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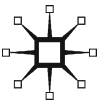

EVOLUTION AND ETHICS

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Many, many thanks to my family and friends, teachers and students, colleagues and associates, for helping me bring this book to fruition.

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CHAPTER 1

Introduction

Although evolution certainly exists, it can be interpreted in more than one way, such that how we perceive it is a matter of perspective. Darwinism is one way to interpret evolution, a very popular perspective, but one that is not merely extrapolated from the empirical evidence, because it is a manifestation of an underlying metaphysical worldview. Anyone who has ever taken any interest in biology or evolution, and anyone who has ever taken a middle or secondary school course in biology, has likely encountered the suggestion that evolution is entirely a matter of chance. "It is all a matter of random, natural processes", or some of the countless variations of similar lines are drummed into our minds such that it can fairly be said to amount to the reigning common sense regarding evolution. Of course, anyone who has also been exposed to the basics of metaphysics can recognize that every instance in which the terms "chance," or "random," or "blind," are employed, reflects a metaphysical argument that the world itself is essentially and entirely a product of such blind, random, chance, which are taken to mean physical, natural, or scientific, forces. People who question this metaphysical theory, which has very little if anything to do with empirical observation, can often find themselves dismissed, ridiculed, or assaulted as someone who must be incredible, naive, foolish, mystical, religious, or some other supposedly nonscientific sort. If only History of Philosophy or Introductory Metaphysics courses were offered in high schools alongside the basic science courses, there might be a more sophisticated public discussion about evolution than is currently the case.

But the current state of affairs, regarding what is and what is not regarded as scientific, has a lengthy historical momentum of its own, reaching back primarily to Newton. His discovery of natural regularities that could be represented with mathematical equations led to the

widespread belief that all of nature is like that, and that all respectable science should be striving for such discoveries. This faith that the entire universe and everything in it must be a manifestation of blind, random, and therefore supposedly physical forces is known as materialist determinism. It is a faith unto itself, for Newton's and Einstein's laws of physics are of quite limited domain, and the statistically describable physics of quanta is also of limited domain. Therefore, strictly on the basis of demonstrable, reproducible empirical observation, to believe that the universe and everything in it is amenable to mathematical formulation, and that all events and outcomes are thereby on that basis to be regarded as blind, random, chance, or physical, because supposedly even the laws themselves are as they are by mere accident, just as to believe that the universe is purposive or intentional, rather than to simply accept that the universe is mysterious, requires an inferential leap beyond the observational evidence, as all faiths do. Given the long history humanity has of acting on the basis of abstract metaphysical theories (avowedly religious faiths included), and the countless disasters, massacres, wars and genocides, purges, and so on that have resulted, it is surely not polemical to raise the issue: perhaps we should try to stop ourselves from acting on metaphysics anymore, and to do this in a most sensible way, by trying to gain broader perspectives, which must include critiquing specific examples of preeminent, dominant, metaphysical worldviews like Darwinism, which has surely been the basis for billions of actions—major and minor, private and public. There are other metaphysical theories that might work just as well for raising the general point that acting on the basis of abstract theoretical generalizations is a bad idea (Capitalism and Communism come to mind), but the effort here will focus on our understanding of evolution, since it is such a fundamental element of our modern civilization.

Given humanity's long history of extremely bad behavior, especially when it comes to inflicting harm, it is probably tempting for many of us to place the blame in the most general epistemic sense on human instinct, as if the problem is that we need to get our instincts under control to stop doing terrible things. But human behavior can be so bad, and all the other instinctive animals so clearly not inclined to such stupidity, that human reason must surely be the cognitive source that manifests itself in the metaphysical theories that are believed in and acted upon. The only way to encourage people to think critically about their deeply held views is to critically assess the views, and if people are offended by such criticism to the point that they dismiss critics as polemical, that surely suggests an unwillingness to reconsider, which of

course is otherwise known as dogma. Once upon a time, not too long ago, the world of human understanding really was a very Newtonian place. Even Einstein remained committed to determinism in the face of quantum uncertainty, for he believed that we can expect to eventually figure it all out with nice and neat little equations like the ones that he has given us. All the universe is knowable in terms of laws and regularities—mathematically identifiable natural forces—on the view of the determinists, if not now then eventually. God does not play dice, Einstein so famously argued. Darwin offered us a story about the evolution of living things, about organic matter, that fit this predominant (among scientists at least) worldview, for only a story that fit the metaphysical belief system of the period could ever have been accepted as scientific. Science has been, and continues to be, defined by many in terms of the Newtonian ontological model; though the model is at least as old as Democritus, Newton especially gave it all the credibility that it has retained. On Darwin's theory, life evolves on the basis of come-by-chance, physical, and identifiable laws of nature. Evolution is reducible to the laws of chemistry and physics, as are each and every phenomenon, without exception.

Darwin's theory has, of course, had a profound and permanent influence on the course of human civilization, having been employed by political and intellectual leaders as the theoretical justification for multiple mass atrocities in the two World Wars and even for the wars themselves, and as a tent-pole concept regarding the forces of nature that Capitalist economic systems attempt to conform to or align with, but that Communist economic systems attempt to move beyond or transcend. The trouble is, and it is surely big trouble, there are no identifiable natural laws or forces regarding biological evolution. There is no evidence to confirm that evolution is strictly a matter of chance and random outcomes of lawful chemical and physical interactions, in terms of anything that is currently understood in the fields of chemistry, physics, or biology itself. Darwin offers us the story of evolution that fits the reigning metaphysical paradigm, minus anything remotely similar to Newton's or Einstein's laws of physics. Darwinism is thus a rhetorical interpretation that complies with materialist metaphysics, without any mathematical evidence to support the general claim. Even assessed as rhetoric, the theory suffers from significant flaws and weaknesses, including elements of incoherence. These are not polemical assertions, born of spite or rebelliousness, but merely the demonstrable results of open-minded analysis. Unto itself, the Darwinian story simply does not work very well, and when considered in light of emerging evidence from

evolutionary biologists, the theory starts to seem somewhat archaic. Even a very good metaphysical theory, fully confirmed by and consistent with the latest empirical evidence, could not be justifiably acted upon by the morally continent, if at all possible. Acting on the basis of a demonstrably weak and obviously metaphysical interpretation of a known biological phenomenon, how could we characterize that in terms of the standard textbook moral theories? In Aristotelian terms, it would seem more like wickedness than mere incontinence; in utilitarian terms, it would likely be of painful consequences; in deontological terms, contradictory; in relativist terms, abnormal; and in egoist terms, self-destructive. Generally speaking, we would surely have to admit that it would almost always be immoral to knowingly act on the basis of a weak metaphysical theory, if it could possibly be avoided.

In the case of Darwinism, the theory represents what is known as a scientific paradigm; it is deeply engrained into both our scientific and our general culture, such that it amounts to common sense for many of us. To act on such Darwinian cliches as "the survival of the fittest," or "only the strong survive," or "win or die," "compete or go home"; it seems fair to say that Western and increasingly global pop culture and moral norms are thoroughly infused with a Darwinian common sense regarding how to act, what is right, and which values are good. And so, it seems fair to say that people all over the world are acting on the basis of a questionable metaphysical theory, which most people themselves generally do not understand and may only be vaguely familiar with in terms of the actual biology underlying it. That is, people are behaving badly out of ignorance, because they have been misled into assuming that Darwinism is true, simply by being born into and routinely exposed to Darwinian behavior, beliefs, and culture. Why do we embrace intense competition as good, rather than try to prevent it as bad? Why do we celebrate the tribalism in supposedly harmless activities such as professional team sports, rather than regard it as primitive or childish? Why do we construct educational institutions that force young people to compete against one another, which reward and accept and develop standardized winners while rejecting and casting out the standardized losers, rather than trying to identify and develop individual strengths and weaknesses so that every child might discover and fulfill their unique individual potentials?

Establishing the possibility that such general cultural norms are questionable requires trying to convince the indoctrinaires that their convictions and assumptions, prejudices and biases, general beliefs and broad perspectives might really be fundamentally mistaken, such that

their lives are being conducted and societies being constructed so as to be self-destructive. One common sense way to gain or teach a broader perspective, in order to try to demonstrate that fundamental beliefs are merely beliefs and not truths, is to demonstrate the weakness of a reigning theory by offering an equally or more plausible alternative theoretical explanation, which fits the observational facts every bit as well but which produces fundamentally different conclusions. If both theories fit the observational evidence, then neither should be trusted as true. More evidence would be required, and until it is forthcoming, the wise and the empirical thing to do is to withhold judgment. Evolution is amenable to an alternative explanation, and that alternative is every bit as traditional, and no less empirically respectable in terms of evidence, than the mechanical version of evolution presented by Darwinism. These alternatives relate an ancient and ongoing debate between those who believe that the universe is essentially mechanical (a view defended by Pythagoras, Newton, and Darwin) and those who believe in an element of purposiveness or teleology (as defended by Aristotle, Kant, and Lamarck). Since Newton, the mechanical perspective has been so successful, so dominant, and so intolerant that Lamarck ended up being quite badly abused for his trouble, and later and current teleologists are typically dismissed as anti-science religious zealots, as if the determinist view is the scientific metaphysical perspective while the teleological view the religious perspective. However, believing in either ontology requires said leap of faith, for they are both theoretical generalizations abstracted from the reproducible, demonstrable, otherwise known as the empirical, evidence. And the momentum that has filled the sails of determinism since Newton is most definitely fading, in terms of contemporary science.

We do not know as much as we typically think we know, nowadays. If the current understanding regarding dark matter and energy stands up in the decades and centuries to come, we will gradually come to appreciate at general cultural levels that we know very little about the universe, and it may be a permanent condition. Apparently, what is known as baryonic or normal matter constitutes 4–5 percent of the stuff that constitutes the universe, while the other 95–96 percent is dark matter or energy—"dark" meaning not directly observable by any known means. So that takes us back to a very different place, intellectually, as far as our understanding of nature goes. Imagine Plato, staring up at the sky, looking at the stars, and speculating that the stars must be holes in a system of spheres that constitute his cosmology. Plato had no instruments other than his eyeballs, so he could only observe the

stars, and he could only speculate regarding the darkness. That is quite similar to the situation we now find ourselves in, two-and-a-half millenia later. We have extremely powerful telescopes (some even in orbit) and microscopes and particle colliders that serve as new and improved scientific eyeballs. But all the stuff that we can see is the baryonic stuff, analogous to the stars in Plato's eyes, and all of the dark stuff is just as dark to us as the darkness between all the stars in the night sky of Plato. All we can do, like Plato did, is speculate about what all that dark stuff is—Plato thought it was a system of spheres, with holes that let through light. Although the scientists are nowadays simply calling it dark, there is no lack of speculation. There are now enormously costly and extremely sophisticated experiments being conducted in order to try and see into the dark, the designs of which reflect the speculations. Instruments are trying to detect subatomic particles at the small end of the scale, and intergalactic structures at the large end. But perhaps there are no particles, and maybe our concepts of structure do not apply.

Those who assert determinism believe that we will eventually identify laws, forces, and regularities which befit that metaphysical belief system. Those who assert teleology believe that whatever forces are in play, they will not be reducible to mathematical laws, because they are nonrandom and end oriented, possibly in ways that are necessarily beyond our human comprehension. Whatever organic life or matter is, it is without any doubt currently beyond our ability to explain in terms of known chemistry, physics, or math. Like mind or consciousness, it has apparently emerged from the dark stuff in order to play with or in the not-dark stuff. With regard to evolution in particular, the mechanical story told by Darwin has the historical momentum of Newtonian physics behind it, but the teleological story told by Lamarck seems to have a rather promising potential ahead of it. Both stories are abstract metaphysical generalizations, extrapolated from the empirical evidence. Neither alternative is any more mystical, religious, naive, or generally less metaphysical, than the other, especially given the emerging evidence being produced by the world's extremely talented evolutionary biologists.

Chapter 2 of what follows here attempts to concisely demonstrate that these two interpretations of evolution, Darwinism and Lamarckism (or Determinism and Teleology, or Natural and Organic Selection), are indeed abstract metaphysical generalizations, and that the latter is compelling enough to cast doubt on the former. Given how very different the two interpretations are, and that they cannot possibly both be true, if equally compelling they are likely both false, and if false

then not suitable bases for ethically deciding what to do. Hence the content of chapter 2, if successful, should suffice unto itself to prove the basic argument that evolution theory is metabiology and therefore not morally relevant. However, it would be lapse not to attend to the remaining work of critiquing the arguments offered by those who make moral claims on the basis of evolution theory. Such claims are made by Darwinian sociobiologists, who offer quite elaborate arguments regarding morality on the basis of their preferred metaphysical interpretation of evolution. Their arguments belong among the basic categories of moral epistemology, each of which has been defended by historically significant philosophers. Whereas Aristotle long ago offered a biologically informed and sophisticated teleological theory of morality, his kind of moral epistemology does not have genuine defenders among sociobiologists, for the quite large body of literature (of the last 150 years of so) regarding evolution and ethics is almost entirely concerned with the implications of the Darwinian interpretation of evolution, which forbids teleology. Generally, that literature is concerned with two issues. The first issue is moral epistemology—generally, does evolution inform the ancient debate about the roles that instinct (emotion/passion/sentiment/feeling) and reason play in how we decide what to do? The other issue is the good—does evolution have nonepistemological implications regarding what we ought to do? The critique here is concerned with the former issue. Contemporary authors who work on evolutionary ethics consistently adopt Darwinism as a suitable explanation for evolution and, on that basis, draw conclusions about moral epistemology. Since Darwinism is offered as a premise from which conclusions about morality are drawn, in order to assess such arguments we must assess that premise. The chapter 2 clarification of the highly speculative and metaphysical quality of our two theoretical explanations for how evolution happens (in contrast to our certainty that evolution does in fact exist) facilitates the subsequent assessments of the sociobiologists.

Sociobiology in the most general sense is the basic idea that we can learn about human behavior by studying biology. And, undoubtedly, we can, for we too have evolved just like all the other animals and organisms on earth, and much of our behavior is influenced by our evolutionary natural history. However, there is a crucial distinction that cannot possibly be overemphasized for its relevance and necessity for all approaches to understanding human behavior at the level of ethics. Neglecting to acknowledge and incorporate the basic difference between describing human behavior, and prescribing human behavior,

is an error which theorists have been making for eons. Plato's character Glaucon, for example, suggests that humans are essentially selfish as a matter of objective and descriptive fact, and the camp of theorists known as psychological egoists base their views on that empirical claim. However, if it were true that we are necessarily selfish in all our actions, and so not free to be unselfish, and therefore not fully free to actually choose what to do, we could not be blameable or praisable for our selfishness. Without praise and blame we could have no such thing as moral notions of right and wrong, and ethics as a subject would cease to exist, all of which obviously contradicts objective human experience. In the last century, several anthropologists claimed that human behavior is determined by local culture and that since standards of "normal" and "abnormal" are supposedly relative to culture, humans are descriptively determined to obey their cultural norms, which arise accidentally and nonrationally as a matter of local historical contingencies. But again, if we cannot reject or transcend our cultures, we have no choice but to go along with them; without such choice we cannot be praised or blamed (for we cannot praise and blame people for what they have no choice in doing; actions cannot be considered morally right or wrong if they have not been freely chosen). And so again, if cultural determinism were true, ethics would not exist. Now we have the sociobiologists, who claim that humans have acted, and/or must still act, and/or still should act (depending on the type of sociobiologist) on naturally selected instincts (or sentiments, or feelings, or passions—we can call them what we wish, but we must keep in mind that in the absence of rational self-discipline, sentiments and feelings and passions are reducible to instincts). If it were true that we must even now necessarily act on the basis of our instincts, we would have no basis for praising and blaming such behavior because that would be all that we were capable of. Since we could not praise or blame such behavior, we could not judge it morally right or wrong, and again ethics as a subject would thereby cease to exist. On the other hand, when our distant ancestors really were necessarily instinctive like all the other animals, they would not have made free-willed rational decisions about what to do, and thus their behavior at that stage of development cannot be regarded as the root of, or as early, morality.

Ethics, properly conceived, must be concerned with freely chosen behavior, which can only be the behavior of rational beings, and therefore the subject of ethics presumes that we humans at least are capable of truly choosing to do whatever it is that we decide to do, taking our selfish needs, cultural norms, and instinctive drives all into consideration,

but not necessarily determined in our actions by any of those things. Only such freely chosen rational behavior can be subjected to praise and blame, and therefore to judgments of right and wrong, and thereby to moral prescriptions of what ought be done. The traditional basic question of ethics is—What ought I do?, and thus the core, essential concept of ethics as a subject matter is "ought," which as a concept presumes an ability to individually choose one's actions. If we can choose, then we can prescribe what ought to be done, praise and blame those who do or do not do what ought to be done, discern right from wrong action, and engage in ethics as an autonomous subject matter. Ethics, and morality, did not exist until that moment in our natural history when we humans could first make rational and free-willed decisions about our actions. Since it is not plausible to regard rational human choices as subject to, or as units of, natural selection, ethics and morality are not plausibly subject to a sociobiological derivation. Sociobiologists are the latest entrants into that category of theorists who attempt to fold ethics into the empirical sciences, and to thereby eliminate ethics as an autonomous subject, by making sweeping descriptive claims about human behavior. These empirical claims cannot actually be regarded as credible, since each of them flatly contradicts our objective human experience of free will, of rational discernment, of being capable of acting unselfishly, or against our cultural norms, or in opposition to our instincts, if we so choose. Even if it is true that most humans, most of the time, really are selfish, and/or cultural, and/or instinctive, that does not imply that all humans are necessarily as such, but merely inclined. So long as even some small portion of humans are even sometimes capable of behaving rationally and freely, then we need the subject properly known as ethics to try to help ourselves to understand and decide which actions can be prescribed as those that ought to be done, which actions can be praised or blamed as right or wrong, and which moral epistemology is most practical for doing these well.

Theorists who attempt to reduce ethics entirely to an empirical subject, by claiming that our actions cannot be chosen freely and rationally, and even theorists who only attempt to partly reduce ethics to an empirical subject, by claiming that morality is rooted in or began with instinctive behavior, commit a fundamental conceptual error regarding the basic problem of ethics (What ought we do?). Though the error is essentially one and the same—failing to recognize that ethics is essentially concerned with rationally chosen actions—it appears and can be characterized in more than one way. We can regard it as a category mistake, in the sense that ethics is categorically concerned

with free-willed rational choices, whereas empirical claims about how humans must necessarily behave are not (and amount to claims that morality does not exist). Or we can regard the error as an invalid ought-from-is inference (which is a basic and famous distinction in ethics): we cannot validly draw simple inferences regarding what we ought to do from what is the empirical case (simply because, whatever the empirical case might be, it cannot unto itself inform us what we ought to do about it). When the error appears in these first two forms, theorists seem to sincerely attempt to equate morality with descriptive claims about human nature, apparently failing to realize that they are making either the category mistake or the invalid ought-from-is inference, due to infamiliarity with or lack of seriousness regarding the presumption of free will that morality involves. However, we might more pessimistically regard the error as an intentional effort to confuse and mislead, in employing the traditional terminology of ethics with regard to empirical claims that have nothing to do with ethics, typically by theorists who subscribe to determinism, and so do not believe in free will. These theorists could much more openly and consistently clarify that they actually believe that morality does not exist, such that they regard the standard terminology and concepts of ethics as meaningless, and argue that such terminology should therefore be dispensed with in favor of the terminology of animal behavior and social science. But such theorists sometimes offer only fleeting acknowledgments of their basic view that morality does not exist, and sometimes do not explicitly acknowledge their basic view at all but rather leave it to the audience to figure out for themselves on the basis of their stated views, even while elaborating theories that employ the standard terminology of ethics. These kinds of errors are made regularly in ethics literature including sociobiology, sometimes even by theorists who declare that they are aware of these kinds of errors, and who claim that they are not committing them, but who then themselves commit them anyway. Given that free will and rational self-discipline are objective elements of human experience and human potential, and until and unless proven otherwise, these errors are indeed errors, which shall be consistently pointed out here.

Epistemologically speaking, there are four general ways that instinct and reason can function in moral deliberation, from which many, if not all, epistemologically sophisticated moral theorists select, develop, and defend their points of view. Either our decision making is all instinct (Descriptive Instinctivism—chapter 3), or all reason (Descriptive Rationalism—chapter 4), or both instinct and reason but we ought obey instinct (Prescriptive Instinctivism—chapter 5), or both instinct and

reason but we ought obey reason (Prescriptive Rationalism—chapter 6). If moral deliberation is claimed descriptively to be necessarily a matter of instincts (emotions/passions/sentiments/feelings), because control of the instincts by our faculty of reason is regarded as impossible (a view defended historically by Hume), this amounts to claiming that morality is essentially innate, which is the category mistake. If moral deliberation is claimed descriptively to be necessarily and strictly a matter of rationality, which must ignore instinct (a view defended historically by Kant), this amounts to claiming that morality is essentially by definition rational and that instinctive behavior cannot ever be appropriate, which is impractical in the context of evolution. If it is claimed that moral deliberation involves both rationality and instinct but obeying the latter is prescribed (a view defended historically by Nietzsche), rationality is dismissed as weakness, which is implausible. If it is claimed that moral deliberation involves both rationality and instinct but obeying the former is prescribed (a view defended historically by Aristotle), the moral method of virtue emerges, but this method is misrepresented and misconstrued by sociobiologists who defend Darwinian or "natural virtue" theories.

Micheal Ruse (2012), Peter Singer (1981/2011), and Philip Kitcher (2011) each adopt Darwinian positions in theoretical biology and on those bases arrive at the descriptive instinctivist, descriptive rationalist, and prescriptive instinctivist positions, respectively. Several sociobiologists defend "Darwinian virtue" theories, but the very notion of Darwinian virtue also entails the category mistake (if virtue is to have anything to do with morality), and so these latter authors do not actually defend prescriptive rationalism but rather descriptive instinctivism while confusedly employing some of the terminology of Aristotelian virtue theory. Surely, the motive for turning to the biological sciences at all in ethics is to try and arrive at greater levels of certainty about right action than would be otherwise. These theorists effectively add to the confusion regarding the moral implications of evolution mainly by depending on a quite speculative, metaphysical, and increasingly unempirical theory in Darwinism. The analysis offered here, of our current understanding of evolution and of the arguments of the sociobiologists, effectively eliminates all but the prescriptive rationalism offered by proper virtue theory as a practical approach to moral epistemology (a biologically informed interpretation of which I defend in an earlier treatise—*On Moral Certainty*). Evolution can inform ethics, but only very generally by informing us of basic facts that we can justifiably believe about ourselves and nature: that we have evolved,

and that both our faculties of instinct and reason are in themselves products of evolution. That we can or should only employ one or the other faculty in discerning appropriate action contradicts experience and is simply impractical—we must employ both, in the right ways, at the right times, toward the right objects, which requires a principle of rational control in the application of instinct, which only a moral epistemology of virtue allows. Beyond that, metabiological speculations, which attempt to explain how evolution happens and how it fits into a broader understanding of the universe and everything in it, ought to be dismissed as morally irrelevant in general (unless acting on the basis of abstract metaphysical speculation can possibly be regarded as wise, and/or unless unusual particular scenarios arise in which it becomes absolutely unavoidable).

CHAPTER 2

Two Theories of Evolution

§ 1—Resisting Common Sense

People often invoke the term "science" in defending their opinions on all kinds of topics, arguing that "we are acting on the basis of science," or that "we have science on our side," or that "the science supports our point of view or plan of action," and so on and so forth. To the untrained listener, there is a reasonable chance that such invocations will make an impression, so that whoever is employing them will be more likely to win converts to their point of view. So we need to clarify that the term "science" is basically meaningless when employed so generally and loosely that there is no way of discerning just what exactly it is intended to convey or why it should sway anyone's opinion. If the term "science" refers to scientific theories, then the term refers to what by definition is neither truth nor knowledge but hypothetical. If the term "science" refers even to well-established or highly probable theories, still they remain untrue and not knowledge, but good guesses regarding whatever the theories are concerned with. Even a theory regarded as highly probable may turn out to be false, and as a matter of logic there is no way to actually discern the percentage probability of a theory being true anyway. Whatever possibility there is of falsehood, it entails acknowledged ignorance regarding the matter at hand, which means that there must be additional factors and elements and considerations that could be causal and relevant, but which are unknown, but which render the probability of truth attached to a probably true inductive conclusion meaningless. Acknowledging the possibility of falsehood, as every probability does, renders the attached probability of truth an additional theory, that is itself attached to the actual theory, such that purportedly probably true theories are doubly theoretical. Both the ideas constituting the theory

itself and the probability of truth attached to it are hypothetical, and technically subject to reduction as probabilities are attached to the probabilities. Therefore, whenever anyone suggests that they are acting on the basis of a scientific theory, they are actually admitting to acting on an educated guess, which is generally not something to brag about.

