REVIEWS AND BRIEF NOTICES

HISTORY, PHILOSOPHY & ETHICS

DARWINISM & PHILOSOPHY.

Edited by Vittorio Hösle and Christian Illies. Notre Dame (Indiana): University of Notre Dame Press. $70.00 (hardcover); $35.00 (paper). vii + 392 p; ill.; index. ISBN: 0-268-03072-3 (hc); 0-268-03073-1 (pb). 2005.

The relationship between science and philosophy has always been a complex one, almost as much as the one that either discipline has with religion. Of course, science historically originated as a branch of philosophy, but ever since the split became permanent during the 17th and 18th centuries, scientists have felt increasingly contemptuous of "armchair speculation," and philosophers have progressively been fearful of cultural colonization on the part of science. It would be hard to find a better exemplification of what C P Snow famously referred to as "the two cultures" (1959. *The Two Cultures and the Scientific Revolution.* Cambridge (UK): Cambridge University Press).

It is, therefore, with much interest (and a bit of trepidation) that I approached the reading of *Darwinism & Philosophy,* edited by Hösle and Illies. Of course, this being an edited volume, one expects (and finds) a range of positions and varied quality among the contributions, with some chapters whose titles do not seem to reflect the content, or whose content fits the theme of the book only marginally. Be that as it may, the effort was worthwhile, and the results are bound to offer plenty of food for thought for both philosophers and those (unfortunately) few scientists who will bother to read it.

The volume is organized in four sections (three of which are presented as questions) that reflect the breadth of the issues at hand: What kind of science is Darwinian biology? Is a nonnaturalistic interpretation of Darwinism possible? What is the epistemological relevance of Darwinism? The final section discusses Darwinism and the place of the human.

Scientists rarely, if ever, think about "what kind of science" they actually do. But, of course, this is a crucial question from a philosophical perspective. The contributors to this part of the book write about materialism, metaphysics, the status of natural selection as a scientific principle, naturalism, and ontology. Peter McLaughlin (Chapter 1) addresses the (real or perceived) metaphysical implications of Darwinism (e.g., in the context of the culture wars over creationism). He opens his contribution by stating that "[i]n this narrower sense Darwinism has as much and as little to do with metaphysics as does plate tectonics" (p 15), but concludes the chapter with "[o]n the other hand, in a somewhat looser definition of *implication,* where we are not talking about logical entailments of a set of propositions, even Darwinism in the very narrow sense has some very relevant worldview implications" (p 27). It is hard to find a more compelling reconciliation of the long-standing debate among scientists on how to deal with the perception of evolution by the general public, oscillating between Stephen Jay Gould's unappealingly flat ecumenism (1999. *Rocks of Ages: Science and Religion in the Fullness of Life.* New York: Ballantine) and Richard Dawkins's equally off-putting confusion between methodological and philosophical naturalism (2006. *The God Delusion.* Boston (MA): Houghton Mifflin). Along similar lines, David Depew (Chapter 5) wants to counter Daniel Dennett's (a good friend of Dawkins and an archenemy of Gould) position that Darwinism "'blocks

the exits' . . . that afford metaphysical solace and religious sanctuary only at the cost of childlike illusion" (p 93). I find myself a bit more critical of Depew's project than of McLaughlin's, but for subtle reasons. Again, I agree that sloppy writing (a la Dawkins) that confuses methodological and philosophical naturalism is to be avoided, but Dennett is not a sloppy philosopher, and his argument is compelling (e.g., as presented in D Dennett. 2006. *Breaking the Spell: Religion as a Natural Phenomenon*. New York: Viking) because it is based on a historical analysis of the phenomenon of religion. When Dennett says that Darwinism "blocks the exits," he does not mean that evolutionary biology compels us to be atheists (it does not, as Depew rightly observes), rather it becomes increasingly difficult to produce reasonable alternative metaphysical scenarios that still include both the findings of science and a deity worth having.

