

ONE

Evolution and Philosophy

Doubtless the greatest dissolvent in contemporary thought of old questions, the greatest precipitant of new methods, new intentions, new problems, is the one effected by the scientific revolution that found its climax in the *Origin of Species*.

—John Dewey (M4:14)



John Dewey was the first philosopher to recognize that Darwin's thesis about natural selection not only required us to change how we think about ourselves and the life forms around us but also required a markedly different approach to philosophy. While other philosophers may have given some attention to evolutionary theory, it was Dewey alone who saw that if the mind emerged from earlier mindless forms, then this fact portended a new account of knowledge, ethics, and democracy.

INTRODUCTION

The discontinuous mind is ubiquitous.

—Richard Dawkins, *A Devil's Chaplain* (2004:21)

WHILE THERE IS CURRENTLY considerable interest in the relationship between evolution and philosophy, the contributions of John Dewey to the advancement of philosophy continue to go unnoticed and, a fortiori, unappreciated. Darwin's

explanations give Dewey both the impetus and the cognitive *locus standi* to reconsider the content and methods of traditional philosophy. Dewey argues that Darwin's thesis shows us that the pre-Darwinian search for an adequate account of epistemology and ethics without regard for, or in the explicit rejection of, science is no longer acceptable philosophic practice. Dewey's writings present the development and use of naturalized analytical methods to reconstruct the problems and proposed solutions of traditional philosophy. When the Darwinian basis of Dewey's thought is revealed and contrasted with recent work in cognitive science, one can see that Dewey's arguments are quite relevant to the philosophic thought of the 21st century, especially the pursuit of a naturalistic theory of meaning.

Several writers concerned with evolution or philosophic naturalism mention Dewey and other pragmatists, but they do not develop their arguments, which are significant for understanding the philosophic consequences of Darwinism. For example, Suzanne Cunningham gives a penetrating analysis of how several philosophers thought about Darwin's thesis, but she mentions Dewey only briefly in the introduction to her book, *Philosophy and the Darwinian Legacy* (1996:5). Kitcher, in his helpful book-length analysis of naturalism, "The Naturalists Return," *Philosophical Review* (1992), except for a footnote, passes over anything Dewey has to say about naturalism. For the philosophic naturalists to attempt a return, without bringing Dewey's initiating ideas about the evolutionary origins of that naturalism with them, is to fail to appreciate the significance of Dewey's analyses. As will be shown in later chapters, the most important aspects of Dewey's arguments are going unnoticed (with the important exception of Daniel Dennett), because Dewey is not being seen as first and foremost a Darwinist.

Dennett has recently argued that any adequate account of human capacities must include evolutionary explanations of how humans came to possess these capacities (2003b). It may be possible to give historical accounts of how humans developed, but unless these accounts are based upon sound evolutionary explanations, they are inadequate. Furthermore, attempts to understand or evaluate any philosophic account proffered as a naturalized theory of ethics must attend to more than simply the appeal to scientific conclusions claimed to be relevant to these moral theses, because there are certain issues concerning the origins of humanity and human intelligence that must be adequately formulated to develop an acceptable account of naturalized morality. To be precise, any account of naturalized morality must *identify* those aspects of Nature that give rise to *specific moral conclusions* for which *justifying* arguments are adduced for those conclusions. It is the thesis of this book that Dewey has solved these problems in a most elegant fashion.

DARWIN'S INFLUENCE ON DEWEY

I took the one less traveled by,
And that has made all the difference.

—Robert Frost, *The Road Not Taken*

Charles Darwin published *The Origin of Species* in 1859, the year of Dewey's birth. During his junior year as a student at the University of Vermont, Dewey was enrolled in a physiology course in which he read Thomas Henry Huxley's (1825–1895) textbook (E1:ix). Since Huxley was known as Darwin's bulldog, because he passionately and vociferously advocated and defended Darwin's thesis, we can conclude that Dewey was well-versed in the intricacies of the theory of evolution early in his career. At the age of twenty-four, Dewey published his investigation of this theory for its potential as a new method of philosophic analysis. In that paper, "Knowledge and the Relativity of Feeling," Dewey observes, "with the development of the theory of evolution arose a school that wielded a mightier weapon" (E1:20).