On the other hand, if "science" is meant to refer to empirical observations, then at least we have a claim of objective truth with which to work in assessing whatever claim is at hand. Scientific observations are demonstrable and reproducible, so if there are in fact such observations, then we can at least be assured that there are actually people who have observed the observables and that we ourselves could potentially observe the observables if we wanted to. However, the observations of science are not always so informative regarding what we ought to believe, or how we ought to act. On the contrary the observations can be quite mystifying and the source of great confusion and consternation and emotional and intellectual turmoil. Recently, we have the astronomical observation that the universe is expanding at an accelerating rate: whatever does that mean? How can we reconcile that with our existing beliefs? Is it even possible to do so? What force could possibly be causing it? And while there may be scientific observations that are not so mysterious and which are morally relevant, if so they become like any other fact that enters into our deliberations about appropriate action. Simply because a fact is scientific will not necessarily lead to any obvious universal consensus about how to act. All in all, whenever moral arguments, about what ought to be done, are defended as having a scientific basis, we must be very careful in our assessment of those claims, and to first try to discern whether the claims concern scientific theories or observations, and then which and whose, and only then can we begin to assess what ought to be done.

The actual existence or occurrence of evolution is as certain as heliocentrism, based on empirical observations, but theoretical generalizations about how life evolves are speculative. Sociobiologists employ these metabiological speculations about how evolution happens as premises in their ethical arguments, nonetheless. We should at least agree that since biology relies on hypothetico-deductivism as its essential method, what we require of a scientific theory of evolution is a generalization of demonstrable evidence which yields testable predictions. Such a theory, if well established, like plate tectonics or general relativity, might make for compelling arguments in moral epistemology. But currently, there is no coherent or consensus testable generalization among evolutionary biologists, but only metaphysical perspectives that can generally be

categorized into two explanatory camps. Externalists believe that evolution proceeds by the action of forces external to organisms, rely on the concepts of natural selection, mechanicism, and determinism, and represent a broader tradition that extends back to Democritus. Internalists believe that evolution proceeds by the action of forces internal to organisms, rely on the concepts of organic selection, vitalism, and teleology, and represent a tradition that can be associated with Aristotle. While everyone seems to acknowledge that living matter appears to be different than nonliving, monists assert that life can only manifest the same properties as inorganic matter (either atoms-in-a-void or metaphysical teleology), while dualists allow that organic matter manifests unique properties that inorganic matter does not.

The literature can be confusing: biologists who produce empirical evidence are generally not trained philosophers; philosophers who theorize are generally not trained empiricists; and academic canalization prevents interdisciplinary research. Consequently, evolution theory is generally not metaphysically or epistemologically consistent or sophisticated. Darwin defends monist mechanicism, assigning evolutionary agency to inert inorganic matter while denying agency to purposive organic matter, letting his metaphysics override his observations. Lamarck argues that organisms are purposive and drive evolution but not by means of a "nonphysical" *elan vital*; he seems to adhere to a material monism even while accepting organic purposiveness. While many recent theorists do not seem to have sorted out their ideas, the Darwinian Modern Synthesis must assert strict materialism even while observational evidence for organic evolutionary agency accumulates. Contemporary internalists (emergentists, mutationists, and developmental biologists) usually do not clarify whether they believe in general teleology and organic purposiveness (a monism), or in a dualist general mechanicism and organic vitalism, or in something else, but often superficially insist that their conclusions cohere with Darwinism. However, chance and purpose are mutually exclusive—externalists cannot be internalists, since the former deny purposiveness any evolutionary significance, as required for the concept of natural selection to be meaningful. Internalists cannot be externalists, since organic purposiveness negates evolutionary agency for natural selection, rendering it a merely obvious physical constraint. Darwinism contends that nothing happens contrary to physical laws, and some contemporary theorists argue that evolution is lawful, partly externalist, partly internalist, and therefore Darwinian. But if organic purposiveness is not somehow explained away, it must be the causal force of evolution compared to inert matter. Darwin realized this and denied

purposiveness to organisms including ourselves, yielding a determinist and rather unempirical explanation of evolution. While our current level of comprehension does not allow a decision on the basis of empirical evidence, and evolution theory might permanently be a problem of meta-physics/biology, past and future theories of evolution cannot claim to be empirical unless they attempt to generalize the observations rather than attempt to explain the observations away. Beliefs that deny reproducible observation in favor of concepts that contradict experience are by definition not scientific, but superstitious. Replacing religious superstition with scientific still leaves superstition, rather than testable, empirical hypotheses.

We therefore have warrant for a concise but credible review of the current state of affairs in evolution theory; in order to assess the arguments of the sociobiologists we must familiarize ourselves with the relevant biology. Philosophers of biology (e.g., Hull 1974, p. 123) often admit that teleological phenomena somehow need to be accounted for in biology, because quite simply nothing in biology is more observationally obvious than organic purposiveness (the organic will to persist, versus the inorganic lack of such a will), yet the dominant theory of evolution today allows it no function. Why is that? Darwin, although caught up in the spirited discussion of his time, can fairly be described as an axe-grinder extraordinaire: for example, in an *1862* letter he writes, "... my chief interest in my orchid book has been that it was a "flank movement" on the enemy" (in 1903, p. 202). That tone persists today throughout evolutionary biology. Darwin (1892/1958) writes, "There seems to be no more design in the variability of organic beings and in the action of natural selection, than in the course which the wind blows" (p. 63). That is not an especially empirical point of view, for even the simplest cell manifests design so sophisticated that it is beyond our comprehension. Darwin and his followers are highly concerned with producing an explanation for evolution to replace the biblical theory of special creation. Wallace (1868) refers to having to choose among two alternative explanations, one of natural physical laws or one of divine intervention (p. 63), but this is merely a false dichotomy that also persists to this day. As empiricists, we are not obliged to believe in much at all besides the methodological primacy of demonstrable evidence, of which there is not enough to justify believing in scientific materialism or special creation. Such beliefs require further, nonempirical, arguments. Kleiner (2003) writes,

> One may argue for transmutation by citing its explanation by natural selection, and natural selection's explanation by Malthus's thesis, etc.,

> without providing any evidential connections to observation. . . . The conclusion would be that Darwin's theory is superior because transmutation is explained by a deeper mechanism and creationism is not. What is missing is evidence that this explanatorily coherent mechanism actually caused species adaptation and diversity. (p. 519)

Kleiner (1988) points out that Darwin was trying to emulate Newton (p. 310), but neither Darwin nor any evolutionist since has ever produced mathematical equations with which to make accurate predictions, like Newton did. Instead, we get in Darwinism a Newtonian worldview regarding nature's lawfulness, minus laws. Darwin's (1838–1840, in 1987a) materialism is deeply felt: "The general delusion about free will obvious. . . . This view will not do harm, because no one can be really fully convinced of its truth, except man who has thought very much. . . . " (p. 608)

Lamarck suffered for being too speculative: Burkhardt (1977) writes, "Lamarck . . . was too far ahead of his time to be appreciated. . . . The kind of speculative venture Lamarck had embarked upon did not correspond with contemporary views of the kind of work a naturalist should be doing" (p. 201). But the main difference between Darwin and Lamarck is merely in the kind of speculation—determinist versus teleological. In contrast to Lamarck, as Kogan (1960) notes, " . . . Darwin was also blessed with dedicated, articulate, and influential defenders" (p. 3); and, as Burkhardt (1977) writes, "Darwin . . . was a shrewd strategist both in the presentation of his views and his cultivation of support within the scientific community" (p. 213). In the decades that passed between Lamarck's and Darwin's publications conditions changed; both a greater readiness and a greater push by the scientific community, along with a much more rigorous theoretical presentation, were such that, " . . . the vogue for Darwinism was quickly established despite the formidable opposition to it in high places" (Kogan 1960, p. 4). However, it is important to notice that both Lamarck and Darwin had two problems, not one: convincing people that evolution existed, and providing a causal mechanism for it, in opposition to creationism which denied both. Nowadays, denying that evolution happens is as scientifically intolerable as geocentrism, but the debate regarding the mechanism is flourishing anew. As Volpe and Rosenbaum (2000) state, "The occurrence of biological evolution does not in itself reveal how evolution is brought about. . . . Scientists no longer debate that evolution . . . has occurred. It is in the explanation of biological evolution that differences of opinion have arisen" (p. xii). That there is a community eager even now to reject the existence of evolution altogether

may explain why some biologists can be testy regarding Darwinism, but those who wish to deny science altogether cannot be allowed to stifle scientific debate. Obviously we cannot observe billions of years simultaneously, but in a sense evolution can be directly observed, just not all at once. Our tailbones and embryonic gills, for examples, are observations of evolution. Though we cannot observe alive our distant relatives who had gills and tails, the fact that we still manifest such traits proves that they existed. Dobzhansky's (1973) title rings true: "Nothing in biology makes sense except in the light of evolution."

The problem is that zealous evolutionists do not always respect the difference between the fact that evolution exists and the theories for how it happens, and use imprecise and misleading language. For example, Mayr (2001) writes, "... enough facts were available soon after 1859 to have permitted the universal acceptance of Darwin's theories..." (p. 73); "Darwin emphatically rejected... obscure forces. Instead, he fully accepted Newton's credo that everything in the world is controlled by purely mechanical (physico-chemical) forces" (p. 76). Over 150 years later, while evolution itself is widely accepted it is not likely that Darwin's mechanicism will ever be universally accepted, even among scientists. Mayr (2001) argues that Darwin actually proposed five theories: "... evolution as such [the nonconstancy of species] and the theory of common descent, were accepted by biologists within a few years of the publication of the *Origin* in 1859.... The other three theories, gradualism, speciation, and natural selection, were widely accepted... in the 1940's" (p. 275). Actually, Lamarck (1809/1977) proposes both the nonconstancy of species ("... nature, in producing successively all the species of animals... has gradually made their organization more complex..." (p. 150)) and (1815–1822/1977) the common descent of animals ("presumed order of formation of the animals, presenting two separate, branching series" [table] (p. 163)). Matthew (1831/1971) first publishes the conceptual basis of what becomes known as natural selection or survival of the fittest (though this latter phrase is first employed by Spencer (1864), and first appears in the 5th edition (1869) of Darwin's *Origin*):

> Those individuals who possess not the requisite strength, swiftness, hardihood, or cunning, fall prematurely without reproducing... their place being occupied by the more perfect of their own kind... (p. 29); The self-regulating adaptive disposition of organized life may, in part, be traced to the extreme fecundity of Nature, who... has, in all the varieties of her offspring, a prolific power much beyond... what is necessary to fill up

> the vacancies caused by senile decay. As the field of existence is limited and pre-occupied, it is only the hardier, more robust, better suited to circumstance individuals, who are able to struggle forward to maturity, these inhabiting only the situations to which they have superior adaptation and greater power of occupancy than any other kind; the weaker, less circumstance-suited, being prematurely destroyed. This principle is in constant action . . . those individuals of each species . . . whose capacities and instincts can best regulate the physical energies to self-advantage according to circumstances . . . those only come forward to maturity from the strict ordeal by which Nature tests their adaptation to her standard of perfection and fitness to continue their kind by reproduction. (p. 38)

The later eighteenth and early nineteenth century gave rise to a flourishing modern biology, and it should not be surprising that many of the ideas which have come to be associated with Darwinism were in published circulation even before Darwin famously set sail on HMS Beagle. Darwin (1892/1958) writes,

> Early in 1856 Lyell advised me to write out my views pretty fully, and I began at once to do so. . . . But my plans were overthrown, for early in 1858 Mr. Wallace . . . sent me an essay *On the Tendency of Varieties to depart indefinitely from the Original Type*; and this essay contained exactly the same theory as mine (p. 43); I gained much by my delay in publishing from about 1839, when the theory was clearly conceived, to 1859; and I lost nothing by it, for I cared very little whether men attributed most originality to me or Wallace; and his essay no doubt aided in the reception of the theory. (p. 45)

However, since Matthew's 1831 publication clearly presents the main concepts, even Darwin's "clearly conceived" theory of 1839 is clearly not original to either him or to Wallace. McKinney (1971) writes,

> While Wallace and Darwin ushered in the new era of evolutionary biology, they were by no means the first evolutionists, nor the first to describe the principle of natural selection. The crucial question is why did their precursors fail to convince the scientific community that species do, in fact, evolve? One possible answer is that some of these precursors . . . had no such object in mind, although all of them to some degree touched on organic variation, evolution, and/or natural selection. Moreover, Matthew vociferously argued, after the appearance in 1859 of the *Origin of Species*, that the idea of natural selection was originally his. From America a claim was put forward for [William Charles, 1818] Wells, and recently Loren Eiseley has claimed that Darwin took

> the idea of natural selection from [Edward, 1835] Blyth. (The fact that Darwin annotated his own personal copy of Blyth's article adds fuel to the fire.) (p. 7)

Darwin (1872/1936) writes,

> In 1831 Mr. Patrick Matthew published his work on 'Naval Timber and Arboriculture', in which he gives precisely the same view on the origin of species as that (presently to be alluded to) propounded by Mr. Wallace and myself in the 'Linnean Journal', and as that enlarged in the present volume. Unfortunately the view was given by Mr. Matthew very briefly in scattered passages in an Appendix to a work on a different subject, so that it remained unnoticed until Mr. Matthew himself drew attention to it in the 'Gardener's Chronicle', on April 7th, 1860. The differences of Mr. Matthew's view from mine are not of much importance. . . . He clearly saw . . . the full force of the principle of natural selection. (pp. 5–6)

For us here assigning due credit or carefully constructing the sequences of the intellectual history are beside the point. What matters is that while the existence of evolution itself is believable, and while Darwin's theories of gradualism, speciation, and natural selection are (as Mayr asserts) widely accepted, these and all other aspects of evolution theory have had both multiple proponents and critics, and that even the entrenched elements of Darwinism are becoming very difficult to reconcile with emerging evidence from developmental biology.

Evolution and Darwinism are not synonymous. One might not gather that from the Darwinian literature, and the obfuscation cannot possibly help in getting evolution properly taught in schools or generally understood at all. Quibbles over definitions can be endless, but one way or another we should be careful to consistently distinguish between evolution as a natural phenomenon and theories that propose causal mechanisms to explain how evolution happens. While we can justifiably believe that evolution is true, we cannot justifiably believe that current causal theories are true. Many Darwinians would disagree: Darwin (*1860* letter in 1987b; 1892/1958) himself writes,

> The difficulties of my notions are terrific, yet having seen what all the Reviews have said against me, I have far more confidence in the general truth of the doctrine (1987b, p. 147); . . . innumerable well-observed facts were stored in the minds of naturalists ready to take their proper places as soon as any theory which would receive them was sufficiently explained. (1892/1958, p. 45)

However, we must keep in mind that theories are not truths and explanations are not knowledge. In empirical method, generalizations induced from observations are hypotheticals. It is reasonable and probably helpful for all concerned to routinely insist that while evolution-the-phenomenon can safely be regarded as true, causal theories of evolution can be regarded as empirical only to the extent that they are inferred from observations, and metaphysical to the extent that they employ indemonstrable concepts. Lamarck (1815–1822/1977) defends his as "... a truly general theory, linked everywhere in its parts, always consistent in its principles, and applicable to all the known data" (p. 143). Lamarck and Darwin both intentionally offered high-level generalizations, attempting explanatory catch-alls that could put evolution studies firmly onto scientific, not religious, ground. There is no doubt that Darwin succeeded in that, and his overall effort, on that basis, is one of the great successes in the history of science. Our concern now, however, is not so much to deal with (literal) creationists, for although they are politically potent in some parts they are not worth taking seriously, scientifically. Now, we need an evolution theory of greater precision than either Lamarck or Darwin was able to offer, which can successfully unify the flood of new evidence coming from the world's thousands of working biologists. Both Darwin and Lamarck offered formidable theories, given the data that they had; it must be remembered that both pioneers largely produced their own data because there was not much in the way of a body of accumulated biological evidence available to either of them. They were both instrumental figures in creating biology as an autonomous branch of science. So it is no knock on either of them if their theories are now found to be erroneous or too general, since biology has since become arguably the most dynamic and fruitful of the sciences and is yielding observational evidence that neither could have imagined.

Nowadays, the evidence seems to have gotten out in front of the theories, not easily subsumable to established generalizations. There are lots of views on what scientific theories are supposed to do: for example, Huxley (1896) argues, "... the whole object of science is simply to reduce the fundamental incomprehensibilities to the smallest possible number" (p. 165). Perhaps, but it needs be specified that often even the observations are not always comprehensible. Hull (1974) argues, "According to one currently popular view, the scientific enterprise is no more a matter of reason, argument, and evidence than are political revolutions" (p. 127). This notion can only apply to scientific theories, however, not scientific evidence, since the reproducibility and demonstrability

of empirical evidence is what sets science apart from politics. Either we can all observe it for ourselves, or it is not scientific evidence. It is in our interpretations of the observations that the politics arises, but at least in the case of organic matter and the organisms that are constituted by it, it cannot be seriously contended that somehow the purposiveness of organisms is a peripheral, nonscientific, political idea or issue, since it is the will to persist that is the one quality that most distinguishes the living from the nonliving. If we put a small pebble beside an insect on a bench and poke and prod, obviously the insect will try to preserve itself, while the pebble will not. Lamarck, like Aristotle, pointedly incorporated exactly that organic purposiveness into his empirical generalizations, whereas Darwin and mechanicists attempt to explain it away. That latter approach renders cognitive dissonance, for the theory that it yields simply does not match what we observe. To assert that the insect behavior is entirely reducible to laws of chemistry and physics, when we all well know that there is nothing in known chemistry and physics that can be regarded as explanatory, is to exercise a leap of faith in metaphysical determinism. It is precisely the same leap that many make in asserting that humans have no free will, even though a free will is an objective, universal, and essential element of the human condition. Why should theories that deny the obvious take precedence, or be considered more scientific, than theories which accept and attempt to incorporate the obvious? Is it not more empirical to stick to the observations, than to deny them? On the other hand, invoking organic "purpose" can be regarded as equally faithful, if doing so includes belief in the existence of some sort of force of nature that certainly cannot now and perhaps will not ever be reducible to physical laws and/or mathematical equations (rather than simply referring to the observable will to persist). The point here is that both natural selection and living purposiveness, at the theoretical level, involve metaphysical leaps of faith, either in determinism or in nondeterminism, regarding the fundamental nature of organic life, because our current level of understanding regarding evolution and organic life in general is low. While we might agree to redefine both natural selection and living purposiveness, so that these terms might be used interchangeably in reference to acknowledged ignorance regarding what the fundamental forces responsible for organic life are, the effort in this chapter is primarily meant to clarify that Darwinian natural selection involves belief in metaphysical determinism, that Lamarckian organic selection involves belief in metaphysical teleology, and that neither belief is any more empirical than the other. That said, it does seem reasonable to suggest that, with regard to the bug on the table that

struggles to persist, or to living organisms in general, terms such as "will" or "purpose" lend themselves rather obviously for referring to the commonsense experience of how they behave, such that these terms can be sensibly used without necessarily suggesting metaphysical teleology rather than acknowledged ignorance regarding the underlying forces in play, and present no readily apparent contradictions, while terms such as "lawful" or "mechanical" would seem rather more counter-intuitive, and rather more theoretically laden, simply with reference to the observations.

In what follows, the two main approaches to evolution theory are categorized as natural selection and organic selection. The former is the mechanicist interpretation; it was originally based by Darwin on a Newtonian view of lawfulness and determinism. If enough facts could be gathered, everything could be predicted, on this view. It tolerates no mysterious, nonphysical/chemical forces, such as an *elan vital* or organic will. That makes it a kind of monism; whatever forces exist in organisms also exist in the rest of the material world, and vice versa. It is externalist in the sense that "nature" drives the evolutionary process, not organisms. Organisms are continuously foisted into the world by blind mechanical forces, and some by chance persist and reproduce, while others do not, depending on the accidental circumstances that they are exposed to in the natural environment. If it seems counter-intuitive and counter-evidential, that is because it is, but Newton's influence on science is without limit. The latter, organic selection, is the theoretical view that organisms do drive the course of evolution. It may or may not amount to dualism or mechanicism. Organic selection is often cast with dispersion by Darwinians for trying to inject mystical or divine forces into a supposedly "natural" process, and some vitalists do that. Intelligent design or mysticism may be more easily (but not necessarily) reconciled with organic selection than with mechanicism, but organic selection includes emergence, which is the discovery that organisms may manifest physical emergent properties unique to them, which may be responsible for evolution. Self-organization, far-from-equilibrium thermodynamics, and consciousness are examples of properties that emerge from an otherwise apparently mechanical world. Organic selection is an internalist perspective that casts "nature" as a constraint, not a propagator, of biodiversity. We might categorize in terms of internalism and externalism, but the forces in play are not technically divisible into inside and outside; whatever forces are in play they might ultimately exist both internally and externally. Or the terms monism and dualism might be employed, but it is not crucial for natural

selectionists to be monists or for vitalists to be dualists—either can be either. It is the causal account of biological creativity that divides; whereas natural selection invokes blind mechanicism, organic selection invokes living purposiveness as the driving force. There is creativity, there is organic purposiveness, there is mechanical lawfulness; in addition, there is the deep physical stochasticity of quantum physics, which has yet to be accounted for in evolution theory (and which may render both natural and organic selection obsolete, in perhaps being neither determinist nor purposive).

Empirically, the demonstrables need to be unified into a coherent generalization. If evolution somehow does not involve the fundamental characteristics of reality, that would require demonstration rather than mere bias. So, what follows amounts to a quite concise critique of Darwinism and Lamarckism. The goal is to meet the prevailing bias, to strive for a broader perspective while overcoming cynicism, by aiming for something like a *gestalt* switch in our perceptions of evolution. That is not to suggest that this is an attempt to convert anyone to Lamarckism, but rather to an appreciation for just how mysterious a thing evolution currently is, and to a realization that despite so many claims to the contrary our understanding of evolution is not good, and to an understanding that there is a steady flow of biological research being produced that will continue to throw new light and create much confusion regarding how evolution happens. For example, Root-Bernstein and Root-Bernstein (2015) offer evidence to support their view that, whereas there is nothing about DNA molecules that chemically predisposes them to replication, ribosomes (a type of cell organelle responsible for translating DNA and producing the genetically coded proteins) are chemically predisposed for copying and replicating, such that "... DNA and cells evolved to protect and optimize pre-existing ribosome functions" (p. 130).

Since Darwinism is the reigning common sense, the analysis offered of it is critical, presenting the main ideas of the theory and the problems with them. Since Lamarckism is generally regarded with suspicion, the analysis offered is sympathetic, presenting the main ideas defensively so that it might be perceived as amounting to a plausible alternative explanation. While some may find that approach off-putting, the point is to try to broaden perspective while facing up to culturally engrained bias—to try to open some minds. The analysis thereby attempts to provoke serious consideration, rather than curt dismissal, of the following questions: What is the relative strength of the two theories? Is there explanatory equivalence? If two such very different theoretical

perspectives can both provide plausible generalizations of the empirical evidence, can either of them possibly be true? If the reigning commonsense theory actually presents significant elements of conceptual incoherence and empirical contradiction, while the customarily despised theoretical alternative actually presents greater conceptual coherence and less empirical contradiction, might not the entire field (in this case, theoretical biology) be in something of a quandary? Might we want to admit that, given a scenario in which two traditional scientific interpretations both present as neither compatible nor dismissible, we should not be routinely basing our actions and cultural norms on one of the alternatives while dismissing the other as morally irrelevant? Unless one of the two metabiological theories presents itself as compellingly true, and the other compellingly false, must we not dismiss both of our theoretical explanations for how evolution happens as morally irrelevant?

