Essay Review: *The Philosophy of Human Evolution*

Catherine Driscoll*

Michael Ruse, ***The Philosophy of Human Evolution***. Cambridge: Cambridge University Press (2012), 282 pp., $99.00 (cloth).

When I first picked up Michael Ruse's *The Philosophy of Human Evolution*, I thought for a moment that this was a text primarily addressing the evolution of human cognition. I was wrong. While the evolution of cognition is part of the focus of the text, it really does do what it says on the tin: it addresses a very broad range of philosophical questions connected to human evolution. The book's primary topic areas can be roughly divided into three main types, as follows: (*a*) how certain problems in general philosophy of biology apply to the evolution of humans, (*b*) how the evolutionary origins of humans affect the answers to certain sorts of important general philosophical questions, and (*c*) how evolutionary biology answers certain socially problematic questions about the nature of humans. Chapters 1–4, for example, address questions of type *a*: Ruse considers the evidence for evolution and the evidence for human evolution in chapters 1 and 2, questions about whether the sciences of human evolution are good sciences in chapter 3, and questions about whether evolutionary processes are progressive (especially in the sense that humans are the pinnacle of evolution) in chapter 4. Chapters 5 and 6 address questions about the nature of knowledge and the nature of morality from an evolutionary perspective and hence primarily address questions of type *b*. Chapters 7 and 8 address questions of sex and race and eugenics and evolutionary medicine, respectively, and hence primarily address questions of type *c*. Ruse structures most of these chapters historically: he usually starts with Darwin's views on a topic (or occasionally the views of pre-Darwinian evolutionary thinkers) and then works through major histor-

Received October 2012; revised October 2012.

*To contact the author, please write to: Department Philosophy and Religious Studies, North Carolina State University, Raleigh, NC 27695; e-mail catherine_driscoll@ncsu.edu.

Philosophy of Science, 80 (January 2013) pp. 160–164. 0031-8248/2013/8001-0007$10.00
Copyright 2013 by the Philosophy of Science Association. All rights reserved.

https://doi.org/10.1086/668883 Published online by Cambridge University Press

ical changes since Darwin to modern views on a topic. Ruse's discussion of the evidence for evolution in chapter 1, for example, describes the types of evidence for evolution presented by Darwin in *The Origin*, shows how each of those bodies of evidence has been expanded since Darwin, and then finally addresses types of evidence for evolution not available to Darwin and his contemporaries, such as genetic and molecular evidence.

There is much to like here: by taking such a broad approach to questions of human evolution, this book covers some very interesting ground simply not available in similar texts. The chapter on evolutionary epistemology, for example, would not usually find its way into a text that addressed only the evolution of human cognition. In this chapter, Ruse covers both questions about how evolutionary processes have shaped human knowledge faculties and questions about the justification of beliefs produced by such faculties (such as addressing Plantinga's claim that naturalism is self-refuting). The same goes for the chapter on eugenics and evolutionary medicine, which is another fascinating topic with poor coverage in philosophical texts on human evolution and cognition. Even where Ruse is addressing questions common to other textbooks, his approach is unique: the chapter on morality addresses both scientific work on the evolution of behavior (standard for texts of this type) *and* some discussion of the nature of the psychological faculties that underlie moral judgments and motivations *and* questions about the upshot of the evolution of moral norms for metaethics (much less standard). Ruse also does well with history: one nice example that grabbed me was his discussion of early versions of Social Darwinism (or, at least, evolution-inspired approaches to morality at the same time as the Social Darwinists) that emphasized the role of cooperation in human evolution (e.g., Kropotkin; 166–67). Other highlights include Ruse's discussion in chapter 3 of the role of metaphor in scientific reasoning and explanation.

All that said, I have worries about how some of the material in the book is covered. In chapter 3, for example, Ruse discusses four of the sciences of the evolution of human cognition (evolutionary psychology, human behavioral ecology/sociobiology, memetics, and dual inheritance theory): I found this discussion rather thin. For example, Ruse mentions a few pieces of specific work in evolutionary psychology that he claims are problematic, but he never says why (85). Human behavioral ecology is treated more positively, but Ruse has relatively little to say about how it functions as a project (87). Similar problems arise for Ruse's discussion of human evolution (55–65); he focuses on the origin of bipediality and overemphasizes the role of hunting. The prevalent view at the moment is that while humans' gut anatomy changed early in their evolution (around the time of *Homo ergaster*; Aiello and Wells 2002), it is not likely that large game hunting was part of the human behavioral repertoire that early. This is because early hominids lacked the projectile weaponry that could make the hunting of large animals

https://doi.org/10.1086/668883 Published online by Cambridge University Press

sufficiently safe (O'Connell, Hawkes, and Blurton Jones 1988). Instead, gut changes might suggest an expansion in the consumption of small game, some actively scavenged meat, or calorie rich plant foods such as tubers.

Ruse's application of evolutionary biological (or, at least, empirical) studies to certain philosophical problems is also not totally convincing. For example, in chapter 5 Ruse discusses Josh Greene and Jonathan Haidt's (2002) work on the trolley problems as an example of how evolutionary thinking can motivate particular normative ethical theories (178–79). Greene and Haidt argue that we have evolved to want to avoid directly harming others; this explains why we are not willing to directly hurt a person to protect others but are willing to produce much the same consequences indirectly. It is not clear, however, how Ruse thinks this gives us moral reasons to accept particular answers to the trolley problems. Instead, Greene and Haidt's work looks simply like an evolutionary explanation of the peculiar tensions in our responses to those problems.