Prior to the publication of *The Origin of Species*, philosophy embraced a kind of purposeful absolutism. Whether it came from a type of supernaturalism or a secular idealism, the belief was that, as Dewey says, "In all living forms, a specific type is present, directing the earlier stages of growth to the realization of its own perfection" (M4:8). This is the argument from design. The changes we observe in the things around us are the result of an ideal force "working out its own ultimate manifestation," which is the completeness of the design. And as Dewey further points out, since this design or ideal force is not observable, it was thought to be accessible only through reason. "The Darwinian principle of natural selection cut straight under this philosophy" (M4:9).

Today the expression is that Darwin showed us how there can be design in the world of living things without there having been a designer. The view of knowledge to which both Darwin and Dewey are objecting holds that knowledge is a grasp of that which is eternal and unchanging in the universe. On this view, observable change is taken to be positive evidence, in that it reveals to us the ideal or design in action. "If all organic adaptations are due simply to constant variation and the elimination of those variables which are harmful in the struggle for existence that is brought about by excessive reproduction, there is no call for a prior intelligent causal force to plan and preordain them" (M4:9).

Today, DNA evidence is as much a part of the prosecution of violent crimes as were fingerprints in earlier times. One need know nothing of biology or genetics to believe that from the smallest piece of tissue it is possible to attain a person's genetic fingerprint. When Dewey was writing, the discov-

ery of DNA was yet to be achieved, as he died in 1952, one year before Frances Crick and James Watson discovered the structure of DNA.

Dewey was the first philosopher to grasp fully the significance of the changes required by what would thereafter be seen as an adequate scientific explanation.

No one can fairly deny that at present there are two effects of the Darwinian mode of thinking. On the one hand, they are making many more sincere and vital efforts to revise our traditional philosophic conceptions in accordance with its demands. On the other hand, there is as definitely a recrudescence of absolutistic philosophies; an assertion of a type of philosophic knowing distinct from that of the sciences, one which opens to us another kind of reality from that to which the sciences give access; an appeal through experience to something that essentially goes beyond experience. (M4:13–14)

Many of Dewey's writings are aimed at the revision of traditional philosophic conceptions. He, like Dennett after him, was spurred on by the question of what Darwin's discovery means for philosophy. "The very conquest of the biological sciences by the new ideas has led many to proclaim an explicit and rigid separation of philosophy from science" (M4:14). Dewey's rejection of this separation, both here and in his other writings, reveals his philosophic naturalism. Consider the following conclusion drawn by Dewey.

The significance of the evolutionary method in biology and social history is that every distinct organ, structure, or formation, every grouping of cells or elements, is to be treated as an instrument of adjustment or adaptation to a particular environing situation. Its meaning, its character, its force, is known when, and only when, it is considered as an arrangement for meeting the conditions involved in some specific situation. This analysis is carried out by tracing successive stages of development—by endeavoring to locate the particular situation in which each structure has its origin, and by tracing the successive modifications through which, in response to changing media, it has reached its present conformation. . . . To persist in condemning natural history from the standpoint of what natural history meant before it identified itself with evolutionary process is not so much to exclude the natural history standpoint from philosophic consideration as it is to evince ignorance of what it signified. (M2:310)

When we consider Dewey's role in this story, we will see that Dewey is the first to recognize a point made by Dennett that Darwin's explanation of life is a study in biological engineering. He was, in fact, extending the Darwinian engineering account by further developing the philosophy of biology.

How could this be so? Dewey's analyses of "growth"—efforts for which he is often misunderstood—can be seen, without exaggeration, as analyses within the continued study of the evolution of intelligence. This thesis will be presented in chapter 5.

RUSSELL'S REJECTION OF EVOLUTION

If mathematical thinking is defective, where are we to find truth and certitude?

—David Hilbert (1964:141)

Cunningham (1996) presents a good analysis of how several important philosophers viewed Darwin's theory. The focus here is on Bertrand Russell because he and Dewey were friends who kept track of each other's work and freely criticized each other. Lord Russell gives several reasons why he rejects what he calls "evolutionism." While he grants that evolution does explain early morality, and, along with education, the development of conscience, he holds that Darwin's struggle for existence is now over, because of the state of technological development. One might say the old rules have changed, now that we are free from want. For Russell, ethics need not be concerned with issues involving individual or group survival. Looking to evolution for ethical insights obscures the point that ethics is based on reason, which is beyond evolutionary explanation. As Cunningham puts it,

Russell's insistence that reasoned morality is independent of all evolutionary factors reveals the extreme narrowness of his view of the struggle for existence. He sees an ethics that originates in evolutionary considerations as having the maxim, "Kill or be killed," progressing later to hypocrisy and priggery. His view of the struggle for existence is framed as the war of all against all. One might think that Russell simply never read Darwin's discussion of the struggle for existence in *The Origin of Species* or his discussion of morality in *Descent of Man*. (1996:62)