§ 2—Natural Selection (Determinist Darwinism)

i—Malthus

In addition to Newton, the theory of natural selection relies heavily on Malthus's (1798/1976) idea of exponential population growth running up against limited resources, which creates a struggle for existence. Whereas Malthus (1798/1976) was describing humanity's potential for overpopulating a region or all the earth, Darwinians propose that overpopulation is the core general principle and contributing factor in all of evolution. That is, the populations of species are supposedly large enough, consistently enough, that resources required for sustenance are in short enough supply that they are always competed for intensely. On face value, that does not seem certain; starvation, for example, is unusual enough in natural ecosystems that it is conceivable that the avoidance of it might not play a dominant role in all of evolution, any more so than other factors like sexual selection, predation, or disease. Resources are limited of course, but not to the point that it can be assumed that this is a significant enough factor to incorporate it as the central concept in a general theory of evolution. In any case evidence needs to be provided, and for every instance in which shortages are found to play a role in species' trajectories, it seems likely that another could be cited in which they do not. For example, North American buffalo eat grass all year round, drink water, and live on plains; the carrying capacity of that particular niche is such that resource shortages might not have had a decisive causal role in their natural history. Similarly, several whale

populations that rely on krill are not recovering quickly since whaling has been mostly banned; krill are abundant, so the limitations on their population growth might not be linked to limited resources. In the case of humanity, which was Malthus's concern, it would be difficult to demonstrate how competition for limited resources has had a decisive causal role in our evolution. And if "resources" or "limitations" are defined too broadly, so as to include all biological and physical pressures on a species, then it becomes difficult to discern a Malthusian factor in evolution from what is now known as ecology. It would not be reasonable to suggest that evolution is caused by ecology—the system of biotic and abiotic interactions in which organisms exist, anymore than it would be to say that evolution is caused by biology. So as a universal or necessary causal mechanism, "exponential-population-growth-versus-limited-resources" is dubious, but as a materialistic explanatory platitude which can factor in an alternative explanatory scheme to creationism, it functions nicely.

That is not to suggest that competition for limited resources is not of crucial significance for understanding evolution, but just that this ought to be regarded as merely one among many factors in evolutionary trajectories rather than, for some mysterious reason, the most significant factor. Competition for limited resources is itself conceptually meaningful only when we keep in mind that the actual competing, struggling, and reproducing is only ever possibly performed by living organisms, and so is not simply a matter of numerical multiplication within limited spaces and times. For example, Stuart et al. (2014) describe the rapid evolution of a species of lizard following its displacement from its original ecological niche by a competitor: pushed out into new territory the species rapidly goes through changes in physiology and behavior in adapting to its new niche. This might seem to comply perfectly with a Darwinian–Malthusian perspective: limited resources, intense competition, yielding natural selection. This might even seem like an intuitively appealing characterization, until we remind ourselves that these are not ping-pong balls being pushed along by air into preconstructed channels (using a typical lottery device as a metaphor). The Darwinian perspective only allows for chance inputs and outputs, or accidental causes and effects, on the basis of underlying natural laws (recall Darwin's remark quoted above comparing natural selection with the wind), but the organisms involved must certainly themselves be taken seriously as having nonrandom influences. For some reason a species took up residence in a new niche, which caused another species to have to take up residence in another new niche. We might look at it as something

like random motion on the Darwinian perspective, or we might look at it as purposive determination to survive and adapt on the Lamarckian perspective. And we must ask ourselves, what, at bottom, is the fundamental causal source, or explanatory mechanism? Is it a random movement of populations of organisms through preexisting ecological spaces, or a nonrandom purposive inhabitation by populations of organisms in creating viable ecological niches due to their apparently unaccidental will to persist and reproduce? In the former case, supposedly there are physical laws of nature that we have yet to discover but which could (will, someday) be explanatory; in the latter case, supposedly there is a teleological element of nature that is (and will always be, perhaps) irreducible to laws or mathematics. Hence, to adopt either perspective requires metaphysical and/or metabiological beliefs, whereas the proper empirical stance is to simply reserve judgment, and acknowledge that, for now, organic life and evolution are quite mysterious.

We are probably all quite capable of looking at it either way, but depending on our broader beliefs we might find one or the other perspective more intuitively or even empirically appealing. However, as shall hopefully become clearer in what follows, the Darwinian perspective is supposedly an empirical theory, which must therefore include the observables of evolution, rather than attempt to deny them. Even in ecological cases which obviously concern Malthusian competition and population growth in the context of limited resources, there would seem to be an irreducible nonrandom element of organic purposiveness involved, such that invoking purposiveness, even if admittedly alluding to ignorance regarding its ultimate source or nature in so doing, nevertheless must be regarded at least as an attempt to acknowledge precisely the nonrandom, and hence non-Darwinian, character of living things. Winkelmann et al. (2014) describe how competition among tropical freshwater fish (Cichlids) results in their population being divided for reproductive purposes: bigger fish push out smaller and breed together in preferred locations, so smaller fish end up breeding together in less preferred locations, eventually leading to genetic differences between the groups and speciation. So again, a Darwinian perspective might seem satisfactory, in that the competition and overpopulation for limited resources might seem explanatorily sufficient, except that it is not sufficient, because none of it would be happening if it were not for the purposiveness of the organisms, in their will to persist, and so to compete, breed, and seek out suitable locations for doing so. With that in mind there is nothing chance or random about it, and that is all that we have to admit in order to realize that the Darwinian perspective

may be superficial, in suggesting that somehow the underlying source of the activity under observation (the will to persist) does not matter, or does not exist, because supposedly the evolutionary outcomes are the chance results of natural systems that are ultimately determined even if we cannot for now identify the come-by-chance laws at work in producing the come-by-chance ecological results that organisms themselves supposedly have no potential for themselves directing due to the supposed impossibility of a nondetermined world and/or nondetermined organisms.

The Darwinian perspective therefore requires of us that our beliefs contradict our observations: belief in random outcomes of natural laws, and rejection of purposive organic influence due to an absence of natural laws, even though we observe nonrandom purposiveness (organisms struggling to persist, versus inert material random motion). And we must keep in mind that, at bottom, there is no reason to believe that the physics of organic life is Newtonian and lawful, thereby yielding outcomes which are random (in the sense that organisms themselves supposedly do not direct or control the outcomes on the basis of any supposed nonlawful, undetermined natural forces or abilities); the physics of organic life may be quantal and statistical and involve complexities that we are only beginning to recognize; or it may even be dark and utterly and perhaps permanently, necessarily, mysterious to us. In either of those latter cases (which appear increasingly likely), if life is ever reduced to physics, and purposiveness thereby explained, it may well turn out that organic life manifests forces and properties unique to it, which allow it to drive the course of its evolution, which would of course contradict and render obsolete Darwinism. To draw a comparison, adopting the Darwinian perspective on the fish, or the lizards, is like observing a person explain their motives and rationale for acting and then acting, and then suggesting that the person did not act on free will but rather was determined by physical laws and forces to do whatever he/she did. It is the free will (or the organic will to persist) that would seem to be the observable, simply employing customary language for the experience, and that implies no contradictions, whereas it is the supposed lawful natural forces that would rule out the free or organic will that would seem to be unobservable manifestations of a faith in determinism, that does seem to contradict the basic observation. Even if there are ultimately physical forces in play, there is no reason to believe that they are lawful forces, such as Newtonian laws, and therefore no reason to believe that our minds, or living organisms, do not after all

manifest nondetermined properties that until we have a series of scientific breakthroughs we can carry on referring to as "free will" or "living purposiveness."

Darwinians might argue that the physics of organic life may indeed turn out to be very different, and perhaps even involve physical laws that are unique and internal to organisms, by which organisms do after all manifest an ability to direct the course of evolution rather than the supposed aggregate of laws external to organisms that Darwinians now typically believe causes natural selection, but these physical forces will, even if unique to organic life, be lawful and reducible to mathematics, and thereby manifest determinism simply on the basis of different math. If this turns out to be the case, then Darwinism will hold up, since even if organisms organize on unique mathematics, it will be mathematics after all, which is not unique or internal to organisms, and the outcomes of evolution will involve the complex integration of physical laws internal to organisms with physical laws external to organisms, but all of it will be ultimately predictable and lawful, demonstrably and in principle, and evolution will therefore be Darwinian after all. If "purposiveness" turns out to be mathematically predictable (Newtonian), then Darwinism will prevail no matter how complex the equations turn out to be, whereas if "purposiveness" turns out to be mathematically unpredictable, even if somehow physical (quantal, or (currently) dark), then Lamarckism will prevail. At this point evolution theory becomes an argument about the future of biophysics and physics in general—whether we will discover that nature is lawful, or that it is not lawful, which is sheer speculation. Tobias et al. (2013) report that species of ovenbirds evolve unique feet and beaks even when they have not been in direct competition for limited resources and reproductively isolated, while their songs actually converge when not reproductively isolated and in direct competition for limited resources. This suggests that these evolutionary trajectories have been driven not by chance Malthusian factors, pressuring species into new niches, in play in an ultimately determined natural world, but rather by nonrandom behavioral momentum and ecological opportunity. If evolution is indeed nonrandom—if organisms influence evolutionary outcomes in ways that are not reducible to natural physical laws—then Darwinism is false, while organic selection would be vaguely correct in simply acknowledging the nonrandomness and nonultimate determinedness of evolution. Of course, maybe determinists are right, and maybe we will indeed discover that eventually, so we cannot declare either perspective true or false since

they both extrapolate well beyond the observable. But, at least, organic selection would seem the more observationally obvious perspective, in simply not invoking metaphysical determinism where none can be seen, and in allowing that organic "will" or "purpose" are mere place-markers for what we might discover in quantum or dark biophysics, which at this stage show no signs of turning up deterministic natural laws, and which may well deliver scientific evidence for nonrandom organically directed biological evolution. Does it really seem possible that the behavior of organisms is amenable to mathematical formulation, even if only in principle?

ii—"Natural" Selection

Undoubtedly, there is a struggle for existence (which may or may not involve population pressure on resources), and differential survival, with successful competitors reproducing more offspring, thereby passing their traits into subsequent generations, causing competitively advantageous traits to develop and change the forms of species over time. Darwinism claims much more than that, though. In addition, the role of organisms in the evolutionary process must be reduced to that of accidental trait or gene carriers, which by chance manifest whatever variations they have inherited, plus any noninherited chance mutations, and which succeed biologically entirely on the basis of chance survival given the natural context in which they exist. Consider that Sasaki and Pratt (2013) report that ants not only make decisions but manifest decision-making strategies, which they can actually alter depending on their needs and experiences, and which they somehow engage in collectively to bring about consensus as they go about their business. The purposiveness, the will, the determination to survive, and the choices and decisions that even simple organisms make must be insignificant or illusory on the Darwinian view, although they are observationally obvious. Belief in natural selection involves a prerequisite belief in materialist determinism; there are only blind mechanical forces, reducible to lawful formulation and predictableness in principle, or else natural selection cannot be true and organic selection is. Obviously, that involves a fundamental metaphysical commitment that has nothing to do with empiricism, which is often aggressively defended by Darwinians with accusations of mysticism or creationism toward skeptics. But there is plenty of room for middle ground positions; purposiveness is simply a term for what we observe and need not be associated with divine intervention.

The concept of natural selection seems increasingly hobbled by the acknowledged lack of any identifiable natural laws of evolution. Darwin (1872/1936) writes,

> In the literal sense of the word, no doubt, natural selection is a false term; but who ever objected to chemists speaking of the elective affinities of the various elements. . . . Who objects to an author speaking of the attraction of gravity as ruling the movements of the planets? Every one knows what is meant and is implied by such metaphorical expressions; and they are almost necessary for brevity. So again it is difficult to avoid personifying the word Nature; but I mean by Nature, only the aggregate actions and product of many natural laws, and by laws the sequence of events as ascertained by us. With a little familiarity such superficial objections will be forgotten. (p. 64)

The difference between known, lawfully quantifiable, specific forces and the aggregate product of "many natural laws" is surely not superficial. On the contrary, it is the difference between a predictable scientific hypothesis and metaphysical faith in determinism. Darwin (1872/1936) writes,

> It may metaphorically be said that natural selection is daily and hourly scrutinising, throughout the world, the slightest variations; rejecting those that are bad, preserving and adding up all that are good; silently and insensibly working, whenever and wherever opportunity offers, at the improvement of each organic being. (p. 66)

This, as an aggregate result of a determinist universe's many laws; the selecting is a metaphor for general lawfulness, but in the absence of specific, identifiable laws it is a rather hopeful metaphor for those wishing for determinism. Mayr (2001) states, "... there is no force or pressure connected with natural selection that corresponds to the use of the term in the physical sciences" (p. 118), but he also writes that Darwin rejected "obscure forces" (p. 76, quoted above). If natural selection is supposedly lawful, yet not specifiably lawful, but rather an aggregate force, is it not obscure? Mayr (2001) writes, "... the use of words such as force or pressure is strictly metaphorical ..." (p. 281); if selection is a product of many natural laws but "force" is metaphorical, what is "force" a metaphor for, if not a wish for an actual, specifiable, force where none can be found? Volpe and Rosenbaum (2000) write, "... natural selection can be compared only with such revolutionary ideas as Newton's law

of gravitation and Einstein's theory of relativity" (p. 11); yet they also state, "We . . . remain baffled as to the precise causative agent of selection" (p. 75). Natural selection cannot avoid the issue of determinist metaphysical bias overriding reproducible observation. It must always assert that there is no purposiveness, just aggregate physical lawfulness, or else there is no theory. But since there is no identifiable force, why should we take faith in eventually discovering one that is deterministic any more seriously than faith in eventually discovering one that is not deterministic, or more seriously than faith that we will not ever discover a physical force responsible for evolution? Given the rise of quantum and dark physics since Darwin's day the faith that natural selection requires in not just physicalism, in not just aggregate natural forces, but in deterministic (Newtonian/Einsteinian) physical forces, seems less warranted. If nondeterministic physical forces, somehow unique to and/or causal of organic life and evolution, are discovered in quantum or dark physics, which somehow prove that organisms are themselves causing their own evolution in nonrandom, thereby nondeterministic, ways, and that therefore the forces responsible for evolution are internal to organisms and that forces external to organisms are mere physical constraints, then organic selection will turn out to be true.

iii—Fitness

Darwin (1872/1936) writes,

> I have called this principle, by which each slight variation, if useful, is preserved, by the term Natural Selection, in order to mark its relation to man's power of selection. But the expression often used by Mr. Spencer of the Survival of the Fittest is more accurate, and is sometimes equally convenient. (p. 52)

"Fitness" basically refers to how well an organism flourishes in its ecological niche and is ultimately measured by reproductive success—better fitness yields more reproduction. However, such generalizations are not insightful on their own, for it is perfectly obvious that some individuals reproduce more than others, and that reproduction is a costly task requiring vigor; the terms "fit" and "adapt" could be replaced with other words and still get across the idea that some organisms flourish more than others. The point of an evolution theory is to tell us how; to provide some insight into the differentiation between the fit and

the nonfit, beyond the obviousness of being either fit or nonfit. Sober (1993) writes, "... variation in fitness that occurs within a population will have its source in the complex nexus of relationships that connects organisms to their environments and to each other" (p. 68). However, this is merely Darwinian-speak for "some organisms reproduce more than others," which is perfectly obvious. There is only something in the way of a theory being defended by Darwinians when the determinist materialism is kept in mind; otherwise the language of natural selection is often just a peculiar choice of words with which to describe nature, which are in themselves often devoid of theoretical content. "Fitness" only takes on theoretical meaning when attached to an explanation of how whichever organism has become more or less fit, and the Darwinian theory amounts to chance matching between an organisms' inherited traits and the environmental scenario. On this view organisms have very little if anything to do with their own fitness, because on determinism either they get lucky by way of inheritance or circumstance or both, or they do not. All of their own reactiveness, will to survive, changeability, and choices are, on the materialist view, determined by physical traits and by greater but as yet undiscovered physical–chemical lawfulness.

Nature does not have to be interpreted that way, and when it is not it need not necessarily amount to mysticism rather than empirical suspension of judgment. Modern physics appears increasingly poised toward offering evidence for a nondeterministic natural world, in which organic choice might be genuine even at the level of simple organisms. Certainly, it is determinists who are out on a theoretical limb, so to speak, more so than those who argue that evolution cannot currently be scientifically explained. Sober (1993) argues, "... although fitness is explanatory, it seems to be a placeholder for a deeper account that dispenses with the concept of fitness" (p. 74). Sober (1993) offers an explanation of two chromosome inversions in fruit flies that are responsible for thin or thick thoraxes, in which he employs each of the terms "selection," "higher viability," "change in frequency," and "greater fitness," but we would need to understand what causes the chromosome inversions if we are not merely to be engaged in pure rhetoric. Are they programmed responses to temperature stimuli, driven by fruit fly food preferences (perhaps during certain seasons an especially delectable food source is only found in the cold, and this behavioral drive has led to genetic changes to lower the risk to the organism), or is there a predator avoidance element (in which case the behavior of the predator species

may drive the genetics of the prey)? Darwinian theory assigns genetic changes to chance mutations that are supposedly naturally selected for by way of ecological opportunity, but the evidence for greater levels of genetic responsiveness to ecological stimuli is growing (see below). Any significant behavioral elements in the causal chains must be cast by Darwinians as purely material, but this is not so easily or necessarily done. Dasgupta et al. (2014) report that fruit flies, when presented with widely different concentrations of odors, act impulsively, but as the difference between odor concentration narrows the time that they take to act increases as they attempt to gather more information, such that mathematical models which characterize decision making in primates and humans also apply to the fruit flies. The point is that "fitness" is not explanatory, anymore than "selection," unless and until the materialist-determinist worldview is entered into the explanation. Both terms could serve just as well in a vitalist theory of evolution which cites organic purposiveness as the place-marker term for yet-to-be-discovered nonrandom (organism-directed) unlawful causes for reproductive success, as they serve in a determinist theory of evolution which cites natural selection as the place-marker term for yet-to-be-discovered lawful causes for reproductive success.

iv—Tautology

Sober (1993) writes, " . . . Trait X is fitter than trait Y if and only if X has a higher probability of survival and/or a greater expectation of reproductive success. . . . The fact that the theory of evolution contains this tautology does not show that the whole theory is a tautology" (p. 70). Sober's (1993) example, simply translated as "Fit organisms are reproductive," seems analytic; like 'unmarried' and 'bachelor,' 'fit' and 'reproductive' seem synonymous enough. But what about the overall theory that "evolution is caused by natural selection"? Is that a tautology? Does the term 'evolution' essentially include 'natural selection,' as 'bachelor' includes 'unmarried'? Only if natural selection is defined neutrally, without reference to determinism, as it sometimes is. That is, if 'selection' only refers to differential reproduction and inheritance, which are bare necessities for any change in the form of species, and which is basically what 'evolution' means, then the statement "evolution is caused by natural selection" would seem to be analytical, or a tautology. But when the full meaning of Darwinism is included there is no tautology, since evolution may not necessarily be caused by strictly mechanical/lawful

forces as Darwinism contends. The risk for Darwinians, though, is that avoiding the tautology leaves them exposed as metaphysicians rather than empiricists. On a strictly empirical basis, since observations do not allow for decisions regarding determinism (i.e., we see lawful regularity, we see purposiveness, whether either is or can be subsumed by the other is beyond us), natural selection seems like a tautology: changes in populations amount to differential reproductive success, and differential reproductive success amounts to changes in populations. Like "unmarried" and "bachelor," the two concepts are interchangeable; one does not amplify the meaning of the other.

Hull (1974) writes, " . . . the principle of the survival of the fittest . . . Is not a tautology in those versions of evolutionary theory which recognize the key role played in evolution by the organism-environment relation" (p. 69). Hull (1974) describes how when fitness is defined simply as leaving more offspring the tautology arises, and apparently thinks that when the empirical content of fitness is spelled out, the tautology problem goes away, but he (1974) also writes, "If only we had 'complete knowledge' . . . the fate of every individual organism could be predicted . . . and the survival of the fittest would become a tautology" (p. 69). Claiming that "complete knowledge" will yield predictability is determinist faith, of course (because organisms and nature in general might not be mathematical or predictable even with complete knowledge), but supposedly if we attach some empirical content, but not too much or too little, the principle of survival of the fittest is not a tautology. That cannot be correct; empirically we are confined to observations, which reveal organisms going about their reproductive business with variable success. Of course, it is useful to descriptively gather information about which traits lead to success in which organisms and so on, but those traits are not strictly mechanical or accidental by observation, but purposive. The point of "the survival of the fittest" is to cast the evolutionary process as mechanical, and only by interpreting observations deterministically is theoretical content added to observations of differential reproductive success. Observations can only inform us of what traits work for which organisms; a strictly empirical generalization might only amount to something like, "Some traits yield success, others do not," which is the full meaning of "survival of the fittest" until the mechanicism is added in to avoid the tautology. That Darwinism is metaphysical does not render it unscientific (for metaphysics has a role in science), but that needs to be acknowledged in order to properly distinguish the facts of evolution from the theories.

v—Difference

Another conceptual difficulty with natural selection concerns the process of selecting; Darwin acknowledges that he regarded the idea as analogous to artificial selection, in which keepers select individual organisms for preferred traits. Obviously nature is not a keeper, and obviously we are supposed to receive it as a metaphor, but for the suggestion to make any sense whatsoever there has to be something like actual selecting going. Darwin defines nature as an aggregate of natural laws and forces, but also denies anything other than that physicality to even organisms as sophisticated as ourselves. The problem is that this leaves no difference between that which is supposedly selecting, and that which is supposedly selected. Without some sort of difference between the two, the metaphor fails, and there is no theory. Certainly, we must agree that evolution occurs and that it manifests great creativity and direction. On the Darwinian view, not only is there no meaningful difference between life and nonlife, but all the creativity and directionality of evolution is assigned to the inorganic nonlife and none to organisms. Why does the side that appears to have directionality denied it, while the side that does not appear to have directionality assigned it? If we are to try to play along with Darwinism, we have to somehow manage the notion that matter, all ultimately inert on determinism, can somehow select itself; that somehow the same stuff can differentiate with one part manifesting a causality that the other part does not. That does not seem like a reasonable thing to believe, especially when the causality is assigned to the obviously inert matter but not to the apparently living matter, which only leaves the conceptual possibility that since the same stuff cannot select itself, there is no real selection after all, and no direction, and no creativity, and that in the final analysis evolution and organic life itself do not actually exist at all, but are merely illusions like free will. Random mechanicism leaves no room for a difference between organic and inorganic matter sufficient enough to warrant the concept of selection, but just random motion (a point acknowledged by Darwin in his remark, quoted above, about natural selection being like wind).

The purposiveness of life solves the problem (arising from our general agreement that evolution is real and not an illusion, as is our experience of free will) but mechanicists are committed to not allowing any supposedly obscure or spooky nonmechanical forces in their theory of evolution. Unfortunately, the notion that atoms/quants can lawfully select other atoms/quants is obscure and spooky. Darwin (quoted above) refers to the affinities of chemical acids and bases, and to the governing force

of gravity, but does he really expect anyone to believe that matter selects matter? Would we gain anything explanatorily by arguing that clouds are naturally selected? Or lightning bolts? If not, why should we think it reasonable to believe that of organisms, even if we were to play along and assign to them nothing unique compared to inert matter? If there is ultimately no difference between inert matter and living organisms (which is the Darwinian position), the concept of natural selection does not work (since the same stuff cannot be reasonably believed to select itself), but if there is a difference between inert matter and living organisms (which is the Lamarckian position), the concept of natural selection does not work (since whatever that difference is it must be the cause of evolutionary creativity, rather than the inert matter). Darwinians might argue that there is a difference, which is simply that organisms reproduce, for limited resources, and so compete, even though they are materially of the same stuff as the inert matter. Lamarckians might respond by pointing out that the water droplets of clouds reproduce and that the earth's ecosystems are as wide open for organisms as the sky is for clouds, such that even in the case of clouds, but especially of organisms, it makes much more sense to ascribe their manifestation to their unique properties rather than to the physical and chemical milieu in which they appear. Even the chemical property of changing states (in the case of clouds, water changing from a gas to a liquid) is sufficient to warrant casting exactly it as the cause of what we observe as clouds, rather than casting the cause as the aggregate of physical forces other than that property. In the case of organisms the unique property is no less than a will to persist, which is not currently reducible to any known natural laws, and which must surely involve some sorts of natural causation that render organisms very, very different from inert matter, which is precisely why it is much more reasonable to believe in organic rather than in natural selection.

vi—Teleology

Aristotle offers compelling metaphysical arguments for teleology, and Kant epistemological, in no small part because empirically they (like we) observed purposiveness in organisms. Nevertheless, Mayr (2001) argues, "Does any process in evolution require a teleological explanation? The answer is an emphatic 'No'" (p. 275). Some of Darwin's contemporaries saw it that way: Huxley (1864) writes, "... nothing can be more entirely and absolutely opposed to Teleology ... than the Darwinian theory ..." (p. 49). Others did not: Wallace (1883) argues,

"... the difficulties I have put forward ... I think, prove that some more general and more fundamental law underlies that of natural selection" (p. 68). Recent arguments revolve around the use of teleological language and whether or not that is necessary, as if the actual existence of purpose is unimportant and only a linguistic problem remains. Hull (1974) writes, "Teleological modes of expression are often more convenient than ordinary causal talk when describing ... living systems, but are they indispensable?" (p. 101); "... both modes of description ... have to be treated ... respectfully, by philosophers of science" (p. 124). So Darwinians disagree on this, but ultimately the problem we are interested in is whether or not purposiveness actually exists, and/or how to account for our experience of it, not whether we are somehow linguistically conflicted. Darwinism is committed to the actual nonexistence of organic purposiveness for the sake of theoretical coherence; if teleology is admitted, natural selection is replaced with organic.

