

discussion of *Physics* IV 10–14.¹ It would have been nice if the author had engaged in a more robust discussion of the alternative interpretations in order to help the reader appreciate what is new and distinctive in her book. Instead, I am left wondering whether this book offers enough new material to justify its addition to the already rich literature on Aristotle on time.

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Robert J. Richards and Michael Ruse. *Debating Darwin*. Chicago: University of Chicago Press, 2016. Pp. xvi+267. \$30.00 (cloth); \$18.00 (e-book).

Scholars interested in the work of Charles Darwin are in a fairly unusual position. Darwin not only left us with a wealth of published books (beyond the six editions of the justly famous *Origin of Species*), but he was also a pack rat, preserving notebooks, correspondence, even children's drawings with small bits of biology scrawled in the corners. This material dates from Darwin's earliest formative years as a student and continues to the time of his death.

One would be forgiven, then, for thinking that this plethora of documentation would leave little room for major controversy about the development of, influences on, and structure of his works. Reasonable though such a claim would be, it would be mistaken. Arguments still rage about how Darwin built his theory, who his most significant influences were, and how those influences were translated into the books that gave rise to contemporary evolutionary theory. And this new volume, written by Robert J. Richards and Michael Ruse, two of the field's leading scholars, is ample evidence that this discussion is still more than capable of producing fruitful insights.

First, some basics. The book is structured as a debate—beginning with a brief introduction, followed by two substantial essays by Ruse and Richards, in turn, laying out their positions on the interpretation of Darwin. Each of these chapters comprises around a third of the book, and they are separated by a lovely collection of halftone plates. The remaining third consists of replies

1. Elena Cavagnaro, *Aristotele e il tempo* (Bologna: Il Mulino, 2003); Ursula Coope, *Time for Aristotle: "Physics" IV.10–14* (Oxford: Clarendon, 2005); Tony Roark, *Aristotle on Time: A Study of the "Physics"* (Cambridge: Cambridge University Press, 2011). Harry does not appear to know the first monograph.

by Ruse and Richards to each other and an epilogue moving from Darwin to the present.

Those well versed in Darwin studies will be aware of long-standing disagreements between Richards and Ruse over—most significantly—the proper context in which we should situate our reading of Darwin, and these disagreements are honed, perhaps more sharply than ever before, in the authors' two main essays. Ruse has argued, in articles and books over a number of years, that Darwin is first and foremost British, and this lens should be primary in informing our reading of his works. Darwin's theory, on this view, is structured by his reading of nineteenth-century British natural philosophers (particularly John F. W. Herschel and William Whewell), and his approach to the natural world is framed by the dueling forces of British agrarian landholders (occupied, as they were, with horticulture and animal breeding) and Mancunian industrialism (with its attendant notions of the division of labor and a Malthusian, harsh struggle for success).

Religion is a more complex subject. Ruse traces the impact of Paley-inspired Anglicanism on Darwin's early thinking (in particular, the notion that a universe governed by strict, mechanical laws must nonetheless express the will of the Creator) and deftly weaves a story that synthesizes these insights with Darwin's later shift toward a sort of agnostic deism. Darwin-the-deist can manage to consistently reject direct divine influence in his science, as well as accusations by his detractors that his theory is "atheistic," without running afoul of Darwin-the-Anglican's ordered and governed universe. For my taste, this is Ruse at his best and most incisive.

The jumping-off point for Richards's analysis, however, is Darwin's extensive reading in, use of, and effusive praise for a variety of works in the tradition of German Romantic naturalism. Darwin widely studied the works of authors such as Alexander von Humboldt and Carl Gustav Carus (with Humboldt's influence on the voyage of the HMS *Beagle* undeniably significant) and, via several of his teachers and colleagues (especially Richard Owen and Whewell), engaged at some level with many more. Richards's discussion of these sources is both clear and concise, and his treatment of Whewell—to take my favorite example—is exceptional, doing justice to the complex mix of influences, both those traditionally "British" and those bizarrely neo-Kantian, that arise in Whewell's work.