She goes on to say that Russell had listed these two books among those that he had read. Russell raises several sociopolitical objections to evolution theory, one of which is that Darwinism is "bellicose and imperialistic" (Cunningham, 1996:67). Russell sees the theory "as generally accepted" and, in a footnote, directs the reader to Julian Huxley's *Evolution: A Modern Synthesis*. He continues:

But the particular motive force which Darwin suggested, namely the struggle for existence and the survival of the fittest, is not nearly so popular among biologists as it was fifty years ago. Darwin's theory was an extension,

to the whole of life, of *laissez-faire* economics; now that this kind of economics, and its associated politics, are out of fashion, people prefer other ways of accounting for biological changes. Where such changes have already occurred in part of a given stock, the Darwinian mechanism is still allowed to explain why one side gets the victory in a contest between the mutants and the conservatives. But whereas the earlier Darwinians thought that minute changes occurred, by selection, in each generation, the modern Mendelians lay stress on comparatively large changes occurring only occasionally, and their hope is to find a more or less mechanical theory as to the origin of such changes. The experimental altering of genes by X-rays gives hope of progress in this direction. (Russell, 1948:43)

We can see, as Cunningham points out, that Russell seems to have come to the belief that mutant theory had somehow replaced Darwinism.

Russell is most put out with the role of heredity in evolution. He says that Darwinism “has lessened men’s belief in the omnipotence of education, and has substituted the conviction that some races are inherently superior to others. This, in turn, has led to an emphasis upon nationalism. And the recognition of war as a means of competition has dissolved the marriage of competition with pacifism” (Cunningham, 1996:93). He goes on to say that Darwinism leads to the Jews and the Nordics being seen as the best races, and, thus, we ought to make them rich. He sees Darwinism as leading us away from what he calls the “cosmopolitan outlook” toward the “racial bigotry of the [Hitlerites].” Clearly, Russell cannot be put in the undecided column.

Cunningham suggests that Russell must not have attended to the many places in *Descent* where Darwin refers to the importance of education. She suggests further that if someone has not read *Origin* or *Descent*, they might well get the idea that there is a possible connection to fascism, but it is difficult to understand why anyone who has read these books, especially a great logician such as Russell, could come to such a conclusion. Moreover, Russell claims there is a hard distinction between whatever cognitive assets natural selection is capable of building into any species, including *Homo sapiens*, and full-blown rationality. His pursuit of rationality sees evolution as quite irrelevant. Cunningham wonders how Russell could not find more of a connection between rationality and natural selection after reading *Descent*. Russell did, apparently, find some ideas in Darwin. In *Human Knowledge: Its Scope and Limits* he writes:

There is another thing which it is important to remember whenever mental concepts are being discussed, and that is our evolutionary continuity with the lower animals. ‘Knowledge,’ in particular, must not be defined in a manner which assumes an impassable gulf between ourselves and our ancestors who had not the advantage of language. (1948:421)

Earlier in that book he says that there have been “battles between science and theology,” but these were “overshadowed” by “the great battle over evolution” that the publication of *Origin* created, and that he saw as continuing in America. “But I shall say no more about these somewhat dusty controversies” (1948:31).

There are two points that should be learned from Russell’s thinking, with regard to evolution. Russell clearly seems to have built no wall between the politics that can be found in evolutionary theory and what is called the “principle of charity” when evaluating another’s work, that is, to begin by seeking an interpretation of the work to be criticized that is not simply a matter of ax grinding. It is possible to take any set of putative facts and weave alternative explanations of them the same way that someone can wind different string patterns over six nails that have been driven into a board. In statistics there is a process known as finding the line of best fit, which is the line or curve that minimizes the variance of a set of points from that curve. Something like this should go on in any attempt to explain or evaluate any given thesis. Russell seems to begin, like a small group of academics do today, by setting forth some conspiracy theory or explanation involving misguided politicians. Serious philosophers would always know their biases and then make every effort to “hold them at bay,” as Philip G. Smith used to say. Some academic meetings seem to have presenters who, in place of holding their biases at bay, set them on their audience as one turns the dogs loose to attack an intruder.