Of course, denying organic purposiveness flatly contradicts our best evidence—reproducible observation, the compelling principles of Darwinism notwithstanding. Curiously, one does not encounter arguments against our actually having observations of purposiveness in Darwinian literature; we have them, but they supposedly amount to some sort of ignorance, either of a kind that scientific progress will eventually dispel or of a kind that amounts to a necessary illusion like free will. Kant (1790/1987) provides an interesting view that organic purposiveness may be a universal law of human experience, but Darwinians generally do not indulge transcendental idealism. Sober (1993) writes, "Newtonian physics made it possible to think that a meteor may simply not have a function.... Talk of functions and goals is quite gratuitous. Perhaps progress in biology requires a similar emancipation from functional notions" (p. 83). Reductionists are rightly enamored with Newtonian physics, but why can they not admit that organisms are altogether unlike Newtonian point-mass objects? There is nothing in common between them; to wish that biology will someday be reducible to mechanical laws is an act of faith. Until the directionality of organic matter is proven to be determined responses to identifiable physical and chemical stimuli, teleology is simply the reporting of objective human experience, inclusive of an acknowledgment that the source or cause of the purposiveness is mysterious but for all appearances not deterministic. And it may be unreasonable to ever expect teleology to be reduced to natural laws, for we and apparently some other species of animals manifest free will, which has had to emerge somewhere along the line, gradually from simpler life forms; and in addition modern physics is

not deterministic. To argue mechanicism all the way up the ladder of evolution and life and throughout the universe is no more empirical than to argue purposiveness all the way down and through; these are both literally metaphysical perspectives exactly for the reason that they extrapolate well beyond observational evidence. Determinism has been intellectually fashionable for so long that it has become common sense (at least for scientists), but it should be remembered that in an earlier era of great progress the fashion was teleology.

vii—Probability

Hodge (1991) writes, "... if natural selection is understood as a probabilistic causal process then we can avoid many confusions ... about the empirical testability ... of ... natural selection" (p. 459). On determinist, Newtonian terms, probability is a bad thing, but as Weber and Depew (1996) point out,

> The philosopher of science John Herschel, on whose view of natural philosophy Darwin had relied ... dismissed Darwin's theory as a "law of higgledy-piggledy" that did not conform to the behavior of genuine Newtonian systems (p. 35); The fact that Darwin was deeply disappointed by this rebuff shows how important the issue was to him (p.35); ... population geneticists preserved and enhanced Darwinism's traditional gradualism. They did so by treating statistical "higgledy-piggledy" not as the vice that Herschel took it to be but as what a new scientific climate was revealing to be a considerable virtue. (pp. 35–36)

Supposedly, then, we might be able to attach more or some meaning to natural selection by reconsidering it in terms of statistics; this could be reconciled with determinism as a mere lack of total information. If we knew all the facts we could predict with certainty evolutionary outcomes, but with limited information we must be satisfied with mere probabilities. Mayr (2001) argues, "To be fit means to possess certain properties that increase the probability of survival" (p. 116). However, it is difficult to see how any meaning is added in moving from defining "fit" in terms of "survival" to "probability of survival." We are still left to wonder what causes the increased probability, to which Darwinians respond—inherited traits received by chance which by chance match environmental conditions, or pure material luck, in other words, with no role for purpose. Behavior amounts to whatever is genetically hard-wired into individual organisms at conception. Organisms have no liberty to help determine their fates; all perceived choice or will or responsiveness

is illusory. This again is a metaphysical not empirical worldview that might seem plausible to some regarding the bacteria, protist, fungi, and plant phyla but surely to some not the animal. Are earth's organisms really no different than its salts? Do the sparkles in children's eyes seem to anyone the same as the sparkles of precious gems? Determinist scoffing and cynicism regarding mysticism and creationism, ignorance and superstition, cannot in the slightest way refute the epistemological and scientific significance of objective human experience. If life creates its own probabilities, then biomechanicism may even amount to a well-intentioned misunderstanding of empiricism in general.

Sober (1993) writes, "Natural selection involves unequal probabilities, and for this reason, it is not a random process" (p. 36). But this supposed inequality is a product of accidental matching of genetic traits with ecological conditions. The chance matching is surely random unless the traits are not accidental, but they have to be accidental on Darwinism because supposedly there are no acquired traits only inherited. Sober (1993) argues, "'Random mutation' does not mean that the different mutants are equiprobable" (p. 37). But Darwinism does not tolerate mutationism, which Sober (1993) acknowledges, adding, "Variation is generated at random, but selection among variants is non-random" (p. 38). This is an issue of theoretical coherence: it all has to be random, through and through, or else Darwinism is self-contradictory. Accidental traits and accidental ecosystems yield accidental changes over time—that is the Darwinian point of view. In a fixed, closed experimental or observational setup one might be able to usefully ascribe nonrandomness to the differential success of various trait combinations. Of course, real ecosystems are not closed or fixed, and meaningful evolution generalizations must involve large time scales, so successful matching of accidentally generated traits to habitats must involve blind luck, which on Darwinism ultimately rests on the basis of come-by-chance lawful physical forces. That is, it is all a matter of chance for the individual organism, and to all appearances that is supposedly all we can detect for now, but underlying it all are physical/chemical regularities determining every outcome. That is only a consequence of the Darwinian characterizations of natural systems, however; if traits can be acquired, and/or organisms can react by means of nondetermined faculties (will), or niches are constructed not merely inhabited, then selection might be nonrandom, but not natural so much as organic, not determined but teleological.

viii—Variation

Perhaps the issue most crucial for understanding evolution is variation. Natural selection is held to act on existing variants in populations—traits that wind up making it into subsequent generations by means of the successful reproduction of their carriers must have conferred some benefit or else they were neutral. Deleterious traits are selected against by failure to reproduce. The genetic variations that arise do so randomly, but the precise mechanism which causes variation to happen at all is unknown, pending further research. An obvious objection is that if the cause of variation is unknown, how can we be certain, or why should we assume, that it is random? Perhaps variations are nonrandom, creating mutation pressure or bias in the evolutionary process. Darwinians reject the possibility of mutationism (the notion that mutation itself directs evolution) by both citing a lack of proof for it (though it is acknowledged as an area needing more research) and arguing that ultimately the persistence of variations in populations is determined by external conditions. Even if there is nonrandom mutational bias it will supposedly be overridden by natural selection: Mayr (2001) writes, "Only rarely is such biased variation sufficiently strong to override the eliminating power of selection" (p. 100). Organisms are not allowed any role in directing evolution, even a seemingly "material" one; natural selection is the sole creative cause of evolutionary trajectories. Darwinians cannot give an inch to mutationism, for fear of losing a mile to organic selection. Our level of understanding about genome dynamics is still low, and still a cause for much speculation. Darwin (1874/1936) writes, "With respect to the causes of variability, we are in all cases very ignorant . . . " (p. 415); but he nevertheless goes on:

> In my work on the variation of domestic animals, I have attempted to arrange in a rude fashion the laws of variation under the following heads: . . . Changed conditions. . . . Use and disuse. . . . Cohesion. . . . Multiple parts. . . . Compensation. . . . Mechanical pressure. . . . Arrests of development. . . . Reversion. . . . Correlated variation. . . . All of these so-called laws apply equally to man and the lower animals, and most of them even to plants. (p. 416)

Darwin was not aware of Mendel (the father of genetics) and worked a century before the discovery of DNA. Volpe and Rosenbaum (2000) offer the current mainstream views: "The causes of naturally occurring, or spontaneous, mutations are largely unknown" (p. 38); "We may say that

spontaneous variations are random and unpredictable" (p. 38). This would seem incoherent: if we say "unknown" then we cannot say "random" and vice versa, yet that is the common sense among biologists today.

Obviously, there is an enormous amount of biodiversity on earth, so any theory of evolution must include a viable explanation of how so much variation occurs. If organic matter is itself denied a creative role or force in evolution, that leaves an explanatory gap that Darwinians attempt to fill with the concept of the gene pool. Volpe and Rosenbaum (2000) explain; "The process of mutation furnishes the genetic variants that are the raw materials of evolution" (p. 51). Supposedly, there is neither any sort of general pressure produced by mutation causing biodiversity to expand into or compete for ecological niches, nor do mutations arise directly in response to environmental stimuli. Rather, selection acts on existing variation in the gene pools: this constant supply of mutations is sufficient for natural selection to produce biodiversity by presenting ever-changing environmental conditions and an infinite variety of ecological niches, in the context of the Malthusian population pressure and competitive struggles to survive. Mayr (2001) argues, "There is no mutation pressure" (p. 280). It might be tempting to think that this may amount merely to abstract conceptual wrangling or a verbal dispute, but at issue is the fundamental question of what primarily causes evolution—blind mechanical laws of matter and motion, or some sort of emergent teleological property of organisms. Asserting the former requires supporting evidence, one line of which is Darwinism's gradualism. In light of Lyell (the father of geology) and the profoundly new perspective of geological time (a contemporary analogue might be the recent telescopic evidence of vastly more galaxies than had been imagined), Darwin recognized that the vastness of time plays a significant role in evolution that allows for the possibility of a mechanistic theory of evolution.

Gould (2002) writes,

> Darwin reasoned that natural selection can only play a role if evolution obeys two crucial conditions: (1) if nothing about the provision of raw materials—that is, the sources of variation—imparts direction to evolutionary change; and (2) if change occurs by a long and insensible series of intermediate steps, each superintended by natural selection—so that "creativity" or "direction" can arise by the summation of increments (p. 140); Darwin understood that if any of these claims failed, natural selection could not be a creative force, and the theory of natural selection would collapse. (p. 140)

Conceptually, if variation is random but not directed (the latter being mutationism), then evolution can only occur very, very, slowly; Lyell's theory of plate tectonics allowed Darwin's theory of natural selection. Gould's theory of punctuated equilibrium does not challenge Darwinism fundamentally: on evolutionary time scales long periods of ecological stability and sudden disruptions create conditions in which vacated niches can reasonably be thought to be fillable still by the process of natural selection. Punctuations may be momentary or last tens of thousands of years; the refilling of niches by new species may also be immediate or drawn out over millions of years; but in the context of evolutionary time scales of hundreds of millions or billions of years, while the equilibriums appear punctuated in the fossil record there is still enough time at all stages to allow conceptually for the possibility of gradual natural selection.

Stoltzfus (2006) argues that natural selection can be regarded as,

> applying equally to "infinitesimally small" or "great and sudden" modifications; to "indefinite" or "definite" (directed) variations, and to rare or ever-present variations. By longstanding tradition, then, the principle of natural selection is bundled with Darwin's conjectures about variation, and invoked as an external force, a creative principle, or a 'mechanism of evolution'. (p. 305)

But it is for more than traditional reasons that Darwinism insists on gradualism and nondirected random mutation, as explained by Gould (2002). Stoltzfus (2006) continues,

> The architects of the Modern Synthesis . . . antagonistic to mutationism, conceded only that mutation is "ultimately necessary," erected the "gene pool" as a buffer between mutation and "evolution," and denied any specific influence of mutation-and-altered-development on directionality and dynamics. This parochial view was formalized, and drummed into the heads of several generations of students, by redefining "evolution" as the sorting out of pre-existing variation. (p. 310)

Novelty happens of course, necessarily by way of mutation, but according to Darwinism the ultimate source of the novelty that appears in populations is not mutation itself but natural selection. Ayala (2005) writes, "Natural selection has been compared to a sieve which retains the rarely arising useful genes and lets go the more frequently arising harmful mutants" (p. 27). That is, novel variations spontaneously arise

but only persist if they happen to by chance match external conditions and confer reproductive advantage. It is this insistence on the domination by the external over the internal in the process of evolution that clarifies the meaning of Darwinism. The possibility that species may generate variation sufficient to impose themselves on ecosystems, either by sheer volume to create a general mutation pressure into new niches, by directed biases in mutation which may lead to niche construction, or by mutational leaps by which changes in populations occur relatively immediately, or by some combination, is rejected by Darwinism because it amounts to organic selection. Mayr (2001) writes, "A structure that is able to adopt a new function is said to be preadapted for such a shift" (p. 207); "It affects at first only one individual within a population and becomes evolutionarily significant only if it is favored by natural selection and spreads gradually to the other individuals . . . " (p. 207). Darwinians insist on interpreting mutations or preadaptations as purely chance events that do not happen in response to the environment. For example, Sober (1993) writes, "Mutations are said to be 'random' in that they do not occur because they would be beneficial to the organisms in which they occur" (p. 37); Weber and Depew (1996) state, " . . . Variants having certain traits are not produced because they are needed for specific adaptations. It is just this claim that separates Darwinism from the Lamarckian tradition in evolutionary biology" (p. 35).

That evolution cannot occur by what Darwin (*1844* letter, in 1987c) describes as: "Heaven forfend me from Lamarck nonsense of a 'tendency to progression' 'adaptations from the slow willing of animals' &c" (p. 2), is in turn based on the notion of isotropic development. Mayr (2001) writes, "The pathway from nucleic acids to proteins is a one-way street. Proteins and information contained in them cannot be translated back into nucleic acids" (p. 272); "The genetic material is constant and does not permit an inheritance of acquired characteristics" (p. 114). This unidirectional influence of genotypes on phenotypes is required for natural selection, since if development is bidirectional, and/or acquired traits can be inherited, organisms would thereby possess the power to direct their own evolution and natural selection could amount to a mere constraint, not a predominant directional force. Though the evidence from developmental biology is starting to mount against Darwinism on this (see below), Mayr (2001) writes, "In reality, every stage of a developing organism, from the fertilized egg (zygote) on to old age, is constantly subjected to selection" (p. 270). However, whether natural selection

is omnipresent is not the issue, but rather whether natural selection is the directive, creative force of evolution. Organisms manifest what are known as reaction norms, which amount to ranges of responsiveness to stimuli which are supposedly coded for in genes. Darwinians argue that reaction norms suffice to explain any plasticity and reactivity in organisms, and that they cannot amount to organic influence on genomes by way of behavioral or other purposive behavior, or include bidirectional exchange of information between genomes and proteins (and by extension with the rest of the organism including behavior and niche). Hull (1974) writes, "Mendelian genetics is that the genotype sets limits to the possible variation in the phenotype, limits termed reaction norms. The environment the organism happens to confront determines which of these many possible phenotypes is actually realized" (p. 16). The questions developmental biologists are now confronting are whether organisms are themselves influencing how their own phenotypes develop by way of their niche construction and behavior, whether the phenotype can indeed modify the genome, and whether such modifications are heritable (see below). Mayr (2001) writes, "Some species have a very wide reaction norm; they can adjust their phenotype to wide variations of the environment and have a high phenotypic plasticity" (p. 129). If species can adjust phenotypes, then some such adjustments must be a result of behavior as organisms decide which conditions they are exposed to. If the organisms, through their choices, determine their own phenotypes, which are then selected, the directive force of "nature" gives way to the organisms. Darwinians must maintain that organisms do not actually make choices, and that their purposiveness is illusory all the way across the spectrum of organic life, in order to maintain theoretical coherence, which is a metaphysical interpretation not supported by the observational evidence. Mayr (2001) states, "The structure of the genotype is perhaps the most challenging remaining problem of evolutionary biology" (p. 273). Since it is the genome that serves as the courier of information in evolution, if we are only beginning to understand it, how can strong theoretical assertions about evolution be justified? Given a lack of evidence, is not the appropriate stance to withhold judgment?

As would seem to generally be the case regarding evolution, the manner in which we interpret the scientific examples might simply be reducible to theoretical (or ideological) preferences. But still we can wonder which preference makes more sense, insofar as being extrapolated from the observations. Pankey et al. (2014) report that the gene expression responsible for the manifestation of photophores (bioluminescent

organs) in distantly related species of squid is so similar that it can be characterized as predictable. The organs have evolved separately yet have arrived at the same destination genetically, the odds of which happening by mere accident, due to random natural processes, is extremely low; the evolution of that particular organ must involve a consistent genetic trajectory regardless of the species in which the organs are developing, which means that there is something nonrandom about the convergent evolution of the photophores in the different species of squid. Darwinians could suggest that there must be external ecological constraints in play, such that the populations of the different squid species are independently adapting to an ecological niche in their habitats due to population and competition pressures, consequently being naturally selected to fill a niche that just happens to involve the development of an organ that can only be produced by a certain particular genetic combination. Chance mutations, plus population pressure, plus competition for limited resources, that happens by accident in this particular case to yield bioluminisence—so many ping-pong balls automatically dividing, filling, and squeezing together in a tight space over a long time, eventually being pushed into a tight little outlet, yielding photophores, that are genetically quite similar simply because of the highly specialized biological function and biochemical limitations involved with that particular trait. Darwinism is not a foolish interpretation, after all, and offers a highly appealing elegance, at least for those theoretically predisposed toward physics.

On the other hand, we might simply dismiss the notion that population pressure or competition for resources had much to do with it, especially since in the case of squid and the Cephalopods in general there is an extremely high level of animal intelligence, and suggest that the squid were self-directed, choosing to occupy that niche intentionally, due to reasons that only intensive animal behavior research might reveal, and that rather than the genetic convergence ultimately being a matter of accidental coincidence, it is a matter of animal purposiveness. That is, given the reaction norms of the squids, in which their phenotypes are variably expressed, and even only allowing for random variation in their own population genetics, it seems quite reasonable to interpret the result as being the outcome of the squids selecting themselves rather than the squids being selected for by "nature," in order to purposively fill a niche (by slow willing) that for whatever reason they preferred. So while the Darwinian interpretation appeals on a physical basis, the Lamarckian interpretation appeals on a behavioral basis; but,

if we were to have to choose, we must surely admit that the squids are animals after all and not ping-pong balls.

ix—Niches

The process by which species come to inhabit the particular ecological niches that they do is of no small significance for understanding evolution. Here especially the intentionality, choices, behavior, and general purposiveness of organisms seem undeniable. Even if purpose is reduced to the will to survive, that alone is something that does not appear in the nonliving, and that is what likely drives organisms to construct ever more ecological niches. The Darwinian view is that population pressure and competition force organisms into unfamiliar ecosystems, but it needs to be pointed out over and over that naturalists need not always read nature that way. The finches of the Galapagos, for instance: Why did they ever decide to leave mainland South America at all? Why did they decide to stay? Maybe they were forced out somehow, or maybe there is something about bird life in particular that motivates pioneering behavior. For example, Sol and Price (2008) report evidence that brain volume is positively correlated with rates of adaptive radiation in birds. Volpe and Rosenbaum (2000) write, "Organisms throughout the ages have seized new opportunities open to them by the absence of competitors and have diverged in the new environments" (p. 136). Darwin (1872/1936) argues,

> How strange it is that a . . . woodpecker, should prey on insects on the ground; that upland geese which rarely or never swim, should possess webbed feet. . . . But on the view of each species constantly trying to increase in number, with natural selection always ready to adapt the slowly varying descendents of each to any unoccupied or ill-occupied place in nature, these facts cease to be strange, or might even have been anticipated. (p. 361)

Mayr (2001) writes, "Many . . . pieces of evidence show that the classic definition of the niche, as a property of the environment, is preferable to the one that considers it a property of the organism" (p. 152). It suffices for our purposes here to notice the term "preferable"; if organisms have a role in constructing their own niches or are not necessarily pressured into them by way of large populations or competition, then an element of organic selection may be as reasonable an explanation of the facts.

Hence, once again it would seem to be a matter of perspective, and not a matter of the observational information actually necessitating one or the other interpretive preference. For example, Koops et al. (2014) report that tool-using primates (chimpanzees, orangutans, capuchins) do not increase their use of tools in response to a scarcity of resources, but rather in response to ecological opportunities presented by the availability of tool materials and food resources that require the use of tools. If organic selection were true, in times of scarcity, why would such highly intelligent primates not try to improvise and create new tools with different materials to take advantage of novel food supplies? The Darwinian interpretation might seem quite appropriate: if there are no tool materials, and no foods that require tools, it is not surprising that tool use would not increase given a food scarcity, since in such conditions there is no opportunity or justification for tool use. In habitats in which there are tool materials and foods to use them on, well of course primates will take advantage, in being naturally selected to fill out a newly available niche involving tools and tool-applicable foods. But again, the Lamarckian can simply object that it surely cannot be the case that this is all just a matter of random physical forces, and that the basic will of the primates is irrelevant: even if the primates are incapable of much improvisation and only initiate tool use and extract tool-applicable food resources when the opportunity obviously presents itself, that is simply because they are only primates after all and not especially brilliant, but anyway their general will to survive and persist is what drives them into new niches when possible, not mere accidental matter in motion (in the form of reproductive pressure on limited resources). Whereas the Darwinian can claim that population, competition, and ecological opportunities are the only concepts required to explain the scenario, the Lamarckian can argue that they are not satisfied with such an explanation, since if it were not for the fact that the objects under observation are alive, rather than inert, none of it would occur, and for precisely that reason the Darwinian explanation is superficial. Only living organisms compete, reproduce, and occupy ecological niches, and what we are after in a theory of evolution is an explanation of why they do that, of what it is that separates the living from the nonliving, rather than a mere description which pretends with its terminology that the fact that the living things are living is irrelevant. Ultimately it is in the difference between the living and the nonliving where the causal source of evolution must lie, not in the physical forces of nature which the living things are surely subject to but which cannot account, at least on our current understanding, for the existence of either the living things or the process by which they evolve.

x—Speciation

Speciation is another problem that Darwinians prefer to explain in terms of chance, mechanical, and external pressures. There are two types of speciation, allopatric and sympatric. In the former, geographic isolation of populations eventually results in sufficient genetic differentiation that the populations can no longer produce viable or reproductive offspring. In the latter, the populations are not geographically or otherwise separated but coexist, yet differentiation occurs anyway, sometimes due to sexual selection. In Cichlid species of tropical fish, coexisting populations have differentiated due to females developing finicky preferences for particular color and courtship behaviors; birds species also demonstrate this phenomenon. Mayr (2001) writes, "Sympatric speciation through the simultaneous acquisition of mate preference (sexual selection) and niche preference has now been demonstrated for several families of freshwater fishes" (p. 181). If the organisms' mate and niche preferences are driving speciation, these preferences are in these cases driving evolution altogether, for the morphological changes associated with sexual and niche preferences are pervasive.

Mayr (2001) describes,

> The theory of speciational evolution, according to which isolated founder populations . . . may undergo . . . profound genetic restructuring. This and the subsequent inbreeding of the new population may lead to the production of some unusual new genotypes. (p. 193)

Kleiner (2003) argues,

> Mayr's model for speciation supposes that the founder bottleneck produces increased homozygosity as a consequence of sampling, drift and inbreeding. Accordingly, there is little to draw from for the production of a significantly novel genome. . . . Mayr's model thus lacks causal coherence. If it were realized in nature, it would fail to produce new species (p. 523); Adding the premise that there is no alternative account of the happening—that the happening is "surprising"—does not enhance the explanatory power of the account. (p. 523)

Rabeling et al. (2014) report sympatric speciation within ant colonies: a parasitic species arose from, even while living within, the colonies of its ancestral and host ant species and developed behaviors that allow it to "discretely" reproduce and carry out its activities without "offending" the hosts. Soria-Carrasco et al. (2014) describe how two varieties of a species of stick insect are undergoing speciation due to populating

different types of plants, but even while there remained gene flow between them, due to repeatable and similar patterns of genetic change in both varieties. These examples suggest that the traditional Darwinian characterization of allopatric speciation is probably inadequate, which means that species may not be arising due to their being forced into new territories by chance Malthusian factors of population growth and competition for resources. Rather, there may be nonrandom factors in play, perhaps behavioral, perhaps genetic, which would amount to forces internal to the organisms themselves, rather than external, that somehow cause speciation, in which case natural selection would not provide an appropriate conceptual explanation for what we are observing.

xi—Summary

While there is no denying Darwinism's persuasive appeal, the notion that natural selection just makes sense somehow, that it can explain everything, is due to the fact that it cannot be denied that organisms struggle to exist and variably reproduce. As a metaphorical platitude, natural selection cannot be refuted. When Huxley (1863) argues that, "... Darwin's hypothesis is not, so far as I am aware, inconsistent with any known biological fact..." (p. 47), there is a sense in which he is correct simply because not all organisms succeed: there is a sorting-out process, there are significant degrees of luck and probability involved, and mechanical laws of nature must be influential. But, when Huxley (1863) states, "... there is but one hypothesis regarding the origin of species of animals in general which has any scientific existence—that propounded by Mr. Darwin..." (p. 47), he rules out teleology as a possible cause in biology as if it were necessarily illusory even though purposiveness is what we observe (nonliving forms of matter do not struggle to persist). It is as if biology must be reconciled with Newton, or else it cannot amount to a proper scientific field; "physical" necessarily means "determinist" and science necessarily means physics. Fisher (1930) argues,

> Advocates of Natural Selection have not failed to point out... that it proposes to give an account of the means of modification in the organic world by reference only to 'known' or independently demonstrable, causes. The alternative theories of modification rely, avowedly, on hypothetical properties of living matter which are inferred from the facts of evolution themselves. (p. 132)

However, this assessment inverts the empirical meaning of "knowns" and "hypotheticals." That living matter manifests the property of purposiveness is the more "known" cause and the less "hypothetical," precisely because it is independently demonstrable on the basis of reproducible observation, while natural selection is the more "hypothetical" and less "known" because it is not independently demonstrable by observation.