Richards makes the case that, while these writers could not have constituted Darwin's evolutionary picture on their own, it is the German Romantic connection that made Darwin unique among his colleagues of the day—that served as the added ingredient that led Darwin in particular to be the scientist able to pick out the pattern of natural selection. Specifically, Richards argues,

this lets us understand Darwin's approach to anatomy and embryology, two subjects at first blush otherwise cryptic in Darwin's work.

There is, of course, much agreement between these two authors, masked by their extended points of dispute. Neither Richards nor Ruse would want to deny the significance of the sources cited by the other tout court—Richards allows for the importance of Malthus and Charles Lyell, just as Ruse allows for the importance of Continental European morphology. Both lay some significant emphasis on Darwin's invocations of *progress* throughout his works, a notion that, they both argue, carries far more than simple rhetorical weight in Darwin's writings. The notion of God as the ultimate governor of the "force" of natural selection, which I described above in speaking of Ruse, is equally present in Richards.

Beyond this, however, several points of exciting dispute come into crystal-clear focus when the authors move from presenting their own views to offering rebuttals in the final portion of the book. In some cases, the authors tend toward a bit much reiteration of prior views—it is apparent that neither has any interest in beating a retreat. Much ink (if I were to complain, perhaps too much for this single issue) is spilled over the question of Darwin's approach to group selection, which both authors take to be emblematic of their broader readings of Darwin. Ruse sees Darwin's position on individual struggle (and the rejection of group selection) as reflecting a British-industrial view of the world, while Richards argues that Darwin's use of group selection (especially in the evolution of morality) is a paradigmatically German Romantic turn.

But on a few points, valuable clarity is provided. For example, Richards presents a much more detailed explication of his approach to teleology and final causes, which is described a bit quickly in his initial essay. Ruse, in turn, explains his approach to one of the most important facets of Richards's argument, namely, Darwin's extensive use of Humboldt. These exchanges make clearer than at any point in the prior literature just what is at stake between the two authors.

They close with a jointly written epilogue that brings the narrative from Darwin into the present. It is instructive how much agreement is found here as well, in the unfolding development of genetics, paleobiology, and contemporary natural selection. These histories are brief, and interesting, if not particularly novel. But two more positive arguments close the book—a discussion of Darwinian approaches to the evolution of mind (framed as an able dismantling of Thomas Nagel's feeble *Mind and Cosmos: Why the Materialist Neo-Darwinian Conception of Nature Is Almost Certainly False* [Oxford: Oxford University Press, 2012]) and the relationship between evolutionary concerns and the philosophy of religion. These are both exciting discussions, and it is enjoyable to close the

volume with a glimpse of how well these scholars' approaches combine when working in concert.

I find it unlikely that readers already aligned with either Richards or Ruse on the broad questions of Darwin scholarship will be persuaded by this book to alter their partisanship. Many of the facts of the case have been stated elsewhere (see, e.g., the authors' dueling contributions to their coedited volume *The Cambridge Companion to the "Origin of Species"* [Cambridge: Cambridge University Press, 2009]), and while we see added clarity, we do not see any revolutionary alterations in position or argument. But that, I feel fairly confident to say, was not the point. What we witness here is the effort of two scholars, each with an impressive grasp of not just Darwin but the entire landscape of nineteenth-century history and philosophy of science, working at the top of their game to clarify our interpretation of one of the most important figures in the history of science. The reader gets from the persistent disagreements between the two not a sense of vitriol, animosity, or hostility but rather the pleasure and excitement of conversing with a worthy opponent with well-researched arguments. I heartily recommend this work, not just to those interested in Darwin but to anyone interested in reading an instance of such profitable debate. Some 200 pages of this caliber of scholarly engagement is well worth the price of admission.

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