The second sin of which we may accuse Lord Russell is that while he does see that animals have evolved and that there is no discontinuity between ourselves and the people that may not have had language or a developed language before us, when it comes to having knowledge, he goes on to hold that when reason itself is the focus of analysis, the fact of evolution does not enter into such analyses. It seems that Russell separates the mind from the occasions of its evolution. He seems to want to deal with purely logical concepts, as if they had no significant relationships to their mindless ancestors. Hence, it is not surprising that Russell’s most remembered achievements are his discovery of the contradiction in set theory, known as Russell’s paradox (which also applies to Aristotle’s syllogistic logic) and the theory of types in *Principia Mathematica*. As biologists consider Daniel Dennett to be their most relevant philosopher, logicians and mathematicians give that honor to Lord Russell. Both academic groups seem to have it right.

How could Russell and Dewey, friends who engaged in philosophic interaction, read *Origin* so differently? We know that Dewey sees philosophy as working with continuities in life. He sees human mindedness as a part of, and continuous with, the natural, prehuman world. His theory of experience is tied to, and explained by, the developing organs of human capacity. “‘Reason’ is not an antecedent force which serves as a panacea. It is a laborious achievement of habit needing to be continually worked over” (M14:137).

Russell sees philosophy as dealing with pure ideas, that is, with products of the mind. One wonders if the reason his reading of *Descent* did not influence his ideas was that a general rejecting of evolutionary accounts was irrelevant to the nature of reason. In other words, if a person or a society finds itself in an unacceptable situation, does it matter how it got into that predicament? What is required is a way out. Of course, Dewey and Dennett will say that ignorance of the causes of the problem will limit serious thought about a proper exit. But Russell sees reason as not bound by existing physical or psychological conditions. This may well explain how Russell could read *Origin* and *Descent* and see only the possible sociopolitical dimensions of natural selection.

One wonders if Russell is tacitly accepting some sort of radical genetic determinism. His remarks about heredity, which somehow undermine the significance of education and at the same time imbue science with racism, reveal that his ideas are, to say the least, unacceptable to Richard Dawkins and Daniel Dennett.

WHAT ABOUT GENETIC DETERMINISM?

[T]he phrase “genetic determinism” exudes ignorance as to what the new Darwinism is about. . . . [E]veryone (including Darwin) is a victim not of genes, but of genes and the environment together.

—Robert Wright, *The Moral Animal* (1994:348)

The only rejecters of evolution today are the religion-based Creationists and a certain lunatic fringe who reject evolution but have no replacement for it, and social criticism or epistemic cynicism will not fill the blank. The leading complaint of the latter group is the claim that philosophers engaged in the analysis of evolution are all determinists. Since this book associates the thought of Dewey and Darwin, it is important to address the red herring of determinism. Any discussion of the role of the genetic code in behavior evokes passionate responses in academic circles and requires a fair grasp of the principles involved to proceed productively.

The reason that some academics will reject any kind of genetic determinism while readily accepting various types of social determinism is that they smell racism, that is, that what people are is determined by their genes, and there is very little anyone can do to change them. These people readily accept social determinism of various types because they hold that it is then possible for fair-minded people and just social institutions to make people over in more equitable ways. Social determinism is thought to be more flexible than genetic determinism, which means that people can change things to their liking,

whereas if the determining factors in what a person is or does are genetic, then social engineering is impotent to the degree that the genome has control over the person. It is possible that by riding roughshod over genetic determinism before it is understood, and placing all their efforts into social determinism as the pursuit of equality, they have furthered injustice and inequitable treatment. It turns out that even framing the discussion in these either-or terms is a serious mistake; moreover, we do not have to face the overly simplified disjunction presented to us, because contemporary evolution theory, as will be seen, rejects both genetic determinism and social determinism as they are presented, since neither is a supportable view.

This is worthy of our consideration, because we can establish some basic principles underlying these discussions, with the hope of preventing some of the fears of the evils of genetic determinism. Dawkins once felt so unfairly put upon by his critics that he feared that “there is a wanton eagerness to misunderstand” (1982:10). His being seen as a sociobiologist, an unacceptable orientation for many people, may explain some of this criticism.

As one researcher put it,

People love to oversimplify genetics, saying we have a “gene for cancer” or a “gene for diabetes.” But the fact is, genes determine only so much. Identical twins have identical genomes, yet one may develop juvenile diabetes and the other typically doesn't. Understanding the role of genes should help pinpoint environmental factors and teach us how to avoid genetic predispositions. But people tend to invest genes with a determinism that isn't justified by science. (Eric Lander, head of the Whitehead MIT Center for Genome Research as reported by R. Thompson, 2000)

Lander's statement makes it clear that the extreme views: (A) genes cause all behavior, or ($\sim A$) genes cause no behavior are ridiculously misguided. The question is, what kinds of things do genes influence, and how do they do it?