Natural selection is literally false (according to Darwin, quoted above); gravity is not, nor is the will of organisms to persist and reproduce. When considered in depth as a metaphysical faith in a purely mechanical, atomist universe with no emergent elements of organic purposiveness (or consciousness or free will), natural selection may not amount to an empirical hypothesis at all. Whereas Butler (1880) argues, "Certainly 'nature',—for this is what 'natural selection' comes to,—is rather an important factor in the operation, but we do not gain much by being told so" (p. 100); Spencer (1893) writes,

> If we regard Nature as . . . an assemblage of various forces, inorganic and organic, some favourable to the maintenance of life and many at variance with its maintenance—forces which act blindly—we see . . . that there is a selection only of individuals which are, by the aggregate of their traits, best fitted for living. (p. 103)

But the suggestion of "blind" yet "selective" forces is a contradiction; natural selection appears to be a metaphor for an impossibility. There is a force at work in evolution that is not blind: nothing else in nature struggles to persist other than living organic matter, so why call it blind, why pretend purposiveness does not exist, and why construct an empirical theory that denies the object under observation? Biology owes a lot to Darwin and his theory, and as a place marker for further research the concept of natural selection has served well. The concept of organic selection should also be regarded as a place marker for further research, but one which does not entail faith in determinism, one which does not insist that organic life is reducible to inert matter, one which accepts our observation of living purposiveness at face value and which seeks to account for it in full realization that modern physics is not deterministic, and that the apparent difference between living and inert matter is itself evidence that organisms manifest properties that inert matter does not. Perhaps a suitable contemporary analogue may be the concept of dark matter/energy—the term "dark" playing the same role as "natural" or

"organic." We may learn about the "dark" and the term may become obsolete; we may have arrived at that point with the term "natural"; if we decide to keep using it we may need to at least acknowledge the need for an updated and modern and perhaps less strictly Darwinian meaning.

§ 3—Organic Selection (Teleological Lamarckism)

i—Emergence

Sober (1993) writes, "...physicalism, claims that all living things are physical objects" (p. 22); "Vitalism, at least in some of its formulations, rejects this physicalistic picture..." (p. 22); "Vitalism is held in low repute by biologists today because no strong positive argument on its behalf has ever been constructed" (p. 24). In order to avoid a verbal dispute, some things need to be clarified about Sober's (1993) point of view, which is fairly typical among biologists today. Current physics cannot describe very well even what a physical object is, since matter itself is more mysterious now than ever. Apparently, we can only perceive 4–5 percent of it and the rest is "dark"; the "baryonic" 4–5 percent appears as somewhat divisible, fundamentally unpredictable, electromagnetism. So to say that all living things are physical is not very informative, especially considering that living organic matter behaves very differently than inorganic. Vitalism, on all formulations, recognizes organic purposiveness and takes it seriously as a phenomenon that cannot be explained by anything that physics has so far taught us about matter in general. While some vitalists are ontological dualists, some are not; an *elan vital* might be conceived of as a force outside or beyond current mechanical physics but not beyond matter altogether, or as something more mystical in a dualist conception. Knocking down dualist vitalism alone is a straw man argument—since current physics cannot explain biology, there is no strong argument against monist vitalism, while empirical observation provides a strong argument against any simple physicalism that holds out hope that eventually biology will be reduced to anything that resembles current physics. Whereas "vitalists" at least attach a term to the obviously fundamental property of life—"purpose" or "teleology" or "vitalism" or "will"—and recognize that this property is what needs to be understood, "physicalists" tend to wish/hope/explain that property away, dismiss those who disagree, and canalize research according to their biases. At least, we ought to conduct investigations empirically, and be guided by observations rather than metaphysics.

At the most fundamental level, there is a growing body of research focused on explaining the physics of organic matter. Bailly and Longo (2008) argue,

> Biological causality needs to integrate some notion of finalism, in a theoretically autonomous approach to living systems. When and if reduction to physical theories will be fully accomplished, then (a suitable) physical causality, possibly-time oriented, will surely "explain" in more appropriate terms, the various circularities of life, including the causal ones. But this may require a change or an enrichment of current physical theories as much as quantum mechanics and relativity are ongoing deep revisions toward unification (of space and time—non-commutative geometry—or of the very objects—string theories). (p. 327)

Similarly, Schubert-Soldern (1962) argues, "The laws governing animate processes are not just special instances of the laws that govern inanimate nature" (p. 209). Hull (1974) writes, "One of the contentions of mechanistic reductionism is that in the course of time, scientists will produce . . . a single unified theory. . . . But presuming that such a super theory is possible, it surely will look no more like contemporary physical theories than contemporary biological theories" (p. 132). It is crucial that we recognize that biology may gradually be, and perhaps is now, forcing onto physics a completely new scientific perspective on reality. For example, Hayes et al. (2013) describe "persistent electronic coherences," which are the observable manifestations of "quantum superpositions," which are believed to play a role in the process of photosynthesis, and which organisms in general might turn out to have the ability to create and control. But in general, we are still living with a fairly deterministic/mechanical worldview coming from science; leading twentieth-century and current physicists still insist that a determinist unified theory is coming. Perhaps it is, but there is no sign of it at the moment. Contemporary researchers trying to make progress in reconciling our understanding of animate and inanimate matter likely face the same intolerance that Lamarck did. Huxley (1942) writes, "We have elaborate mathematical theories demonstrating how selection will operate in different circumstances. And we have proved that Lamarckian . . . vital urges to change do not exist . . . " (p. 136); Huxley (1859) states, "The Lamarckian hypothesis has long since been justly condemned. . . . But it is rarely either wise or instructive to treat even the errors of a really great man with mere ridicule . . . " (p. 45). Darwin notes (on the margin of p. 157 of his 2nd

edition (1835) copy of Lamarck 1815–1822), "Because use improves an organ, wishing for it, or its use, produces it!!! Oh—" (Burkhardt 1977, p.178/253); Weissmann (1909) states, "...if it be asked why we are unwilling to admit the cooperation of the Darwinian factor of selection and the Lamarckian factor...I answer: Because the Lamarckian principle is fallacious, and because by accepting it we close the way towards deeper insight" (p. 115).

Lamarck was by training neither a physicist nor a philosopher but a zoologist, and while his biophysics ideas are not systematic they are still very interesting in light of current developments. Although he (1794/1977) argues that organisms manifest, "...a particular principle...the origin and essence of which can no doubt not be assigned physically" (p. 59), Burkhardt (1977) argues,

> Lamarck was no vitalist. To the contrary, the whole of his biological thought was decidedly materialistic (p. 151); Lamarck was unwilling to attribute vital properties to matter itself. Instead he claimed that vital properties were a function of organization and organic movement (p. 157);...Lamarck did provide an explanation of the power of life—a very mechanical explanation based on hydraulic action...(p. 151); He felt confident in identifying two subtle fluids in particular, caloric and electricity, as playing the essential roles in the excitatory cause of life: caloric being responsible for the property of all living bodies that he called "orgasm," and electricity being responsible for the excitation of the movements and activities of the more complex animals. (p. 153)

Lamarck (1815–1822/1977) writes that it is, "...a genuine error to attribute to nature a purpose or any intention whatsoever in her operations" (p. 160), but also (1817/1977) that,

> Is not what we observe simply with the class of insects a thousand times greater than what is necessary to make us perceive that the limits of nature's powers in no way allow her to produce so many marvels herself! And to force the obstinate philosopher to recognize that here the will of the supreme author of all things has been necessary and has alone been sufficient to bring into existence so many admirable things? (p. 184)

The remarkable thing about Lamarck's biophysics is not whether he was a monist or a dualist, a vitalist or a mechanicist, but that he made an attempt to describe the physics of organic life in a way that does not amount to a promise of some future reduction of purposiveness to

known mechanical causes. Two centuries passed with very little follow-up until lately; for those who take organic purposiveness seriously, there is no contradiction in attempts by biophysicists to formulate whatever regularities there are about it—there must be some after all. The significance lies in the potential novelty of whatever physical theories arise; whereas Darwinians attempt to reconcile evolution with existing theories of physics, statistics, and genetics but sacrifice our observation of organic purposiveness, any new physics that accounts for purpose may force a reassessment not just of evolution but of reality altogether. If the purposiveness of organisms is ever successfully explained by new discoveries of physical laws, amenable to mathematical formulation, then Darwinian natural selection will turn out to be true. On the other hand, if physics turns up forces that are not deterministic, and unique to organisms, then Lamarckian organic selection will turn out to be true. Given the current state of physics, the latter seems at least as likely as the former, and no matter what happens the progress of research will surely not be hindered by a focus on the uniqueness of organic properties, rather than on trying to reduce or explain those properties in terms of known physical laws of inert matter.

Research appears to be coalescing around what is being called "new" or "far-from-equilibrium" thermodynamics. The second law of thermodynamics states that matter and the universe generally move in the direction of greater entropy, or less order, as measured by heat or pressure or chemical potential. In the case of the entire universe, the moment of the supposed big bang at its beginning was a point of low entropy or high order, and the universe has been moving toward high entropy or low order ever since. Eventually, the universe should simply fly apart and dissipate altogether, although some theorists have believed in an eventual "big crunch" which will reverse the process as gravity overrides the momentum caused by the explosive "big bang." But lately it has been discovered that the universe is expanding at an accelerating rate—this would seem to have the potential for being interpreted as a very large scale violation of the second law, since some sort of pressure emanating from the dark energy is apparently causing an increase in order, or lower entropy, and thereby the accelerating expansion. Organisms are orderly systems thermodynamically; they move in the opposite direction of inanimate matter by generating higher temperature, pressure, and chemical gradients that are far from equilibrium—equilibrium being the normal dissipation of order/increase in entropy. Researchers attempting to understand how the nonequilibrium thermodynamics of

organisms are generated and maintained are offering insights into the challenges posed by biophysics. Bailly and Longo (2008) write,

> We propose to consider living systems as "coherent critical structures"... their unity being ensured through global causal relations between levels of organization.... Our main physical paradigm is provided by the analysis of "phase transitions."... The "coherent critical structures" which are the main focus of our work cannot be reduced to existing physical approaches, since phase transitions, in physics, are treated as "singular events."... In the case of living systems, these coherent critical structures are "extended" and organized in such a way that they persist in space and time. (p. 309)

Kurakin (2010) writes,

> The macrostructures emerging in far-from-equilibrium systems are of a steady-state nature in the sense that what is actually preserved and evolves over relevant timescales is an organization of relationships between interacting components, a form, but not physical components comprising a given macrostructure. Members come and go, but the organization persists (p. 5); Because the structures and dynamics of individual constituents at all levels of organizational hierarchy always remain ambiguous and unspecified, albeit shaped by evolution and experience, the individual choice as a force of both innovation and conservation becomes a decisive factor in organizational dynamics, either promoting or inhibiting the survival and success of the developing and adapting whole (p. 8); Life/intelligence is an open-ended, evolving structure-process of energy/matter flow, a stream of consciousness. (p. 9)

Any evidence for irreducible elements of memory and decision at the fundamental level of the physical emergence of order is relevant in deciding whether evolution is driven by natural or organic selection. Karsenti (2008) states,

> Something incredibly important for the understanding of the origin of life and evolution is emerging here: self-organization principles tell us that if there is an ensemble of products that can interact dynamically to reach a functional steady state, they will do so robustly at least under certain conditions (p. 260); The principles that are associated with self-organization processes tend to indicate that the driving force behind the diversity of life and its evolution is not mainly selection. Instead, it may derive largely from the intrinsic properties of living matter and the combination of various self-organized functional modules. (p. 261)

Darwinians might argue that the pockets of order that organisms manifest are up against the generally increasing entropy/disorder of the world in general, and that rather than challenging Darwinism the "new dynamics" is just an updated expression of natural selection. Organisms which persist and reproduce are those that successfully resist the second law of thermodynamics temporarily and pass on the memory of their successful forms to their offspring; the second law—representing "nature"—is the dominant force in play; and all the forces are mechanical. However, the notions presented of memory and choice indicate a nonrandomness inherent in the physics of bioemergence, or perhaps the presence of something like a life force (*elan vital*) that once up and running simply defies the second law to an ever-increasing degree. Biophysicists seem undecided regarding how to characterize organic matter's relation to the second law of thermodynamics. Weber and Depew (1996) write,

> Dissipation and organization are conceived as opposites. That is why in the late nineteenth century, a cultural moment obsessed with the depressing implications of classical thermodynamics, learned folks concluded that evolution was contradictory to thermodynamics. (That view, as well as other anachronisms of nineteenth century science, has been preserved, even embalmed, in the rhetoric of scientific creationism.) Later, in the context of the deepening probability revolution, it was recognized that in the great current that sweeps the universe toward dissipative heat death eddies of order and complexity are statistically permissible. On this account, the Second Law is after all consistent with evolution. (p. 43)

Yet Weber and Depew (1996) also consider seven possible formulations for relating emergence and natural selection, and conclude that:

> There does not seem any inherent reason . . . why the roles assigned to self-organization and natural selection by advocates of the view just reviewed might not conceivably be reversed. Rather than being considered auxiliary to natural selection, self-organization may be turned into evolution's major cause, and selection treated as an auxiliary force. (p. 49)

But there is an inherent reason to favor this latter view: natural selection is a metaphor, a cause without a force, whereas bioemergence research indicates the identifiable, observable existence and presence of self-organizing biological forces. Surely, demonstrable forces ought to take theoretical precedence over metaphors. It would seem that whatever forces are at work in the emergence of biological order, they are by

definition violations of the second law of thermodynamics, which necessarily works in the opposite direction of organic life. Weber et al. (1989) write, "It is universally conceded that biological systems conform to the constraints of the Second Law of Thermodynamics" (p. 374), but this is like saying that "hot" and "cold," or "up" and "down," are synonymous. Besides, in an accelerating universe, might not the second law itself be the exception, rather than the rule?

ii—Organization

Moving from biophysics to biochemistry, researchers are here also reporting interesting and relevant findings and ideas. Kirschner et al. (2000) write,

> At the turn of twenty-first century, we take one last wistful look at vitalism, only to underscore our need ultimately to move beyond the genomic analysis of protein and RNA components of the cell . . . and to turn to an investigation of the "vitalistic" properties of molecular, cellular, and organismal function. . . . The genotype . . . cannot be predictive of the actual phenotype, but can only provide knowledge of the universe of possible phenotypes. . . . In self-organizing systems the phenotype might depend as much on external conditions and random events as the genome-encoded structure of the molecular components. Yet out of such a potentially nondeterminist world, the organism has fashioned a very stable physiology and embryology. It is this robustness that suggested "vital forces," and it is this robustness that we wish ultimately to understand in terms of chemistry. We will have such an opportunity in this new century. (p. 87)

We might be much further along than we are if only more scientists were willing to actually study what they observe; as Kauffman and Clayton (2006) state,

> What is needed for comprehending minimal autonomous agents is a theory of the organism-level organization of biochemical and other processes. Unfortunately, no adequate theory of the organization of such processes currently exists in the scientific or philosophical literature, even in outline. And yet a reproducing cell does it. Had we an adequate theory of how organismic processes self-organize, we would be able to conclude something more interesting about the ontological emergence of minimal autonomous agents than the bald fact that it occurs. (p. 511)

Over two centuries ago, Lamarck (1802/1977) had a theory:

> The characteristic of the movement of fluids in the supple parts of the living bodies that contain them is to trace out routes and places for deposits and outlets; to create canals and various organs, vary those canals and organs according to the diversity of either the movements or nature of the fluids causing them; finally, to enlarge, elongate, divide, and gradually solidify these canals and organs. . . . The state of organization in each living body has been formed little by little by the increasing influence of the movement of fluids and by the changes continually undergone there in the nature and state of these fluids through the usual succession of losses and renewals. (p. 156)

We have since learned that cell membranes do in fact form canals and cell organelles throughout the interior of cells in addition to creating an external barrier, and that these canals do function in helping to create the various gradients that allow nonequilibrium dynamics to develop. As Kauffman et al. (2008) state, "The working of a cell is, in part, a complex web of constraints, or boundary conditions, which partially direct or cause the events which happen" (p. 37). Weber et al. (1989) write,

> Biological systems are stabilized far from equilibrium by way of self-organizing, autocatalytic structures that serve as pathways for the dissipation of unusable energy and material. Because biological systems are "dissipative structures" in this sense, entropy production and organization are positively correlated (p. 375); Now it is quite possible to imagine systems that are in every way the opposite of Newtonian systems, whether deterministically or statistically considered. (p. 395)

Electricity was one of Lamarck's proposed "fluids": Vandenberg et al. (2011) report that bioelectrical signaling in embryos is necessary for mapping developing structures, not just DNA and protein production.

At a higher level of organization, Newman (2010) describes the emergence of multicellularity:

> The inevitable emergence . . . of organismal motifs that were not products of natural selection, but rather served as its raw material, raises questions concerning both the necessity and sufficiency of the mechanisms of the neo-Darwinian Modern Synthesis for the origination of ancient multicellular forms. (p. 282)

Similarly, Muller (2010) states,

> Although the pre-metazoan organisms from which complex forms arose already possessed genomes, the anatomical assemblies that constituted the first metazoan body plans were not built directly from genes, but from cells that combined as a consequence of their physical properties, which were, in part, mediated by gene products. Hence these structures were not immediate results of genetic evolution, but represented an emergent consequence of cell and tissue organization. (p. 309)

Muller (2010) categorizes the emergence of multicellular animal life (metazoans) as "type I novelty"; "type II" happens when a "discrete new element [is] added to an existing body plan" (p. 310) (turtle shells for example) and involves "... a systems reaction that does not belong within the incremental variation paradigm" (p. 313).

These findings indicate that organic life can be and has organized along developmental paths that have little if anything to do with natural selection. The external environment poses a mere constraint or limitation on the viable possibilities; it does not act as a creative or directive force in the evolutionary process. Still, natural selection is a well-hatched theory even if evidentially challenged, and for many, some/any theory may be more appealing than living with no theory at all. A comprehensive theory of organic selection has yet to be elucidated, though perhaps there is now a sufficient amount of empirical evidence in place. Central to any such theory will be a plausible and compelling definition of organic life: whereas Di Bernardo (2010) offers a chemical definition: "... life is not in the individual properties of every single molecule (in details) but it is a collective property of systems of molecules ... " (p. 97); Kauffman et al. (2008) write, "A random soup of organic chemicals has no meaning and no organization. We may therefore conclude that the central feature of life is organization—organization that propagates" (p. 39). Kauffman and Clayton (2006) argue,

> Self-propagating organization ... does not involve matter alone, energy alone, information alone, or entropy alone. It is a process that involves all these—and something more as well. It appears that this self-propagating organization ... is a new form of energy-matter organization in the world; it is living matter, and it is ontologically emergent (p. 510); ... the laws that govern the whole are not to be found in any specific physical realization of such a system, but rather in the mathematics of this broad class of dynamical systems, whatever their material realization. (p. 518)

On the other hand, Prigogine and Stengers (1999) write, "Nature's inventiveness goes beyond mathematical classifications" (p. 156). Walker and Davies (2012) propose that organic life amounts to a kind of phase transition, in which information itself, rather than merely the physical matter from which organisms are constructed, manifests causation. Much depends on how life is defined, for if it all turns out to be amenable to mathematics, then Darwinism will hold up, but if organisms involve kinds of causation unique to them then Lamarckism will hold up. Lamarck was dismissed by his contemporaries for being too speculative but at least he was trying to generalize and characterize our observation of organic purposiveness in terms of empirical biology, rather than concoct a metaphysical worldview. Hopefully, the newer work reviewed here will continue on in that spirit, rather than wind up being stunted or canalized into still dominant determinist lines of research.

iii—Mutationism

The basic idea of mutationism is that genetic mutations are a creative force of evolutionary changes, but there is more than one way that this can potentially occur according to its advocates. One way is that, as opposed to population pressure, there is a general mutation pressure caused by the sheer volume of mutants foisted into ecosystems which leads to organic expansion into empty or weakly occupied niches. Another is that significant leaps are accomplished via mutants, referred to as "sports" or "hopeful monsters," resulting in saltational (nongradual) shifts that natural selection has little to do with. Another way is that persistent biases in mutational direction lead to particular evolutionary trajectories; a related idea is that mutations can take on a kind of directional momentum due to ecological factors that biases shifts in populations toward one or another trajectory. Mutationism probably includes what is known as neutral or random mutation/drift/evolution; Nei et al. (2010) write that in comparing the genetic base sequences which code for the same protein's production,

> the extent of sequence divergence between species increases as the divergence time increases, but the proteins in different species often have essentially the same function. . . . Amino acid substitutions outside the active sites are mostly neutral or nearly neutral. We believe this is a "biologically meaningful" definition of neutrality. (p. 266)

Proulx and Adler (2010) argue, "Our analysis suggest that eu-neutrality is rare, perhaps vanishingly rare" (p. 1348), but Nei et al. (2010) write, "...many recently published papers claim the detection of positive Darwinian selection via the use of new statistical methods. Examination of these methods has shown...high rates of false-positive and false-negative results." (p. 265)

The issue is of interest because it suggests either that genes may not determine evolutionary outcomes (if the odds of different species arriving by chance at similar traits with different genetics is very low, then perhaps some nonrandom evolutionary processes are guiding besides natural selection), or if genes are regarded as determining outcomes, then since they may be selectively neutral the traits that do exist may be purely products of random drift (again calling to mind Darwin's quip quoted above about organisms being no more designed than the wind). While natural selection is supposedly a random process, the idea is that external conditions (e.g., the wind) dictate evolutionary trajectories. Random drift suggests that species may randomly flutter about through physical habitats (that they themselves are the wind)—on the basis of their own randomly produced genetic variations. Nei et al. (2010) refer to molecular clocks—"the approximate constancy of the rate of amino acid substitutions"—which suggest the possibility that traits evolve "...at a constant rate over a long period of time" (p. 269). That is suggestive of a mutation pressure, but of a very random and accidental character: Nei et al. (2010) write,

> It is often assumed that many characteristics that distinguish humans from apes have evolved by natural selection, and therefore the study of natural selection is essential to understand human evolution. However, because there was no "purpose" for making humans when the human lineage first separated from the ape lineage, the human lineage must have evolved by fixation of mutations that happened to be advantageous or neutral in the niche to which humans moved. There is no reason to believe that the human lineage has been subjected to more natural selection than the chimpanzee lineage. (pp. 281–282)

This passage nicely demonstrates the kind of ill-defined conceptual angst and perhaps theoretical confusion that is commonly evident in recent evolutionary biology literature: there seems to be a suggestion that mutation and/or behavior have driven the trajectory, not natural selection, but which and to what degree is not elaborated. Here, as always, Darwinians can ask for more specificity knowing that it will not immediately be forthcoming and safely refer to the omnipresence of

external constraints and limitations on organic existence as the deciding factor.