The second set of issues covered by the volume deals with the possibility of nonnaturalistic interpretations of Darwinism, something about which I must admit at the onset I am extremely skeptical, to say the least. Here, we get into examples of downright nonsense, as in this snippet from Rupert Riedl's chapter: "Evolutionary principles of self-organization allowed a poststabilized harmony [whatever that is] to develop, producing sense and purpose within creatures and allowing even God to be revealed or sensed as a necessary hope" (p 122). I am afraid that Jeremy Bentham's famous phrase squarely applies here: nonsense upon stilts. The arguments presented by Robert Richards (Chapter 8), exploring Darwin's metaphysical view on the mind, are more interesting and well constructed. Nonetheless, I still do not think that it makes much sense to portray Darwin—as Richards does—as thinking that "[e]volution . . . was progressive and goal directed" (p 178) and, therefore, to imply that natural selection is ultimately not a blind cause. More importantly, it does not matter: modern science owes an enormous debt to Charles Darwin, but he is considered neither a saint nor infallible. Just as he got the mechanism of heredity wrong, and we have quickly moved beyond it, his metaphysical views may not be consistent from either a scientific or a philosophical perspective, and we should move on accordingly.

The third part of *Darwinism & Philosophy* deals with the relevance of Darwinism to epistemology. I unquestionably find Gerhard Vollmer's essay (Chapter 13) to be an exceedingly lucid and captivating contribution about the idea of evolutionary epistemology. Vollmer begins with a stunning quote from, again, Darwin. In his Notebook M of 1838, he wrote: "Plato . . . says in his *Phaedo* that our '*necessary ideas*' arise from the preexistence of the soul, are not derived from experience.—read monkeys for preexistence" (p 259). Indeed, Darwin saw that science was now in a position to help resolve one of the most ancient philosophical debates, the one between rationalists (Plato, Descartes) and empiricists (Locke, Hume) on the ultimate nature of human knowledge. Kant had already produced the quintessential philosophical effort at synthesizing the opposite rationalist and empiricist theses, by acknowledging the empiricists' point that a lot of what we know about the world is mediated through our sensorial experience, and yet highlighting that such experience is inevitably interpreted through a priori categories of the mind (such as time, space, and causality). Darwin and modern evolutionary epistemology tell us where such categories originate, something about which Kant could only be silent.

The final part of the volume is on Darwinism and "the place of the human," most clearly a philosophical rather than a scientific question, and yet one that certainly has contributed to make the Darwinian worldview controversial since its inception. The three chapters that comprise this section make for a range of opinions that cover the whole gamut, although not necessarily representing the best defense available for each position. Richard Alexander (Chapter 15), in an intriguing—if too long and a bit self-indulgent—contribution, wants to eventually "connect the entire array of human activities to a base in reproductive effort" (p 345). By contrast, Lenny Moss (Chapter 16) launches a pointed attack against what he considers "vulgar Darwinism" (p 350), that is sociobiology and evolutionary psychology. And the last entry in the volume, Bernd Graefrath's essay, Darwinism: Neither Biologistic nor Metaphysical (Chapter 17), attempts to strike the balance. I find myself closer to Graefrath's position when, for instance, he states that "biological findings can be relevant for philosophy—which, nevertheless, remains an autonomous discipline too" (p 365). He elaborates on the issue of evolutionary ethics, distinguishing between explanations and justifications of certain behaviors. For example, human beings probably do display a "natural tendency" toward male domination (as do many of our closest primate relatives), which helps us understand why we see certain patterns of intergender behavior even in modern societies. But we can still find it "morally obligatory" (as Graefrath puts it) not to accept gender-based discrimination. This latter move is philosophical, not biological, in nature. As Hume pointed out long ago, Graefrath reiterates that "[t]he step from *is* to *ought* requires a special justification" (p 370).

Darwinism & Philosophy may not be the most organic or best argued set of writings on the many

issues relating the fundamental Darwinian insights of common descent and natural selection to the eternal philosophical questions of metaphysics, ethics, and epistemology, but the volume does make for a must-have entry in the library of any scientist or philosopher who is interested in this important bridge between the two cultures.