Unfortunately for some people, Huntington's disease is a matter of fate. In 1993 the gene for this disease was discovered on chromosome 4. Anyone who has the gene for Huntington's will get the disease (typically between the ages of 8 and 25) no matter what they do between birth and the onset of the disease. The gene makes a toxic protein (*huntingtin*) that changes the functions of other proteins (Watson, 2003:311). The one exception to seeing this gene as fatalistic is the possibility of future genetic engineering, in which researchers invent a way to turn off the gene or rewrite its code. Let us think of the gene for Huntington's as the benchmark of genetic determinism. Fortunately for all of us, very few diseases are deterministic in the benchmark sense.

One notion that we must jettison is thinking that all genes for diseases are like the benchmark gene—little bombs that are within us just waiting to go off and cause us some distress. It is popular for the news media to report

that “the gene for ____” has been identified by researchers. Many hear or read this as an announcement that another gene just like Huntington’s has been found and that if you have it you are doomed to develop the disease. This is not correct. A person can have the gene for *X*, and that gene may never be *expressed*. For a gene to help us or hurt us it must be turned on. For many genes, this is a matter of environmental conditions. For example, two people may have the same gene that can make a toxic protein, yet one suffers from the existence of the toxin, while the other does not. This might be explained by stress. The person who develops the toxic condition may have experienced great stress in life, while the other person did not. Did this *X* gene cause the toxic condition? Well, yes and no. It is a necessary condition for the disease to be present, but it is not a sufficient condition, as is the Huntington’s gene.

We have three logical possibilities for the relationship between diseases and DNA. (1) In our benchmark case, having the identified sequence in one’s DNA means that a person is predetermined to get the disease. With this type of disease, the sequence of DNA is both necessary and sufficient to get the disease. (2) With other diseases, the sequence of DNA may be necessary but not sufficient to get the disease, as in the stress case just mentioned. Finally, (3) some diseases are completely irrelevant to our DNA. Note that your own DNA is irrelevant as to whether you get influenza, but the flu virus is, in effect, a piece of DNA.

For readers who still harbor doubts about the furtive entry of genetic determinism into the following discussions of Dewey’s philosophic reconstructions, or who are not clear in their own minds what to think about these determinism discussions, let me set you at ease. As we will see in the following chapters, the old debates over such matters are undercut by the contemporary relevant facts.

ULTRANATURALISM

John Dewey made it clear that Darwinism should be assumed to be the foundation of any naturalistic theory of meaning.

—Daniel Dennett (1995:403)

If you frequent old book stores, you have likely come across the title *Natural Philosophy*, which, upon inspection, turned out to be a book on natural science and not a book about the philosophy of nature. The terms *natural* or *naturalized* in contemporary philosophic discourse refer to a particular view of the proper methods of philosophic analysis. As noted above, a good reason to be concerned with Dewey’s Darwinism stems from the renewed interest in philosophic naturalism being brought on by current developments in the revolution in biology, as well as the interest being generated in cognitive

science by philosophers such as Patricia and Paul Churchland, John Searle, and Daniel Dennett.

Philosophic naturalism *simpliciter* is the view that scientific conclusions are appropriate elements within philosophic arguments; thus, naturalism contrasts markedly with the views of philosophers such as Wittgenstein of the *Tractatus* (1922) (as opposed to Wittgenstein of *Philosophical Investigations* [1953]) who claim that philosophic argumentation must always be conducted prior to any attention to scientific theories. Psychology, for example, is seen by Wittgenstein, *inter alios*, as having no role whatsoever in the work of philosophers. It is held that to the extent to which philosophy enters into psychological theories, it must be in the form of *previously established* philosophic conclusions. This thesis is sometimes referred to as “first philosophy.” When considered in the present context, this view suffers from the same malady as the theory that Dewey says was “cut straight under” by Darwinism. To understand the role of culture, language, and morality in human affairs, naturalism requires evolutionary explanations.

Wittgenstein’s position seems seriously deficient when one examines the rich and developing literature of cognitive science in which we find extensive use of various conclusions from scientific research. Current philosophic studies of consciousness, cognition, freedom, and morality draw heavily from research in neuroscience as part of an effort to understand how the brain and complete neurosystem function. For example, Patricia Churchland’s book *Brain-Wise* (2002) is an excellent presentation of how research in neuroscience has relevance to the solution of traditional philosophic problems. She establishes clearly that first philosophy cannot adequately deal with questions of mind, consciousness, and self. Like it or not, philosophic analysis must consider the work being done in science, especially biology.