Mutationism has a history: de Vries (1906) writes,

> The current belief assumes that species are slowly changed into new types. In contradiction to this conception the theory of mutation assumes that new species and varieties are produced from existing forms by sudden leaps (p. 120); . . . one means of change lies in the sudden and spontaneous production of new forms from the old stock (p. 121); This assumption requires only a limited number of mutative periods, which might well occur within the time allowed by physicists and geologists for the existence of animal and vegetable life on earth. (p. 121)

Bateson (1909) writes,

> All this indicates a definiteness and specific order in heredity, and therefore in variation. This order cannot by the nature of the case be dependent on Natural Selection for its existence, but must be a consequence of the fundamental chemical and physical nature of living things. (p. 125)

Morgan (1916) argues,

> It does not seem probable that we shall ever again have to renew the old contest between evolution and special creation. But that is not enough. We can never remain satisfied with a negative conclusion of this kind. We must find out what natural causes bring about variations in animals and plants; and we must also find out what kinds of variation are inherited, and how they are inherited. (p. 127)

Some current researchers are reporting progress: Stoltzfus (1999) writes,

> Outside of studies of neutral evolution, biases in the production of variants are only rarely viewed explicitly or implicitly as biases on the course of evolution. More commonly, biases in the production of variations are denied any such influence, or when they are identified as evolutionary factors, they are invoked as "developmental constraints" . . . (p. 178); Thus, in Mayr's defense of the "adaptationist program," nonselective factors (e.g., mutation, development, environment) are recognized, yet assigned to "chance," not because this is the way that the world works . . . but because nonselective factors are (in this view) so poorly understood or so rarely important that it is impossible to erect testable hypotheses of their influence on the course of evolution. This pragmatic position, to the

> extent that it is not a self-fulfilling prophecy, must ultimately succumb to the advance of knowledge. (p. 179)

Stoltzfus (2006) states,

> The introduction of variants by mutation-and-altered-development and the course of evolution . . . suggested by empirical results . . . goes beyond constraints, and allows that propensities of variation cause propensities of evolution (p. 311); What is most important to understand about these results is that they demand a new way of understanding evolutionary causation, including ideas that, due to the rhetorical excesses of the Modern Synthesis, are likely to be seen as heresies or conceptual errors. (p. 316)

The difference between the earlier mutationists and the recent is the empirical evidence; although it is subject to interpretation, bias is biased not random and therefore seems to represent another element of organic causation in evolutionary change. Biased mutation could translate into biased trajectories, but another source of bias is order of arrival into ecosystems, a kind of evolutionary momentum. Morgan (1916) writes, " . . . if it were true that selection of an individual of a certain kind determines that new variations in the same direction occur as a consequence, then selection would certainly be creative. . . . This possibility is disposed of by the fact that there is no evidence that selection determines the direction in which variation occurs" (p. 130). On the other hand, Beatty (2010) states, " . . . the direction of evolutionary change may not be due to selection alone, but also to the order in which the variation arises" (p. 42). If order-of-variation considerations are connected with evidence of mutational bias (and of biophysical emergence, biochemical self-organization, behavioral drive, and niche construction), a decidedly nonrandom introduction of variants would seem possible which could yield substantial directional changes in evolutionary trajectories without any need for natural selection, which would only amount to the external constraints imposed by ecosystems on the emerging life forms.

Developmental biologists are also describing a phenomenon being called "evolvability," otherwise known as facilitated variation. Kirschner and Gerhart (2010) write,

> With facilitated variation, genetic change is still required, and mutations leading to regulatory change are the most important kind, but the entire

> burden of creativity in evolution does not have to rest on selection alone, nor on mutation alone. The complex existing phenotype determines the kind and amount of phenotypic variation. This variation will be based on new combinations, times, and places of use of the unchanging core processes. The biological system has modes of responding physiologically, developmentally, and genetically, and these responses are elicited in many ways by mutation, acting through regulatory modification. (p. 276)

Such considerations justify a reconsideration of what the term "mutation" refers to, for if changes in both genotypes and phenotypes can both direct evolution, why not include both in the concept? It is heritable variation that matters regardless of its specific source. Regardless, it does not seem that mutation can any longer be regarded as it has been by Darwinism, as a passive and accidental pool of variation that is selected from by external environmental conditions. Mutants appear to be actively generated, in biased directions, and to some degree in response to evolutionary stimuli. Kirschner and Gerhart (2010) argue, "These views are not at all Lamarckian, nor are they arguments of selection for future good" (p. 277), but there could hardly be views that are more Lamarckian. Lehman and Stanley (2013) write,

> Increasing evolvability may simply be an inevitable result of open-ended exploration of a rich genetic space. Importantly, in nature this passive drive towards evolvability may have bootstrapped the evolution of the genotype-phenotype map itself. . . . The emergence of a complex evolvable genotypic code and biological development may have been bootstrapped from far simpler reproductive processes by similar non-adaptive mechanisms. In other words, there may be no selective benefit for development of a complex genetic system, which may do no more than potentiate greater phenotypic possibilities. In this way the story of biological evolution may be more fundamentally about an accelerating drive towards diversity than competition over limited resources. (DOI: 10.1371/journal.pone.0062186)

iv—Behavioral Drive

Whether considering instinctive or rational behavior, if organic behavior causes evolutionary outcomes then it is the organisms doing the selecting not external nature. To suggest that "nature" includes behavior is to render any difference between nature and organisms meaningless,

and with it the theory of natural selection. In his *Origin* (1872/1936), Darwin states,

> Sexual Selection. . . . Depends, not on a struggle for existence in relation to other organic beings or to external conditions, but on a struggle between the individuals of one sex, generally the males, for the possession of the other. The result is not death to the unsuccessful individual, but few or no offspring. Sexual selection is . . . less rigorous than natural selection. (p. 69)

In his *Descent* (1874/1936) Darwin admits, " . . . sexual selection has played an important part in the history of the organic world" (p. 571). The sexual dimorphisms manifested by the animal kingdom probably amount to a strong argument against metaphysical determinism generally, unless finicky and peculiar preferences can somehow be interpreted as necessary. Even in unicellular organisms there would seem to be irreducible elements of choice and decision, for "nature" cannot force species into niches, it can only present opportunities. Even if the inherent tendency of organic life to disperse and diversify is entirely attributable to Malthusian population pressure, that surely cannot explain every particular trajectory that all species have ever taken. As Nei et al. (2010) mention (above), for some reason human ancestors moved, presumably by choice, into a new ecological niche (a tendency we still manifest). Still, whether or not the behavior of organisms is causally significant is another problem requiring a lot more research, but if traits are fixed in populations non-randomly on the basis of behavioral tendencies or preferences then organic selection again re-casts natural selection as merely the external constraints.

Mayr (2001) writes,

> A change in behavior . . . is apt to set up new selection pressures, and these may then lead to evolutionary changes. There are reasons to believe that behavioral shifts may have been involved in most evolutionary innovations; hence the saying "behavior is the pacemaker of evolution." Any behavior that turns out to be of evolutionary significance is likely to be reinforced by the selection of genetic determinants for such behavior (known as the Baldwin effect). (p. 136)

This certainly seems like an incongruency in the neo-Darwinian Modern Synthesis. Evolution happens either by way of external causation, or by internal, but for natural selection to be meaningful or plausible internalism must either be denied completely, or cast as ineffectual, or cast as reducible to mathematical formulation in principle,

each of which is unempirical. An identifiable, demonstrable behavioral causality, if it exists, must be generally more efficacious than a metaphor for environmental constraints, or a wished-for reduction of behavior to mathematics: nonrandom, nondeterministic, nonmechanical in terms of any known laws of physics and chemistry; in other words, non-Darwinian. Mayr (2001) argues that genes eventually replace the capacity for nongenetic adaptation; are we supposed to believe that behavior can drive evolution and then rest while genes take over, and that this occurs in some sort of way that preserves the plausibility of externalist natural selection?

Wallace (1858) states,

> The hypothesis of Lamarck—that progressive changes in species have been produced by the attempts of animals to increase the development of their own organs, and thus modify their structure and habits—has been repeatedly and easily refuted by all writers on the subject . . . but the view here developed renders such an hypothesis quite unnecessary, by showing that similar results must be produced by the action of principles constantly at work in nature. The powerful retractile talons of the falcon- and cat-tribes have not been produced or increased by the volition of those animals; but among the different varieties which occurred in the earlier and less highly organized forms of these groups, those always survived longest which had the greatest facilities for seizing their prey. (p. 20)

Spencer (1893) writes,

> It is true that Lamarck . . . assigned for the facts reasons some of which are absurd. But . . . his defensible belief was forgotten and only his indefensible ones remembered. This one-sided estimate has become traditional; so that there is now often shown a subdued contempt for those who suppose that there can be any truth in the conclusions of a man whose general conception was partly sense, at a time when the general conceptions of his contemporaries were wholly nonsense. (p. 106)

Lamarck's ideas on the precise mechanisms for acquiring traits and passing them down are primitive, but they were the first of their kind. His general notion that modified habits can direct evolutionary trajectories is simply the idea of behavioral drive, and it has never been refuted but only despised. While it is true that longer talons are likely to yield reproductive success, a lust for hunting and killing, the relevant teachings and traditions, the creating of ecological niches by the

sheer determination of ancestral populations, surely played nonrandom creative roles. Anyone who has ever observed a cat playfully torment a mouse or bird to death, or seen footage of killer whales playing football (tailball) with live baby seals, might wonder if there is not a little more going on there than mere instinct. Lamarck (1801/1977) writes,

> I could prove that it is not at all the form either of the body or its parts that give rise to habits, to the way of life of the animals, but that to the contrary it is the habits, the way of life and all the influential circumstances that have with time established the form of the bodies and parts of animals. (p. 165)

Perhaps the key point there is "with time"; as a long-term general force behavioral drive is a compelling idea but one that apparently ties Darwinians up in knots trying to explain. Muller (2010) writes,

> Natural selection could not . . . by itself account for the appearance of novelties. Without naming them as such, additional factors were taken into account, always intended, however, to remain in keeping with the Modern Synthesis paradigm (p. 314); . . . recent evaluations of functional shift and functional decoupling reemphasize such modes of novelty initiation, and the "behavioral change comes first" position also gained new support from developmental psychology. (p. 314)

The traditional Darwinian interpretation of "behavior first" appears to simply be an unempirical attempt to deny "behavioral drive" for the sake of theoretical coherence. If behavioral change happens first, followed by genetic change, then behavior is driving evolution, not natural selection. If this applies to all organic life, then it is not a mere exception to a greater generality—it is the greater generality. Natural selection amounts to a background condition, a limiting factor, not a causal driving creative force, if behavioral drive is true.

v—Acquired Traits

Mayr (2001) writes,

> The genetic material is constant ("hard"); it cannot be changed by the environment or by use and disuse of the phenotype (p. 91); An understanding of the nature of genetic variation greatly strengthened Darwinism, for it confirmed the finding that an inheritance of acquired characters is impossible. (p. 112)

Volpe and Rosenbaum (2000) write,

> The concept of Lamarckism has no foundation of factual evidence. We know, for example, that a woman who has altered her body by injections of silicone does not automatically pass the alterations on to her daughter. Circumcision is still a requisite in the newborn male, despite a rite that has been practiced for well over 4000 years. (p. 5)

Recent evidence demands that Lamarckian acquired inheritance be taken much more seriously. Lamarck did not think in terms of populations and could not identify a mechanism by which acquired traits are transferred into germ cells. The notion of "gemmules," which Darwin subscribed to, did not include any sort of segregation between soma (bodily) cells and the germ cells, so it was conceivable at the time that whatever was going on with the body could be manifested in the germ cells also. Even without acquired inheritance of physical traits, Lamarck's emphasis on the habits and needs imposed by environmental milieus, combined with organisms' behaviorally inhabiting new niches, is enough to switch the emphasis to organic selection, provided evidence of course. That is, if a population has shifted behavior in order to occupy or construct a new niche, that behavior or plasticity may be the driving force of whatever changes occur to the species over time, not natural selection.

Lamarck (1809/1971) writes,

> 1. Every fairly considerable and continuing change in the circumstances of any race of animals brings about a real change in their needs (*besoins*). 2. Every change in these needs necessitates different actions to satisfy the needs and, consequently, different habits. 3. Every new need, necessitating new actions to satisfy it, requires of the animal that it either (a) use certain parts more frequently than it did before, thereby considerably developing and enlarging them, or (b) use new parts which their (new) needs have imperceptibly developed in them, by virtue of the operations of their own inner sense (*par des efforts de son sentiment interieur*). (p. 14)

Nothing about these notions is currently wrong, at least in terms of populations; Lamarck (1815–1822/ 1971) runs into greater difficulties in arguing that,

> everything that has been acquired, delineated, or altered in the organization of individuals during their life is preserved by generation and

> transmitted to new individuals proceeding from those which have undergone these changes. (p. 19);

and with his (1815–1822/1977) examples:

> I conceive . . . that a gastropod mollusk, which in creeping along experiences the need to touch the bodies lying in front of it, makes efforts to touch these bodies with some of the anterior points of its head, continually sending there masses of nervous fluid as well as other liquids. I conceive, I say, that as the result of these repeated flowings toward the points in question the nerves that terminate at these points will little by little be extended. (p. 178)

While organisms can change their tissues (exercise for example), the manifestation of new organs does not happen that way. If organic selection is true, then species play the role of selector on themselves through movement into niches; individuals best suited to the ecological momentum that a species has taken will best survive and so on. So, a population of snails will develop bigger tentacles as they adapt to a niche that requires big tentacles: if the cause of this adaptation is internal to the snails, either by behavioral drive or mutation pressure or heritable acquired traits or niche construction, such that it is not reducible to population and resource pressure, or to determinism ultimately, then the selection is organic not natural.

As a behavioral drive hypothesis Lamarck's ideas are and have all along been compelling, and we might want to forgive him for his supposed errors. However, even Lamarck's ideas regarding the direct transmission of acquired traits is finding evidential support in the research of developmental biologists. Damiani (2007) writes, "The term 'epigenetics' defines all processes changing gene expression that are not coded in the DNA sequence itself. Many types of epigenetic processes have been identified . . . " (p. 370); " . . . these processes are likely to constitute a form of Lamarckian evolution" (p. 377). Empirical evidence of acquired traits being transmitted systematically via mutations amounts to the holy grail for Lamarckism. Damiani (2007) argues, " . . . results demonstrate that the behavioural choice of an organism might serve as a source for evolutive transformations mediated by changes not only in environmental conditions but also directly in the epigenomic state" (p. 396); his article presents several quotations from others who have reached similar conclusions. More recent evidence lends even more credence: Hackett et al. (2013) report that epigenetic information can

actually escape the erasing process that occurs in the formation of gametes, allowing for the transmission of acquired epigenetic characteristics from parent to offspring. That is, the supposed line between soma and germ cells is not as firm as we have been taught to believe, so that the experiences of individual organisms which lead to epigenetic changes in their cells may, to some extent, be heritable.

So, Mayr's (2001) conclusions (quoted above) are being challenged: DNA may be "soft" after all, and the central dogma may be just dogma. Damiani (2007) describes an example of selective implantation by women of early embryos: "Even without the possible transfer of genetic information between somatic and germline cells . . . the maternal physiological adaptation might be transformed into Lamarckian adaptive changes of the newborns in only one generation" (p. 385). Yao et al. (2014) report that stress during pregnancy (in rats) can cause heritable epigenetic changes, which result in marked physiological changes for multiple generations, even including when intermittent generations are not exposed to stress: descendants can inherit the acquired epigenetic traits of their great-great grandmothers. Purugganan (2010) states, "Studies have shown that epialleles are stable across generations and can thus be inherited, and that methylation differences can translate into changes in gene expression levels that lead to phenotypic variants" (p. 127). Fernando and Szathmary (2010) write, " . . . Lamarckian evolution takes place in neuronal replicators because neuronal changes due, for example, to reinforcement learning can be copied directly" (p. 216). Muller (2010) states, "Genetic evolution, while facilitating innovation, serves a consolidating role rather than a generative one . . . " (p. 323). Jablonka and Lamb (2010) write, " . . . soft inheritance—the transmission of variations acquired during development—not only exists, it is found in every type of organism and seems to be common. It therefore has to be incorporated into evolutionary thinking" (p. 163). There is a growing body of credible empirical evidence that traits can be acquired and passed on to subsequent generations, which is the antithesis of Darwinian natural selection and the central dogma regarding DNA.

vi—Niche Construction

The concept of the ecological niche hinges on whether one has an organic or natural selection point of view. On natural selection, the niche is simply that particular slice or neighborhood of nature that has "selected" whatever species is in question. On the organic view, the

niche is a manifestation of the species itself, an ecological construct purposively selected for by the species. The issue probably cannot be considered very well in isolation, but only in the context of all the other evidence. Part of the overall view defended here is that evolution needs to be interpreted one way or the other: evolution is a process either of natural selection or of organic selection, and it cannot coherently be regarded as both (although it can coherently be regarded as neither if both views adequately generalize the empirical evidence, since they cannot both be true). For Darwinians to embrace a niche construction perspective raises issues of rational consistency unless they also drop Darwinism altogether; the demonstrable evidence of niche construction is mounting. Odling-Smee (2010) writes,

> All organisms, through their metabolisms, movements, behavior, and choices, partly create and partly destroy their environments. In doing so, they transform some of the selection pressures in the environments that subsequently select them. Therefore the adaptations of organisms cannot be exclusively consequences of organisms responding to autonomous selection pressures in the environments. Sometimes they must involve organisms responding to selection pressures previously transformed by their own, or by their ancestors', niche-constructing activities. (p. 176)

This passage seems similar to Mayr's (2001) characterization of behavioral drive, in apparently intimating that while behavior leads genes it must still be Darwinian natural selection after all, not organic. Perhaps those who take Kuhn's notions of paradigms seriously should include cognitive dissonance as a sign of a paradigm shift: if the organisms are creating selection pressures on their own kind by niche construction activity, then those pressures ultimately amount to organisms selecting themselves, which is not properly characterized by arguing that organisms "transform some of the selection pressures in the environments that subsequently select them," which would seem to suggest Darwinian natural selection.

If ancestral natural histories are to be included among external, natural, physical selection pressures, the line between natural and organic selection blurs, but if organisms alter the ecosystem and directly create the selection pressures, surely that amounts to nonrandom organic directional pressure in evolution. We should recall that if there were no organisms before and around current populations, life as we know it would not exist. The entire earth has been transformed by organic life into an arena of organic selection—consider the modification of earth's

atmosphere by photosynthesis (there was previously very little oxygen). In that sense, we have been selected for by our organic ancestors, not by "nature," unless you include all organic existence within nature, but then that reminds us that on the Darwinian view there is ultimately no difference between nature and organisms anyway, which then raises the problem again of how we can conceive of some same (inert, on the Darwinian view) stuff that can somehow select itself. At least with organic selection we can point to the real causal activities of past and present life creating conditions that select for current variants in the populations, to life plying the road for more life in various ecological directions. That represents elements of nonrandom creativity, nondeterministic organic directionality, imposed on the biosphere and natural history by organic matter itself, which is a fundamentally different perspective than natural selection. Natural selection only works as a logically coherent theory in the absence of any "slow willing"; empirically, it must somehow deny any reality to organic purpose just like determinists must deny free will. Odling-Smee (2010) offers examples:

> If . . . ecosystem engineering consequences of niche construction do persist in the environments of populations for multiple generations—there can be evolutionary consequences. For instance, beaver dams create wetlands that can persist for centuries, long enough, relative to the short generational turnover times of many species in riparian ecosystems, for them to evolve in response to beaver-modified selection pressures. Another example is the niche construction activities of earthworms. Earthworms cause major changes in soils, and have apparently modified their environments by niche construction to suit themselves, instead of evolving new physiological adaptations. (p. 194)

vii—Altruism

One of the most puzzling discussions in evolutionary biology is about altruism. A theory of organic selection would not modify in the slightest the inherent necessary selfishness of all organisms, other than ourselves (or other rational creatures). Organisms have to fight to survive and spread their genes, and perhaps epigenes, or else they and their kind rapidly disappear from ecosystems. The term 'altruism' is normally (in the context of ethics) meant to imply real selflessness, but in evolutionary biology the term is morphed into a synonym for cooperativeness. There is nothing necessarily selfless about cooperation; on the contrary, it facilitates individual success. Cooperation is all that can be found

in biology, and while sociobiologists have attempted to reduce human ethics to cooperation, in so doing they can render ethics as necessarily egoistic without always admitting it. The concept of "group selection" plays a role: Wilson (2010) writes,

> Groups that function better as collective units for any reason will differentially contribute to the total gene pool . . . (p. 82); . . . traits that help other organisms or that cause whole groups to function adaptively are usually not locally advantageous. Examples include helping to raise the offspring of others, watching out for predators in a way that protects everyone in the vicinity, and conserving shared resources when they are scarce. These traits are clearly "for the good of the group," but they do not give individuals possessing the trait a fitness advantage, compared with other individuals in their immediate vicinity. (p. 81)

However, there is no evidence that either group selection exists, or genetically unselfish behavior. All of the examples are manifestations of kin selection, in which individuals help to propagate the copies of their own genes that reside in their relatives.

Perhaps the most intensively cooperative organisms are the social insects—Darwin (1872/1936) writes,

> It can be shown that some insects and other articulate animals become sterile; and if such insects had been social, and it had been profitable to the community that a number should have been annually born capable of work but incapable of procreation, I can see no very great difficulty in this being effected by natural selection. (p. 204)

But Darwin should have seen a difficulty, which is that communities do not reproduce. On his or any evolution theory, there needs to be information transmission to future generations, which is accomplished with the germ lines packaged in individuals. Groups form and dissipate, but nothing is preserved or inherited; the germ lines are packaged in cells, which have to be physically preserved and shifted from one generation to the next. Sober (1993) writes,

> Within any particular group, altruists do worse than selfish individuals, but groups of altruists do better than groups of selfish individuals. Altruism can evolve by group selection (p. 92); Sterility is disadvantageous to the organism, but groups that contain workers may do better than groups that do not. (p. 92)

However, "altruists" are cooperative not selfless; they do not do worse than "selfish" individuals because they are engaging in a cooperative reproductive strategy that leads to greater success in their individual genes being propagated; groups of "altruists" are groups of reproductively selfish cooperators and there are no groups of "selfish" individuals to compare to other than species that do not engage in cooperative behavior; "altruism" cannot evolve by group selection because cooperative behavior is ultimately selfish and therefore must have arisen by individual selection; sterility is not disadvantageous—workers are selfish cooperators within groups of selfish cooperators. Volpe and Rosenbaum (2000) explain:

> Kin selection provides an explanation for the baffling social behavior in ants, bees, and wasps. Curiously, whole castes of sterile females devote their entire existence to the welfare of the queen. . . . Females are diploid individuals that develop from fertilized eggs with maternal and paternal sets of chromosomes. Males are the haploid products of unfertilized eggs and possess only the maternal set of chromosomes. The startling outcome is that the sibling daughters of a queen are more closely related to each other than they would be to any of their own daughters (p. 224); If a daughter were to produce her own offspring, that daughter would share only one-half of its genes with any of her offspring. Accordingly, a female worker actually contributes more to her Darwinian fitness by assisting her mother in raising offspring (3/4 relationship) than by rearing her own offspring (1/2 relationship) (p. 224); . . . drones share only 1/4 of their genes with their sisters (p. 224); In turn, sisters invest more energy in raising sisters than brothers and characteristically drive their brothers from the hive in early summer. (p. 224)

Sober (1993) writes,

> An altruistic trait is one that is deleterious to the individual possessing it but advantageous for the group in which it occurs. If the organism is the exclusive unit of selection, then natural selection works against the evolution of altruism. If the group is sometimes a unit of selection, then natural selection sometimes favors altruistic traits. (p. 90)

But cooperation is not deleterious but advantageous to the individual reproductively; any other assessment of advantage than in terms of reproduction is a nonstarter; since there are no deleterious individual traits, there are no corresponding group-advantageous traits; since there

is no evidence of group selection in the absence of reproductively disadvantageous traits, there is no evidence that natural selection (or organic) ever works against "altruism" since "altruism" is a strategy for individual reproductive success. Philosophers of biology often try to demonstrate the plausibility of evolved "altruism" in contrast to noncooperation, but these ultimately amount to arguments for selfishness, not against. Sober (1993) states, "Within each population, individual selection favors selfishness over altruism. But there is competition among populations, and this favors altruism over selfishness" (p. 98). In all nonhuman organisms observed, cooperation is selfishness, and so competition among populations is reducible to competition among individuals.