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Scandalous Knowledge: Science, Trust and the Human. *Science and Cultural Theory.*

By Barbara Herrnstein Smith. Durham (North Carolina): Duke University Press. $74.95 (hardcover); $21.95 (paper). ix + 198 p; ill.; index. ISBN: 0-8223-3810-6 (hc); 0-8223-3848-3 (pb). [First published by Edinburgh University Press, Edinburgh, Scotland, 2005.] 2006.

Scientists have been involved in a tradition of skeptical self-criticism dating back at least to Bacon. Yet, many scholars who take science and scientists as their object of study treat it as their own breakthrough discovery that scientists are human and, therefore, subject to the same defective propagandizing and collective delusion as others of our species. Still, scientists generally believe that their practices produce a more reliable form of knowledge than prophets, politicians, or professors of literature do—claims that critics view as self-aggrandizing myths sold to a credulous world. Such claims are also undermined by what Barbara Herrnstein Smith calls the "scandal of knowledge"—that there is no consensus among philosophers about what knowledge really is or what it means to say that a theory (or fact) is true. According to the constructivist perspective of Herrnstein Smith, "facts are not prior, fixed and autonomously determinate features of an external world" (p 49). Targeting the presumed philosophical and human weaknesses of scientists, such deflationary critiques gained widespread favor in the humanities, precipitating the Science Wars as scientists struck back. For example, Sokal perpetrated his famous hoax on the Duke University Press journal *Social Text,* and with Bricmont went on to document in enormous and withering detail how many of the leaders of the constructivist movement were embarrassingly ignorant of the science they discussed, while pretentiously affecting an expertise they lacked.

Herrnstein Smith's *Scandalous Knowledge* is the first book in the new Duke University Press series Science and Cultural Theory (which she edits), and constitutes her reply to those who have expressed dissatisfaction with how cultural theory and constructivism have been applied to science. The author was clearly stung by these reverses, and her book has an unrelievedly angry and partisan tone as she settles scores and issues proclamations unaccompanied by argumentation. Her targets are those who have challenged constructivists (such as us), or fellow constructivists who acknowledge that some of their colleagues have embraced unsupportable forms of relativism. In her concern to rehabilitate the status (rather than the logic) of her project, the genuine and fascinating questions that the sociology and philosophy of science raise remain unaddressed. Perhaps the next volume in the series will tackle the questions she neglects: What is truth, and what methods and practices in the sciences (if any) enable its discovery?

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Francis Crick: Discoverer of the Genetic Code. *Eminent Lives.*

By Matt Ridley. Atlas Books. New York: HarperCollins. $19.95. x + 213 p; no index. ISBN: 0-06-082333-X. 2006.

The Eminent Lives series of short biographies commissions noted writers to prepare biographies of eminent persons. This has worked superbly well for this fine biography of Francis Crick. Ridley brings Crick's personality to readers, as well as his major scientific contributions. Crick is a difficult person to write about because he was a private person and did not confide his moods, biases, gossip, or details of his personal life on paper. Yet, he was far from being a solitary introvert. He liked the companionship of his colleagues and close friends, and enjoyed a social life outside the laboratory. But he shunned popular attention and celebrity as vulgar and painful to handle. He isolated himself by keeping his intimacy limited to a few peers whose intellectual companionship he found indispensable. Ridley refers to this lifelong habit as "dyadic pairing." This allowed Crick to bounce ideas around with a person whose judgment he trusted. His first sounding board was Georg Kreisel, a student of Wittgenstein. Jim Watson served that role in the 1950s as they discovered the structure of DNA. Sydney Brenner followed, while many of the theoretical underpinnings of molecular biology, especially the nature of the genetic code, were worked out in the 1960s. After Crick moved to California's Salk Institute, he struck up a dyadic pairing with Christof Koch, as Crick turned his attention to neurobiology.

Crick began his career as a physicist. He was quickly pulled from school and sent to work in the Admiralty during the war years to investigate the detection and functioning of mines. He searched for ways to explode magnetic or acoustic mines to