *On the Origin of Species* and Ågren's most valuable survey. Everything else could be found on JSTOR.

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