This all might make for no more than an interesting biology discussion if it were not for the implications drawn for ethics by some Darwinians—including Darwin himself (1874/1936):

> It must not be forgotten that although a high standard of morality gives but a slight or no advantage to each individual man and his children over the other men of the same tribe, yet that an increase in the number of well-endowed men and an advancement in the standard of morality will certainly give an immense advantage to one tribe over another. (p. 500)

"Morality" is here defined as cooperativeness, which is of no disadvantage individually anywhere in the organic world but is in all cases a selfish reproductive strategy. While tribal advantage might seem to be certain to arise from internal cooperativeness, there is no empirical basis for suggesting that evolution favors tribalism, because there is no evidence for group selection, because there is no evidence of individually disadvantageous reproductive strategies, because evolution makes them impossible. As Mayr (2001) notes, "Up to 1970 some geneticists thought that not only genes but also populations were the units of selection. It was not until 1980 that reasonable unanimity was reached that the individual is the principal target of selection" (p. 126). While that is the consensus view among evolutionary biologists, it is also conceptually the only plausible conclusion: since evolution proceeds by the process of biological reproduction by individuals, who must therefore introduce their genes to subsequent generations, it cannot be possible for genes that somehow lessen reproductive success to persist, or for supposed units of selection that do not actually reproduce or propagate genetic information to actually amount to units of selection. That is not to suggest that there are not plenty of interesting puzzles in evolutionary biology. Brucker and Bordenstein (2013) report evidence in support of the hologenomic theory of evolution, which proposes that the units

of selection are not strictly the individual organisms, but individual organisms plus their coadapted microbiome (the biotic community that lives in and on organisms). They found that hybrid wasps could survive without a microbiome (an artificial condition created in the laboratory) but could not survive with a microbiome, whereas nonhybrids could; thus, the unit of selection in this case must be regarded as the wasp plus its microbiome. Rice et al. (2012) report that homosexuality, which does seem to amount to a heritable yet reproductively disadvantageous trait, is due to "sex-specific epi-marks" (epigenetics) which are produced during fetal development to regulate sexual development, but which can escape erasure during the formation of gametes, and then lead to the feminization of male, or masculanization of female offspring in subsequent generations (which explains the evidence that homosexuality runs in families but has not been associated with particular genes). Hence, homosexuality would appear to be neither a heritable genetic trait, nor a heritable acquired characteristic, but more precisely an artifact of incomplete epigenetic erasure during the formation of gametes. Neither of these examples, however, lend credence to the idea of group selected somewhat less selfish genes for cooperation with nonkin. Biological altruism, as heritable and genetic, must promote individual reproductive success.

viii—Extended Synthesis

In light of the empirical evidence, it seems reasonable to suggest that life is as mysterious as ever, and that there is not, at the moment, a working empirical theory of evolution, one that can successfully generalize the available demonstrable observations and yield testable experimental predictions. Darwinian natural selection is conceptually flawed and empirically contradictory, while Lamarckian organic selection remains embryonic and controversial and politically incorrect. While some may bemoan the possibility of this giving comfort to creationists or deniers of evolution altogether, anyone who takes the time to consider the evidence cannot reasonably believe that the biblical theory of special creation is literally true, or that evolution is not real. Evolution is certain, but its workings have yet to be discovered. Adherence to natural selection is a metaphysical preference that is not well supported by the empirical evidence, but there is not as yet a comprehensive theory of organic selection to replace it. Much more evidence needs to be gathered, perhaps especially at the levels of physical emergence, chemical organization, and mutationism. The effort here has been to concisely review the relevant concepts and the empirical evidence as it now stands,

and to attempt clarificatory categorizations and characterizations, not to defend a new theory of evolution but rather to demonstrate the comparative reasonableness of Lamarckism and Darwinism as metabiological generalizations.

Several authors describe the need for an "extended synthesis," but it is not at all apparent that natural selection and organic selection are compatible in a synthesis. Thesis-antithesis certainly, but it seems as likely that one or the other or both are completely mistaken, so the suggestion that a new synthesis will somehow include the best elements of both sides may not be realistic. External versus internal creativity, natural versus organic selection, determinism versus teleology: the basic concepts would seem to each be mutually exclusive. Light, for another example, is analyzed as both particles and waves, yet it cannot be both nor apparently can it be one or the other, unless we are prepared to reconceptualize the concepts "wave" and "particle" altogether. Like "dark" matter, "natural" or "organic" selection might both best be regarded as placeholders for future discoveries. However, it does seem justifiable to suggest that research be allowed to follow the observations wherever they might lead, and not be canalized or ruined by dubious paradigm-think. Brooks et al. (1989) argue, "We are optimistic that a unified conceptual framework for evolutionary biology can be distilled from various attempts to 'expand', 'extend', or 'finish' the job begun by Darwin" (p. 429). Weber and Depew (1996) suggest, "Our effort is to show that complex systems dynamics provides the explanatory matrix in which we can comprehend the phenomena recognized by advocates of an expanded synthesis . . . " (p. 59). However, the far-from-equilibrium thermodynamics, along with the evidence of emergence, organization, mutationism, behavioral drive, acquired traits, niche construction, and altruism, suggest that orthodox Darwinism may be simply obsolete precisely because it presents the opposite conceptual framework compared to Lamarckism. Callebaut (2010) argues, " . . . EvoDevo . . . and niche construction theory will most likely be accommodated by the Synthesis as further extension, albeit ones that may require major conceptual reshuffling" (p. 472). But no amount of reshuffling can reconcile the fundamentally opposed conceptualization involved in the two alternative perspectives.

Di Bernardo (2010) states,

> Darwin's theory, mostly centralized on the natural selection principle, does not take into account the deep self-organization processes, that is those processes characterized by a mysterious teleonomy (p. 107); Today

> we know that the story of life is certainly that of accidental and random events, but also the story of order: a type of deep creativity weaved by nature itself. (p. 108)

The idea of an extended synthesis seems as much a political nicety as an empirical assessment; in terms of their respective logic, the natural and organic selection interpretations of evolution are contradictory; given the mounting evidence for the latter and the conceptual problems of the former, it seems reasonable to suggest that a more appropriate political nicety would be to call it a draw. Darwinism has popularity, momentum, and the scientific strengths associated with aspiring to a materialist, predictable, lawful model for how evolution occurs. But ultimately it reduces evolution, and organic matter itself, to an illusion, just as determinism characterizes free will. Lamarckism is unpopular but would seem to offer a teleological conceptualization that fits the evidence as it now stands. Given the differences, and the relative strengths, it seems reasonable to conclude that since we have two plausible explanations of evolution that yield very different conclusions, neither of them can be regarded as true.

ix—Summary

We should not regard scientific hypotheses as actually true, ever, anyway, since they are only ever possibly true generalizations of reproducible observations. Rather, we should maintain suspension of judgment regarding truth until enough observational evidence has mounted that whatever it might be it can no longer reasonably be doubted. In the empirical sciences that amounts to being observable. That evolution exists is observable and satisfies criteria for justified true belief. Our hypotheses for how evolution occurs are not like that. Empiricism is essentially an observational, not linguistic, enterprise of great success especially in biology, but the theories are generalizations of experiences which therefore cannot be reducible to the observations. The whole point of an empirical generalization is to extrapolate beyond the observations, and in empiricism hypotheses have the added burden of furnishing testable predictions. So naturally, a little metaphysics can play a positive role in empiricism, as has been argued by several philosophers of science. Haeckel (1909) writes of natural selection, "It thus enables us to dispense with the teleology of the metaphysician and the dualist, and to set aside the old mythological and poetic legends of creation" (p. 116). Two suggestions exist there that remain popular: that Darwinism is

not metaphysical, while anyone who disagrees with it is; and that teleology is metaphysical not empirical, while mechanicism is empirical not metaphysical. They can both be either, but certainly we do observe purposiveness in organic life, and we do observe mechanical regularities that may be lawful. Perhaps someday we might explain away teleology, but the researchers working on emergence and organization seem to be suggesting irreducible, nondeterministic purposiveness (albeit that concept may now require sophisticated reconceptualizing—perhaps life is itself a "force"), which may be quite compatible with quantum physics in the long term (since it implies an absence of necessary mathematical physical lawfulness and determinism). Darwin characterized natural selection as a metaphor, which presumably he intended as a replacement for purpose, which might also be regarded as a metaphor, but either way we are engaging in metaphysical speculation. That should involve acknowledged ignorance, which ought to restrict attempts to employ our metaphors as principles, or our guesses as truths. It seems justified at least to regard current theories of evolution as bases for further study, not as final products. Turning to ethics, most of us would readily admit that while we often have to act on less than perfect knowledge, truth, or certainty, we should generally try to avoid acting on the basis of abstract speculation as much as possible. If we were to act on the basis of the metabiological theories regarding how evolution occurs, we would surely be acting foolishly, if in fact they are as speculative as they appear to be.

CHAPTER 3

Descriptive Instinctivism

§ 1—Science

Micheal Ruse, a leading sociobiologist, follows David Hume, who so famously defended the position that all human behavior is necessarily a matter of obeying our sentiments (a position known traditionally as sentimentalism). The old-fashioned "sentiments" must boil down to modern-day instincts, since the whole point of sentimentalist moral theories is to claim that we are incapable of overriding our sentiments with anything tantamount to rational control or reason. If we can control our sentiments then we would be rational, and if we cannot then we are instinctive; there is no easily apparent middle ground. Even culturally sophisticated, artistically sensitive, or aesthetically sublime sentiments, in the absence of any possibility of rational control, which is exactly what the sentimentalists insist upon empirically, must and will fall away from their lofty perches of intellectual fashion and political correctness, and reduce to the animal instincts that nourish them. Why would anyone try to suggest that such a view is empirical, or scientific, since it seems perfectly obvious to many, if not all, of us that we are capable of overriding our instincts and acting on the basis of rational decision making? Mainly, it seems to be because sentimentalism, psychological egoism, and/or cultural relativism are views of human conduct that can be reconciled with determinism, which is a supposedly scientific but actually quite metaphysical faith regarding nature and everything in it that flatly contradicts our objective human experiences of free will and the purposiveness of organisms. If human decisions are potentially rational, and thereby made freely, and not determined by the influences of instinct and culture (which is simply what the concept of a rational decision must imply), then given the existence of such freedom

metaphysical determinism as a worldview cannot be true. In this case, we would be faced with having to incorporate rather than dismiss the phenomena of free will and genuine morality and teleological purposiveness into our metaphysics, which involves many complications, and might tend toward allowing for religion, which for many atheist and/or determinist theorists is intolerable.

Ruse (1985) writes that Hume "... showed us that even if we reject a God-guaranteed objective basis for ethics, we can still build a soundly constructed ethics from human feelings or sentiments.... The importance of human sociobiology is that it lets us bring Hume up to date" (p. 236). But since we cannot choose our feelings, for if we could our moral epistemology would be prescriptive rationalism (virtue) not sentimentalism, on this theory our feelings cannot be the basis of praise and blame, or for prescribing what ought to be done, and therefore what we get is not a theory of, but a rather a denial of, moral epistemology. Sociobiology includes the study of social behavior in animals generally, and ethicists of many different stripes believe that lessons for ethics can be drawn by extrapolating from animal behavior. Hume (1748/2000) writes, "... any theory, by which we explain the operations of the understanding, or the... passions of man, will acquire additional authority, if we find, that the same theory is requisite to explain same phenomena in all other animals" (p. 79). However, sociobiologists (of today) rely heavily on Darwinian theory especially, not merely on evolution or animal behavior, in defending their conclusions. Ruse (2012) states, "... the structure of the *Origin*, including here the intention to explain through natural selection, is (notwithstanding the cries of critics) embraced fully by today's evolutionary biologists" (p. 29). As demonstrated, there is a growing body of scientific counter-evidence for those willing to consider it. Compare the above review of the counter-evidence to Darwinism, with Ruse's (2012) quite brief rebuttals:

> "Horizontal gene transfer"... would not challenge the importance of natural selection (p. 28);... "evo-devo" shows that often you can get fantastic changes by altering what you have rather than starting anew... but selection is no less important... (p. 36);... genetic drift... clearly does occur.... Selection will swamp its effects... (p. 51); The whole point about... "mutations," is that they do not occur according to need (p. 103); An organism may be able to use them, but it is a crap shoot all of the way (p. 103);... our own very existence shows that a kind of cultural adaptive niche exists.... There is reason to think it existed independently of us. (p. 118)

Ruse (2012) argues that "... early evolutionism was more a matter of ideology than of hard, empirically based reasoning" (p. 41), but his own insistence on a Darwinian interpretation and rather curt dismissal of alternatives appears rather ideological.

Ruse (2012) writes,

> Think about Darwin's theory and its crucial dependence on metaphor—struggle for existence, natural selection, tree of life, and more recently adaptive landscape, genetic code, arms race (p. 145); ... if anything is deeply cultural it is the metaphors of science (p. 153); ... science ... does have standards, epistemic-value principles, and any science will be judged by them. Darwin's theory works on its merits, not because we all accept the joys and benefits of industrialism. (pp. 152–153)

However, in light of the recent evidence Darwinism may no longer work (if it ever really did strictly regarded on an empirical and not metaphysical basis), for Darwinism does go well beyond merely conceptualizing empirical evidence with its metaphors. A more apt characterization might be that Darwinism offers an interpretation of some empirical evidence, along with a dismissal of other empirical evidence, on behalf of faith in metaphysical determinism. Ruse (2012) writes,

> Most of us (those who take science seriously) think that ultimately there are laws of nature, without exceptions, that govern the universe (p. 68); ... other than for religious believers—and even for believers when they are doing science—we don't want to bring intentional purposes into the organic world. That is the whole point of Darwinian selection, to avoid having to do this. (p. 77)

Needless to say, many serious scientists are not determinists, evolution certainly appears on the basis of empirical observation to be neither a matter of chance nor based upon any known laws of nature, and denying rather than generalizing demonstrable observations is flatly unempirical. The insistence of lawfulness and the banishment of purposiveness are purely ideological moves that have no basis in scientific observation. Unless we are to define the empirical sciences as necessarily concerned only with discovering natural laws, and with whatever comes about by chance upon their basis (the laws being as they are, itself a matter of chance and not divine will, on the determinist view), and has having to intentionally ignore observable qualities of the objects under study, neither of which are likely to seem necessary to many trained scientists,

then we are free to consider alternative interpretations of evolution or of anything else (with no religiosity required). In the case of organic purposiveness, it may well turn out to involve physical forces, yet to be discovered, in the fields of quantal or currently dark physics, that are nondeterministic and unique to organisms, that are the source of evolutionary creativity, which would render Darwinian theory obsolete, but which, if they exist, may never be discovered if biophysicists insist on seeking out deterministic natural laws in their research.

Ruse (1994) states, "The astronomer tries to explain why the sun rises above the horizon. He or she does not deny this is what we see" (p. 500). But then why is it that Darwinians deny that we see purposiveness in organic matter? Sociobiology purports to be a scientifically informed theory of ethics, so in order to take sociobiology seriously its generalizations must be directly inferred from the observations in a way that anyone can find plausible. But what sociobiology actually does is draw inferences from inferences. That is, first we are offered the Darwinian interpretation of evolution, which (arguably) is inferred from the evidence that evolution happens, and then we are offered inferences about human conduct that are inferred from the Darwinian interpretation. So sociobiology amounts to theory based on theory, with considerable amounts of ideology built in along the way. Therefore, we can reasonably question whether it really makes much sense to regard sociobiology as scientific, since it is only somewhat loosely attached to the basic empirical fact that evolution is real—evolution itself does not suggest that we are necessarily instinctive in all of our actions, after all. While Ruse (1985) writes, "It would . . . be less than candid were one not to concede that there are occasions when the sociobiologists let their enthusiasms outrun their evidence" (p. 163); Ruse (1994) argues,

> In the language of an evolutionist . . . morality is no more—although certainly no less—than an adaptation, and as such has the same status as such things as teeth and eyes and noses. And . . . I mean this claim to be a literal matter of biological fact. I am pushing out from firmly established truth (p. 500); What I have to say now is at the cutting edge of science and requires a certain amount of projection and faith. But if the science be not essentially true, then my philosophy fails. (p. 495)

Sociobiology may not be at the cutting edge of science insofar as it adheres to orthodox Darwinism, but even if it was it would not be based on "essentially true" science but at best on a widely believed metaphysical interpretation.

Ruse (1994) states, "... Hume is my mentor because he went before me in trying to provide a completely naturalist theory of ethics" (p. 508). For Hume, though, the science of the day really was Newtonian and determinist, which no less then than now is of dubious applicability beyond physics. Hume (1751/1983) writes:

> The only object of reasoning is to... observe that particular in which the estimable qualities agree on the one hand, and the blameable on the other; and thence to reach the foundation of ethics, and find those universal principles, from which all censure or approbation is ultimately derived. As this is a question of fact, not of abstract science, we can only expect success, by following the experimental method, and deducing general maxims from a comparison of particular instances. (p. 16)

This is from the author who made famous the "no ought from is" distinction. Just because people do certain things, that does not mean that they ought to do those things. Or, even if humans generally do behave in certain ways, that does not mean that they ought to behave in those ways. People do such and such things and behave in such and such ways, that is true; but they perhaps ought not do such things or behave in such ways. Hume himself noticed this difference, but then offers a theory of ethics that denies any existence to the concept of "ought"—no oughts from ises because there are no genuine oughts at all but only the ises of human behavior descriptively considered. Since we are supposedly necessarily sentimental, and not possibly rational—since reason is the slave of passion (according to Hume and Ruse and the sentimentalist sociobiologists)—we are not free to choose our actions because we have no free will, and morality therefore does not exist, just animal behavior. Ruse also seems contradictory on this point: he (1999) writes, "... I would argue... with David Hume... that there is a key difference between statements of fact and statements of morality..." (p. 221). But on sociobiology there are not statements of morality but only statements claiming to be facts, about the necessities of human behavior. If there were truly statements of morality, that would mean that humans can freely choose their actions, including whether or not to obey their instincts, but this would not imply moral sentimentalism or sociobiology in general but moral rationalism.

The denial of free will, which is necessarily implied by sentimentalism, is the denial of ethics properly understood, in reducing it to the observation of supposedly determined animal behavior in ourselves. If morality, properly understood, is allowed to exist, which means we can

praise and blame, and judge right from wrong, then so must free will exist, and thereby rational control of the instincts. On the whole, the science of evolution does not offer empirical support for the descriptive instinctivist (sentimentalist) position, for the mere existence of evolution does not imply that we have no free will and are therefore not capable of making genuinely moral decisions. Even if evolution is interpreted according to Darwinian metaphysical determinism, that still does not imply that we have no free will, and no potential for real ethical conduct, for a Darwinian might allow the emergence of free will at least in humans. Sentimentalism requires doctrinal insistence on determinism: no organic purposiveness in the process of evolution, no emergence of human rational free will, and therefore no possibility of freely chosen conduct that can allow for ethics to exist as the subject which studies what we ought do.

§ 2—Normativity

Sentimentalist sociobiologists are committed to either equating morality with recognizable patterns in human/animal behavior, which is the category mistake and/or ought-from-an-is inference and/or misleading use of ethical terminology, because morality presumes free will to not behave according to any necessary pattern, or they must admit that their position implies denying that morality exists at all. Whereas Hume takes the former route (and falls into incoherence), Ruse actually does clarify that his overall position is the latter. He argues that normative ethics only exists as an adaptive illusion, and that there is no "ought from is" because ultimately there is no ought at all. Ruse (2012) writes, "... morality is profoundly non-Darwinian and should never have appeared.... Victory is all important" (p. 159); but he also says, "Morality on this biological scenario ... is an aid to decision-making in social groups. Should I help? Should others help me? Should I expect help? And so forth" (p. 175). The biological version of altruism is in play here; organisms are ultimately selfish, driven to reproductive success, but enter into social and cooperative relationships in order to maximize their individual fitness. But this is where sociobiologists typically (although not Ruse) can become especially confusing: several are keen to insist on the existence of group selection, despite the fact that there are no examples of reproductively self-sacrificial behavior patterns in existing organisms, and that there cannot be such examples because such organisms rapidly cease to exist either as individuals or as kinds. The motive for defending group selection would seem to (must) be to justify

a naturalistic account for supposedly moral social behaviors, which does not reduce to necessarily egoistic reproductive selfishness. Supposedly, if group selection exists, biological altruism might not be necessarily selfish after all, and a genetic, determinist, Darwinian account for supposedly unselfish "morality" might become plausible.

Sociobiologists cannot abandon the determinism, for that would require abandoning Darwinism as morally irrelevant (since if we are indeed free willed, morality cannot be cast as a heritable trait subject to natural selection, and sociobiology would have no rationale as an explanation for ethics), but sociobiologists can try to tell a story that allows for ultimately (metaphysically) determined human behavior, which is nonetheless not strictly selfish. If group selection were true, then at least within groups we might behave somewhat less selfishly, even if in the final analysis we are determined by the laws of nature in all of our actions. This view remains technically incoherent in trying to reconcile determinism with morality (which presupposes free will, rational choices, praise and blame, or else does not exist), but to less critical or inexperienced readers perhaps somewhat less so, or somehow less offensively so, and is perhaps somewhat more persuasive, in attempting to allow for more options for our supposedly determined selves and ancestors than strict reproductive selfishness. Some might be convinced (fooled) into believing that, since we have at least illusory free will, along with a supposedly wider range of somewhat less selfish behavioral choices on the basis of (nonexistent) group selection, we can arrive at a Darwinian yet somewhat more civilized, or palatable, or fashionable, or politically correct, theory of ethics. But, in creating a phantom evolutionary force in group selection, in attempting to render sociobiology less obviously incoherent (in that though we are supposedly instinctive and metaphysically determined, we might supposedly have somewhat unselfish behavioral options), in misguidedly attempting to avoid that all human instincts (as heritable genetic traits) reduce to reproductive selfishness, these sociobiologists commit an apparently characteristic Darwinian error of allowing metabiological concerns to override empirical observations.

Wilson (2012) and Sober (1993) defend group selection on the basis of mathematical modeling, but since there is necessarily an absence of organisms which actually sacrifice themselves genetically for the sake of groups, why should mathematical modeling override the observational evidence and indeed the logical necessities of organic evolution? Unless organisms engage in reproductively selfless behavior in systematic, routine ways, which they cannot and persist, then the notion

of group selection can only ever be asserted as a possible supplement to individual selection. But since groups do not reproduce, and cannot physically transfer information by means other than through successful individuals, the existence of group selection is implausible, even when the concept of natural selection is indulged. The primary method for the physical transfer of biological information via genes in cells renders evolution necessarily individualistic. Unless and until group selectionists produce evidence of group information somehow being physically transferred and heritable between generations of groups, there is no reason to take mere mathematical modeling more seriously than demonstrable evidence. At an early stage of the evolution of life on earth there had to have been the actual onset of levels of group cooperation that did indeed contribute to the reproductive fitness of the groups, in order for multicellular organisms to arise from unicellular ancestors. Hammerschmidt et al. (2014) describe in their research a laboratory experiment in which groups or "mats" of individual bacteria manifest group fitness, but only when allowed to participate in a life cycle that allows for the groups to reproduce by putting noncooperative "cheaters" into service as germ lines. When the groups purged the "cheaters," they were still allowed to reproduce by fragmentation, but in that case they did not manifest collective fitness, and so did not amount to units of selection. This evidence supports the notion that group selection can only occur if the groups somehow amount to reproductive units, by way of somehow passing along their hereditary information to subsequent generations, via something like a gamete (in which case the groups are not actually groups anymore but rather individual organisms), which would not seem to be a realistic characterization for early groups of humans or groups of our hominid ancestors. In our case the reproduction is done at the individual level, and even at the cultural level it would be difficult to regard groups as somehow amounting to distinct reproductive units which somehow pass along hereditary information with some sort of distinct cultural germ lines. Even if that were realistic, it is not clear how that would amount to biological evolution, as opposed to some sort of intellectual evolution with ideas as the relevant units of selection rather than genes. It seems rather far-fetched and unnecessary in terms of explaining human cultural evolution, and even if true there would be no reason to believe that units of cultural reproduction were anything other than products of human reason, and thereby detached from biological evolution, and so not explainable in terms of Darwinism and sociobiology.