In pursuing the question of how humans came to possess language and, consequently, came to have a different kind of consciousness and intelligence from the other primates, Dennett (2003:260), as was alluded to above, suggests that we should distinguish *historical* questions from *justification* questions. There may be various compelling historical accounts of how all these things occurred, but to be considered a justified account, it must include a Darwinian explanation. Dennett’s critics like to refer to his views as “hyper-Darwinism” or “ultra-Darwinism,” suggesting, of course, a preoccupation with Darwinism. Recall Dewey’s point, quoted above, that accounts of natural history after Darwin should be quite different from those produced before Darwin.

One has to wonder, after reading Dewey and Dennett, if the expression *philosophic naturalism* suggests the penetration or intensity that Dewey and Dennett bring to the reconstruction of philosophic methods. In other words, what passes for naturalism is not sufficiently imbued with Darwinism for us to say that Dewey and Dennett are simply philosophic naturalists. The claim here is that to understand Dewey (or Dennett), one must look for something

more in naturalism. And as “more” as a philosophic naturalist can go is to hold that evolutionary theory is always potentially relevant, if not downright central to, philosophic problems. It would be appropriate to refer to Dewey and Dennett as “ultranaturalists,” because their thought goes well beyond simply appealing to science, even neuroscience.

The first two sentences in Richard Hofstadter’s introduction to his well-known book, *Social Darwinism in American Thought*, are as follows:

In 1959, one hundred years after the publication of Darwin’s *The Origin of Species*, mankind has lived so long under the brilliant light of evolutionary science that we tend to take its insights for granted. It is hard for us fully to realize the immense thrill of enlightenment experienced by Darwin’s own generation; it is harder still to appreciate the terrors experienced by the religiously orthodox among them. (“Author’s Introduction,” 1992:3 edition; First published in 1944)

Today we still experience, if not the thrill of its discovery, the brilliant light of evolutionary theory and the insights it provides us for thinking about traditional philosophic matters. We also note, if not the experience of terror, the hostility of some to the very idea of the requirement that all things cognitive and emotional have their genesis explained in terms of the evolutionary algorithm and the subsequent developments that have produced our present powers of thought and feeling.

But ultranaturalism goes further in its quest for evolutionary explanations. We know that genes, chapters in the DNA book of what we are biologically, are instructions for making proteins. But how can we explain the fact that our brains went further and became minds? The genetic code does not make or contain minds. If it did, then all of those stories of people being regressed into some previous century by means of “gene-coded memory” would be so common as to not be worth mentioning.

THE DISCUSSION THUS FAR

The fact that Russell, one of the great logicians of the 20th century, dismissed evolution as having no significance for philosophy reveals how Dewey’s writings were going against the grain of the established philosophy early in that century. Not all philosophers of that time rejected evolution as vociferously as did Russell, but none saw the requisite methodological reconstructions that Darwin’s thesis demanded of philosophy. It was suggested that the ultimate form that philosophic naturalism could take, ultranaturalism, would be a naturalism built upon evolutionary theory. To develop greater insight into Dewey’s arguments, it is necessary to examine more closely the structure of evolutionary theory, a task to which we now turn.

CONSIDER READING

1. Many students report that John Dewey's *Reconstruction in Philosophy* (M12) is a useful entry point into his writing.
2. A good place to begin the study of evolution is with Charles Darwin himself. *The Origin of Species* (1859) is not difficult reading and well worth the time to experience the theory in Darwin's own words.
3. Robert Wright's *The Moral Animal* (1994) presents a history of Darwin's thinking as he developed his theory and subsequent ideas. Wright applies the theory to Darwin himself, which offers us some interesting reading and insights.
4. Richard Dawkins' *A Devil's Chaplain: Reflections on Hope, Lies, Science, and Love* (2003) presents Dawkins' reflections on his experience as a biologist working within the revolution he helped create.
5. Patricia Smith Churchland, *Brain-Wise: Studies in Neurophilosophy* (Cambridge, MA: MIT Press, 2002) shows how many of the traditional philosophic problems are reinterpreted in light of research in brain science. It is a very accessible introduction to philosophy and/or cognitive science.
6. Richard Hofstadter's *Social Darwinism in American Thought* (1944) presents background on how Darwinism can be misunderstood and misused as social policy.