I also was not completely happy with Ruse's presentation of the views of some of the important participants in the debates he is covering. For example, Ruse's analysis of Gould and Lewontin's arguments in the classic "Spandrels of San Marco" paper (1979) does not give a proper sense of the nature of the objections; Ruse treats the objections as taking the form of a belief that the world is full of nonadaptations (31–35 and 78–83), rather than the belief that nonadaptations are as biologically interesting as adaptations and that hypotheses that particular traits are nonadaptations need to be properly ruled out. When discussing Joan Roughgarden's objections to sexual selection, Ruse focuses on Roughgarden's concerns that appealing to sexual selection reifies sexual stereotypes, rather than on her substantive worries about whether and how often sexual selection occurs in nature (188–89).

Most of the above are just general philosophical or empirical worries about the author's positions on a variety of issues and are, to some extent or another, up for debate. What really concerns me, however, is a range of problems that undermine the usefulness of this book as an introductory text for students or philosophers new to the topic area. The most unfortunate of these is a failure to fully explain many important concepts that are introduced in the text. To take just a few examples, I could find no complete explanation of the concepts of genetic drift, group selection, kin selection, reciprocal altruism, or sexual selection, despite all five concepts being used extensively in the book. Genetic drift is described in only the briefest possible way in the middle of a discussion of Sewell-Wright's shifting balance theory (24) and seems to be conflated with neutral evolution (26, 51). Ruse also mentions group selection multiple times and intimates that many scientists are not happy with it but offers little in the way of description of how it works or the restricted conditions under which it can occur (the closest he comes is on 160 and 163). There are partial descriptions of sexual selection (188), reciprocal

https://doi.org/10.1086/668883 Published online by Cambridge University Press

altruism (162), and kin selection (162), but these are sketchy (e.g., "I'll scratch your back if you scratch mine"), and there is no attempt to describe the conditions required for the processes to occur. For example, Ruse never mentions Trivers's (1971) and Axelrod's (Axelrod and Hamilton 1981) conclusions that the evolution of reciprocal altruism requires a series of potentially non-zero-sum exchanges of fitness benefits and individuals with the capacity to detect and defect on defectors. If these concepts were minor parts of Ruse's discussion, this would not be a problem, but they are both important generally and are central to his presentation in the chapter on the evolution of morality and the chapter on sex and race.

There are also some straightforward errors: for example, when discussing the Wason selection task experiment (144), Ruse incorrectly describes what Cosmides and Tooby's versions of this experiment are supposed to show. Cosmides and Tooby claim that our failure at testing abstract conditionals and relative success at testing conditionals based on everyday social contracts is explained by our having a dedicated psychological mechanism for managing reasoning about social contracts. They do not claim, as Ruse says they do, that this difference arises simply from those conditionals being familiar (and indeed, they rule out the possibility that the effect is due to mere familiarity as part of their experiment; Cosmides and Tooby 1992).

In the end, I suspect most of these problems stem from two things: too much ground to cover and very poor editing. The book's laudable attempt to cover so many different areas ends up spreading the discussion too thin. The general editing problems show up in much more mundane things: for example, some failures of citation (e.g., a failure to attribute the famous analogy between the language learning faculty and the faculty for moral norm acquisition [179] to Susan Dwyer; Dwyer 1999), some unfortunate infelicities (such as the description of transsexuals on 185 and the relationship between gay men and their fathers on 205), and structural and grammatical errors (such as many incomplete sentences and a five-sentence quotation that occurs twice in the same paragraph on 140). This is a shame because this is a text occupying a yet unfilled niche in the textbook ecology—one that genuinely addresses a full range of philosophical issues surrounding human evolution.

REFERENCES

Aiello, L. C., and J. C. K. Wells. 2002. "Energetics and the Evolution of the Genus *Homo*." *Annual Review of Anthropology* 31:323–38.

Axelrod, R., and W. D. Hamilton. 1981. "The Evolution of Cooperation." *Science* 211:1390–96.

Cosmides, L., and J. Tooby. 1992. "Cognitive Adaptations for Social Exchange." In *The Adapted Mind*, ed. J. H. Barkow, L. Cosmides, and J. Tooby, 163–228. Oxford: Oxford University Press.

Dwyer, S. 1999. "Moral Competence." In *Philosophy and Linguistics*, ed. K. Murasugi and R. Stainton, 169–90. Boulder, CO: Westview.

https://doi.org/10.1086/668883 Published online by Cambridge University Press

Gould, S. J., and R. Lewontin. 1979. "The Spandrels of San Marco and the Panglossian Paradigm: A Critique of the Adaptationist Programme." *Proceedings of the Royal Society of London* B 205:581–98.

Greene, J., and J. Haidt. 2002. "How (and Where) Does Moral Judgment Work?" *Trends in Cognitive Sciences* 6 (12): 517–23.

O'Connell, J. F., K. Hawkes, and N. Blurton Jones. 1988. "Hazda Scavenging: Implications for Plio/Pleistocene Hominid Subsistence." *Current Anthropology* 29 (2): 356–63.

Trivers, R. L. 1971. "The Evolution of Reciprocal Altruism." *Quarterly Review of Biology* 46: 35–57.

https://doi.org/10.1086/668883 Published online by Cambridge University Press