However, even if group selection could exist, there would still be no reason to regard groups as anything other than cooperating necessary reproductive egoists; certainly that is the case in the social insects. That is, even if groups of humans could amount to units of selection, like groups of cells forming a collective organism, which could somehow be regarded as biologically reproductive, by way of some sort of germ line (which is quite fanciful), even then the individuals would need to be regarded as reproductively selfish, such that it would after all be in the reproductive interests of the individuals to belong to the group. It could not be suicidal to belong to a group; the overall efforts of the individuals toward the success of the group must be rewarded in terms of the genetic lineage being passed down. For example, our own bodies consist of cellular colonies, which only exist as cooperative units because they are capable of successfully propagating copies of themselves, via gametes and sexual reproduction, in subsequent generations. Given that, there is a potential payoff for each and every cell that our bodies ever produce, by belonging to the (bodily) group. If we did not reproduce, our bodies and each and every cell in them would not exist (which is an instance of exactly why we cannot avoid the issue of purposiveness in evolutionary biology). So, group selection (to indulge it conceptually even though it simply cannot exist) cannot ever imply genuinely selfless (reproductively) altruism, not even just within the groups, but only a somewhat-less-egoistic, and still instinctive sociobiological theory of "morality," which as instinctive and not free willed would not actually amount to morality anyway. If group selection were to be conceived of as cultural selection, though also fanciful, this could be rational in nature, and so not amenable to a biological explanation. Mathematical models alone cannot amount to evidence that group selection exists in the absence of observations, and in the absence of some sort of biological group reproduction applicable to human tribes, such models cannot provide for the possibility of actual genetic selflessness because this must ultimately be impossible—genes that coded for traits which promoted their own demise for the sake of the success of other different competing genes could not possibly persist. Even in bodily cells that are genetically coded to die for the sake of the organism (epithelial cells for example), ultimately they do so because that contributes to the success of the germ line, which carries copies of even those particular genes. What mathematical models and arguments for group selection can provide is a fallacious but perhaps persuasive (to some) argument for tribalism, which only makes a bad idea (that we are necessarily instinctive) even worse, not better.

Ruse (1985), for one, rejects group selection: "... we might invoke some sort of group selection hypothesis, arguing that since morality (almost by definition) works for the good of the group, its causes must be a function of selection working at the level of the group. But ... there are serious scientific objections ..." (p. 196). Ruse (2012) offers a standard reason for rejecting the possibility of group selection: "Group selection is too open to cheating. ... A variant cheater who does nothing for others is going to be at a selective advantage, and its offspring will spread at the expense of the altruists" (p. 162). Genetically, any traits that promote reproductive self-sacrifice in any routine way will necessarily disappear from natural history—this is one of the few undeniable truths about evolution that cannot be denied (though this would not seem to amount to a natural law or force of the sort that are common in physics and chemistry). So genetically, true/genuine/self-sacrificial altruism as an evolved innate behavioral predisposition is strictly impossible. Any truly selfless behavior in ourselves or anywhere in nature cannot therefore be something that is necessitated by genetic codes, since selfless behavior is by definition reproductively unsuccessful—it can only exist accidentally or as a product of moral reasoning. However, Ruse (1994) argues that even apparently genuine selfless human altruism is reducible to reproductive selfishness (biological altruism): "... in order to make us 'altruists' in the metaphorical biological sense, biology has made us altruists in the literal, moral sense" (p. 500). Similarly, Ruse (2012) states, "... biologically we are altruists, but the way in which we humans achieve our biological ends is through literal, ethical altruism. Doing good serves our reproductive goals" (p. 163). But this is confusing, since it is hard to discern what difference there could possibly be between Ruse's meanings for biological altruism (which is merely selfish yet cooperative reproduction strategy) and literal, moral, ethical altruism, if they both must ultimately, according to Ruse, serve selfish ends. "Literal, ethical altruism" must mean somehow reducing your own reproductive success, or else it is not literal altruism but only biological cooperation, and thereby equivalent with the biological meaning of altruism. Since genetically programmed reproductive selflessness is an impossible product of organic evolution, actually selfless altruism cannot possibly have anything to do with evolution, other than as some sort of accidental byproduct of other traits, or as a manifestation of evolved capabilities (reason) to transcend and override genetic predispositions. Ruse (2012) states, "... the 'unit of selection' is the

individual. . . . Although the altruist puts out, it must be with the expectation that there will be a payoff later. Overall, the gain is to the individual altruist. In other words, altruism is enlightened self-interest" (p. 160). In this case, there is no need to distinguish between biological and "literal, moral, ethical altruism," for only the former exists, and it serves reproductively selfish purposes.

Ruse (1994) writes,

> Here is a point of real strength in the evolutionist's approach. He or she argues that there is indeed something logically distinct about the nature of moral claims. The is/ought barrier is not to be jumped or ignored. The key point . . . is that we are in many respects self-centered (p. 502); But because we have taken the route of sociality, we need a mechanism to make us break through that self-centered nature on many, many occasions. Evolution has given us this logically odd sense of oughtness to do precisely that. (p. 502)

This "odd sense" is what is known in the sentimentalist tradition as the moral sense: Ruse (1994) argues, "How do these strategies present themselves to us in our consciousness? In a word, they are rules of moral conduct" (p. 500)! This is in keeping with Hume (1751/1983), who writes, "The final sentence . . . which pronounces characters and actions . . . praise-worthy or blameable . . . depends on some internal sense of feeling, which nature has made universal in the whole species" (p. 15). This point about human commonality is a point of repetition for Hume that Ruse (1999) agrees with: "With a shared evolution, we humans have a shared insight (or, rather, sense of insight) into the norms of right and wrong" (p. 218). However, this contention of universality in "moral" sentiment is offered as if it were an empirical claim, even though it surely cannot be an empirical claim, as any moral relativist would be happy to remind us. Hume (1748/2000) argues, "Mankind are so much the same, in all times and places, that history informs us of nothing new or strange in this particular" (p. 64). Perhaps we might want to try and find a way to excuse these authors, but as empirical claims there simply does not seem a way to take these seriously with regard to the moral sentiments. Moral relativists routinely demonstrate that there simply is tremendous diversity among our supposedly moral sentiments; has it not always been that way? Wilson (1978) writes, "Human behavior . . . is the circuitous technique by which human genetic material has been and will be kept intact. Morality has no other demonstrable ultimate purpose" (p. 167). That "morality" in the guise of supposedly common

human feelings can cause human genetic solidarity is surely not demonstrable and seems quite far-fetched. Undoubtedly, we have common basic instincts that nourish our moral feelings, such that they must ultimately be regarded as selfish, but the anthropological evidence is of great sentimental diversity.

So, at the normative level what we have from sentimentalist sociobiology is innate instinctive cooperativeness, according to some a product of group selection, but even if that could be proved our cooperativeness as an inherited trait must necessarily be reproductively selfish at bottom (and not free willed). Our innate cooperativeness is purportedly of sufficient consistency across our species that it serves as the foundation of "morality," even though on this view we have no potential for rational self-discipline, so no real choices, and so cannot actually be moral. Whereas Ruse claims that we experience our cooperative instincts in consciousness as rules, Hume's earlier argument is that we identify the rules by surveying human behavior to identify the patterns and regularities in the manifestation of human emotional reactions. Other than group selection, how has this supposedly arisen through evolution? In addition to Hume, Ruse of course also claims Darwin as a mentor. Ruse (2012) argues, "Although I am not sure of the extent to which there was a direct input from Hume to Darwin on the topic of morality . . . we can certainly say that Darwin stood firmly in the British empiricist tradition when it came to morality. The key notion . . . was always that of sympathy . . . " (p. 159). However, although sociobiologists defend Darwinism, Darwin himself is not so easily reconciled with sociobiology.

Darwin (1874/1936) writes,

> It is . . . impossible to decide in many cases whether social instincts have been acquired through natural selection, or are the indirect result of other instincts and faculties, such as sympathy, reason, experience, and a tendency to imitation; or again, whether they are simply the result of long-contained habit (p. 479); The social animals which stand at the bottom of the scale are guided almost exclusively, and those which stand higher in the scale are largely guided, by special instincts in the aid which they give to the members of the same community; but they are likewise in part impelled by mutual love and sympathy, assisted apparently by some amount of reason. (p. 481)

These remarks reveal indecisive, and perhaps philosophically naive, views with regard to the roles of instinct, sympathy, reason, and habit in the natural history of social behavior. After all, Darwin was not a

trained philosopher and did not claim to be. Darwin (1874/1936) does offer decidedly more un-Humean remarks regarding human morality:

> Ultimately man does not accept the praise or blame of his fellows as his sole guide, though few escape this influence, but his habitual convictions, controlled by reason, afford him the safest rule (p. 914); The highest possible stage in moral culture is when we recognise that we ought to control our thoughts, and not even in inmost thought to think the sins that make the past so unpleasant to us (p. 492); But as love, sympathy and self-command become strengthened by habit, and as the power of reasoning becomes clearer, so that man can value justly the judgments of his fellows, he will feel himself impelled, apart from any transitory pleasure or pain, to certain lines of conduct. He might then declare—not that any barbarian or uncultivated man could thus think—I am the supreme judge of my own conduct, and in the words of Kant, I will not in my own person violate the dignity of humanity. (p. 481)

Darwin's views are amenable to interpretation perhaps by design, but with such acknowledgments of the possibility of rational control for our actions, Darwin is by no means obviously consistent with Hume and the sentimentalist dictum that "reason is the slave of passion."

As inherited traits, all instinctive or innate behavioral predispositions must be reproductively self-serving. If they were not they would not persist in populations. Instinctivism generally, therefore, in the context of evolution, is necessarily egoist at least to a quite significant degree. The only way that instinctivism can allow literal altruism as Ruse suggests and avoid necessary egoism is if somehow the emotions can be developed and refined over the course of individual lives so as to become somehow unselfish in their purpose and functioning. But how that can be accomplished without an assignment for what we would normally think of as reason, facilitating "control" as Darwin puts it, and thereby abandoning instinctivism, is not so easily imagined. Hume (1751/1983) argues, "...we must renounce the theory, which accounts for every moral sentiment by the principle of self-love. We must adopt a more public affection, and allow, that the interests of society are not, even on their own account, entirely indifferent to us" (pp. 42–43). If we are to update Hume (as Ruse suggests), then only kin selection can account for instinctive feelings for the community, which remains a reproductively selfish motive but which might appear in unanalyzed human consciousness as unselfish outward affections. But now that we understand kin selection, we understand that instinctive cooperation

is reproductively selfish at bottom, and we can now recognize our instinctive feelings for what they are—selfish. A different approach to avoiding the necessary egoism of descriptive instinctivism is offered by Sahlins (1976): "It is reasonable to suppose that the dispositions we observe in modern man . . . are effects of a prolonged cultural selection" (pp. 13–14). On the other hand, Wilson (1978) argues, "Can culture alter human behavior to approach altruistic perfection? . . . The answer is no" (p. 165). The problem (for sociobiology) with an approach like Sahlin's (1976) is that human emotional responsiveness is clearly based in inherited dispositions, and is therefore instinctive and selfish at bottom, at least in the young and/or unencultured. If emotions are to break with their instinctive foundation and be utilized unselfishly, whatever culture is involved with that process would seemingly require roles for training and education and a Platonic principle of rational control, after all (or else perhaps lead to a kind of random cultural–emotional drift, which frankly seems impossible given the rigor of instincts). If cultural selection supposedly transcends instinct, it transcends hereditary genetic traits, and transcends biological evolution. Therefore, it does not warrant a sociobiological derivation but rather amounts to a quite peculiar metaphysical idea that Darwinian natural selection is somehow relevant with regard to nonbiological entities. If cultural selection supposedly does not transcend instinct, then it must rely on group selection, which is implausible.

As for how sentimentalism, updated by Darwinism, manifests itself in actual codes of behavior, sociobiologists characterize what might be described as Darwinian law. Ruse (1985) writes,

> Of course, most people really couldn't care less whether evolutionary ethics is formally fallacious. Their real and proper objection to such an ethic is that it seems to "justify" vile moral practices, like Social Darwinism and Nazism. It is associated with such slogans as: "Nature red in tooth and claw." "The weakest to the wall." "The survival of the fittest." Obviously, a neo-Humean sociobiological ethics has no place for any of this. Kin selection and reciprocal altruism drive such views back to the nineteenth century, from whence they came. Nevertheless, it has to be admitted that a sociobiological ethics does deny the kind of idealized view of morality to which many pay lip-service. I have in mind a kind of sanitized combination of the first book of Plato's *Republic* and the Sermon on the Mount, where you are supposed to be indifferently nice to everybody, no matter what the cost. Sociobiological ethics suggests that you simply will not feel this way about moral obligations, nor will you feel that you ought to feel this way. You will certainly feel

> stronger obligations to your children than to strangers, and probably you will feel stronger obligations to the unfortunates in your own society over those of other societies. (p. 238)

Wilson (1978) argues,

> Precepts chosen by intuition based on emotions are primarily biological in origin and are likely to do no more than reinforce the primitive social arrangements. Such a morality is unconsciously shaped to give new rationalization for the consecration of the group, the proselytizing role of altruism, and the defense of territory (p. 167); As band changed to tribe, true male leaders appeared and gained dominance, alliances between neighboring groups were strengthened and formalized, and rituals marking the changes of season became general (p. 88); As chiefdoms gave rise to cities and states, these basic qualities were intensified. The heredity status of the elite was sanctified by religious beliefs. . . . Religion and law were codified, armies assembled, and bureaucracies expanded. (pp. 88–89)

However, while it does not seem plausible that human passions are sufficiently uniform to identify regularities across all of humanity (as suggested by Ruse and Hume), neither does it seem plausible that anything resembling codes could be concocted strictly on the basis of instinctive generalities within group evolution. There is a significant degree of uniformity in human instincts, attributable to our common natural history, but people's instinctive and emotional reactions seem much too subjective to base or suggest rules upon. People get angry, or sad, and so on, but in different ways, for various reasons, in irregular situations. Regarding principles of right action, such uniformity is simply not there; rather, people need to be obliged one way or another, on the basis of settled laws, which are surely arrived at through a process of rational discernment. As a method, identifying right action with herd behavior cannot work: if what we ought to do is the same as what we do do then there is nothing for "ought" to do, and epistemically morality ceases to exist (which Ruse at least more or less admits to), along with the possibility of supposedly "moral" codes. But in addition, as a method, it does not seem plausible to suggest that anything along the lines of group behavioral regularities devoid of any role for rational control could possibly yield the sorts of norms that Ruse and Wilson mention. If humans really acted on instinct all the time, and really were incapable of rational self-control, and by extension incapable of rational group control via assenting to rationally discerned rules, then

surely our lives and groups would be so chaotic as to be barely if at all survivable.

However, in addition to being simply unrealistic, the method apparently being offered here, that somehow instincts can yield anything like norms on the basis of supposed human behavioral uniformity (are human group actions like that of schooling fish, or swarming starlings?), the method is also practically disastrous, for it actually sanctions rather than censures some of the worst possible human behaviors. Darwin (1874/1936) writes,

> A tribe including many members who, from possessing in a high degree the spirit of patriotism, fidelity, obedience, courage, and sympathy, were always ready to aid one another, and to sacrifice themselves for the common good, would be victorious over most other tribes; and this would be natural selection. At all times throughout the world tribes have supplanted other tribes; and as morality is one important element in their success, the standard of morality and the number of well-endowed men will thus everywhere tend to rise and increase. (p. 500)

Darwin suggests that so-called "morality" is restricted to the tribe, in group selection, which has never been demonstrated to exist. Ruse (2012) asserts, "...Darwin was not really tremendously reflective on what all of this might mean in practical terms, although it is fairly easy to infer that his values were those of an upper-middle-class Englishman, of liberal persuasion" (p. 157). Darwin (1874/1936) writes,

> Let it be borne in mind how all-important in the never-ceasing wars of savages, fidelity and courage must be (p. 498); Selfish and contentious people will not cohere, and without coherence nothing can be affected. A tribe rich in the above qualities would spread and be victorious over other tribes: but in the course of time it would, judging from all past history, be in its turn overcome by some other tribe still more highly endowed. Thus the social and moral qualities would tend to slowly advance and be diffused throughout the world. (p. 498)

Can we really accept defining the concept of morality as something that is a necessity for, and a product of, successful tribal warfare? And is it even biologically sensible to suggest that instinctive behavior, which on any understanding of evolution must ultimately be selfish behavior, whether it arises from kin selection or implausible group selection, could alone (without a role for rationality) possibly yield the sort of "fidelity" and "courage" that would allow for such tribal competition

to arise? After all, strictly instinctive species do not engage in group warfare. Ruse (1994) states,

> The connection between Social Darwinism and the dreadful social philosophies of this century has been a topic much discussed. . . . Something had to cause the worst of them all, National Socialism, and I would not hold Haeckel entirely blameless. . . . But historically, the Nazis did not much like Haeckel or his ideas, and one can see why: at the heart of his philosophy is the belief that we are all interrelated, including the Jews, and that our ancestors were monkeys! (p. 492)

But knowledge of our interrelatedness does not prevent Darwin from mistakenly defining war as morally right, and it does not seem reasonable to suggest that Haeckel was an evolutionist of influence compared to Darwin.

Descriptive instinctivism renders the traditional moral sentimentalism of Hume, in the context of evolution, as necessary egoism at the individual level. When kin selection is added into consideration, especially if combined with a belief in empirically indemonstrable group selection, sociobiology yields a supposedly empirical claim for the necessity of tribal conflict. These ideas conflict with our basic human experience of free will and rational self-control, which alone renders descriptive instinctivism (Humean sentimentalism updated, as Ruse says) unempirical, and with regard to the uniformity of human sentiment the theory also appears false. Human instinctive behavior is not uniform enough, but rather quite chaotic, such that any orderly behavior at all, toward either family or society, would appear impossible, unless or until a degree of human rationality is brought to bear. Only then does society become possible. And, since the notion that the worst human atrocities can be attributed to reason serving instinct seems like something of an insult to the animals (for they, on the basis of their instincts, are simply incapable of the things that we humans have done), Ruse need not apologize for their supposedly being attributable to sentimentalism, for they cannot actually be so. Furthermore, in characterizing human behavior as necessarily instinctive, although Ruse and Wilson offer statements that might seem to have a normative character, in suggesting that family and group both will and perhaps should be our top priorities, these cannot actually be normative statements in the context of their own theories because on an epistemology of descriptive instinctivism we are only capable of acting on instincts (which are not freely chosen, and so not possibly moral or normative).

Darwin's statements regarding tribalism, on the other hand, since he might reasonably be interpreted as rationalist in his moral epistemology, might be intended and interpreted as genuinely moral prescriptions; or we might take his inconsistency regarding moral epistemology (see below) as evidence that he was himself not quite fully settled or sophisticated in his understanding of ethics.

§ 3—Epistemology

Ruse (2012) writes, "What is the metaethical justification that the evolutionary biologist is offering? . . . That there is no foundation at all! Perhaps what we believe to be the case is all that there is to it. There is no reality, no objective truth, beneath what we think is the truth" (p. 180). This is Ruse's solution to the "no ought from is" problem—that there is no justification for our apparent oughts, because morality is merely an adaptive psychological illusion which ultimately serves genetic selfishness. No ought from is, because no ought at all. However, the context of evolution does not alter how, given any particular situation, there must be some actions that are more appropriate than others, however "appropriate" might be defined. For a Darwinian, reproductively advantageous, staying alive, keeping relatives alive, all must be considered appropriate. If Darwinians do not think that sociobiology is believable enough to act on, then why would anyone including themselves take it seriously at all? There must always be a truly proper course of action that is ideally correct given any situation. It is up to the individual to figure out what that proper action is. Whatever we might think we should do, the further it varies from the right action, the wronger we are. As Darwinians, sociobiologists cannot believe that anything goes; since Darwinism offers the rules mentioned (Ruse 1985, quoted above) as a code of conduct, or else the theory is not worth taking seriously, then sociobiology does wind up offering something like deontological rules, like the Ten Commandments. That might seem to amount to a claim of an objective foundation of ethics, after all, based on what Darwinians perceive as the metaphysical truth about the world (determinism), which manifests itself in our instinctively driven behavior. However, since sentimentalists do not believe that we are capable of behaving rationally, and that we follow our instincts necessarily, the Darwinian rules would indeed not amount to moral rules after all, in supposedly being the necessary directions that all our behaviors inevitably take rather than being our freely made choices.

However, while Ruse (2012) asserts that there are no metaethical foundations, he does assert that we nonetheless have moral beliefs, which the sociobiologists try to convince us should be infused with Darwinism, and which thereby supposedly ought to match the supposed actual objective reality of the metaphysical determinism that Darwinians believe in. In this case the denial of an objective foundation for ethics seems like a rather peculiar denial, since we supposedly do actually have our Darwinian instincts and we supposedly should have moral beliefs that match the supposedly Darwinian world, even while we supposedly know that our sense of free will and genuine morality is illusory. Surely, if the world is Darwinian, and supposedly we necessarily act on instinct, our moral beliefs should not conflict with these natural facts, even though as mere beliefs they supposedly would be rather ineffective in doing so even if that was their purpose. In defending a Darwinian belief system, the difference between the descriptive and prescriptive instinctivists is in whether our rational beliefs have any effect; for the former they ultimately do not, whereas for the latter they do (which seems much more realistic). But still, for the sake of science and mental health at least, the sentimentalist sociobiologists must surely recommend that our supposedly illusory moral beliefs should get in line with our supposedly Darwinian instincts. Ruse might simply stick to and emphasize to a greater extent that ethics and free will with it are illusions, and that on Darwinism all of our actions are necessitated by our instincts, while also clarifying that on his own theory his own sociobiological teachings are actually unnecessary, given that our supposedly "moral" beliefs (of the divine, transcendent, or natural types) actually have no real impact other than supposedly facilitating reproductive selfishness no matter what. That is, he could emphasize that he is not trying to proselytize for Darwinian values and beliefs in order to persuade anyone to behave in the ways that successful Darwinians supposedly must, but is only describing biological and human nature as he sees it, in the comfort that whether non-Darwinians see things the way that Darwinians do does not matter because supposedly we all generally behave in the ways that successful products of Darwinian natural selection do whether we realize it or not. Such an emphasis might help to eliminate any impressions that he might actually be offering an objective foundation for morality, even while arguing that there is no objective foundation for morality, created by such remarks as his (2012) claim that, "... morality as we know it at the normative level can be explained absolutely and completely in terms of evolutionary biology..." (p. 181). To be precise (and we must be in moral epistemology), on Ruse's theory

morality is not explained by evolution, but eliminated by it, and though our beliefs ought to be Darwinian, even if they are not, we will behave instinctively as Darwinian products of evolution anyway.

Ruse (2012) argues, "... however you regard the nature of material objects and the truth status of scientific claims... the claims of ethics are weaker in a sense.... Whereas claims about the physical world refer... claims about the moral world do not" (p. 181). However, claims about the physical world may not refer, if we are thinking about hypotheticals; demonstrable observations do refer, at least to whatever it is out there that is causing the reproducible experiences. So the scientific claim has a possible referent: the moral claim refers to an action, that will be taken, and to whether it is the right action given a scenario, so it too has a possible referent, which is whatever action is most appropriate. The moral and scientific claims both refer to possibles, inferred from observables. What we think we should morally do, like what we think is the empirical case, are both what we think, which may or may not be what is right, or real, or true. Ruse (2012) writes, "What would it mean to be a moral realist? You are referring to moral facts, whatever they are. And what they are is certainly... non-natural. They have to be something existing in their own right or the Will of God or some such thing" (p. 181). But right actions must be possible, in the simple sense that, all things considered, scenarios call for certain actions and not for others; whatever the right action is it might just as well be referred to with the term "fact" although we may not easily discern it. Ruse (2012) continues, "Normative morality is as it is because of the biology, and if you don't want to go beyond the natural you do not have to" (p. 182). Ruse repeatedly declares that he agrees with Hume about the is/ought distinction; but for Darwinians, the theory is the objective reference, for it serves an exactly analogous role in sociobiology as the Ten Commandments (and Darwin as the prophet).

Since we must act (for there is no not acting), in asserting that evolution explains morality "absolutely and completely," given that we certainly must at least suffer the experience of having to choose our actions (even if free will is an illusion as determinism insists), Ruse, for practical purposes, is asserting that evolution fully provides the basis for (at least, our beliefs regarding) right action—that it is all that we need to know and/or believe in. This would appear to be an ought-from-an-is argument, just like Hume's identifying all possible moral principles with observed human behavior patterns, although the is in Ruse's case (Darwinism) is quite a bit more speculative. If we were to more reservedly just take evolution into consideration, as an element to be included

in deliberation, we might think of how our oughts could best be about the ises and possibles of evolution. But to suggest that our oughts are totally determined by empirical generalizations, both as a supposed descriptive matter of fact on the basis of Darwinian metaphysics, and as a prescriptive matter of supposedly justifiable Darwinian beliefs with regard to our illusory sense of having to choose our actions; this would seem to be a risky moral method. What we think we should do will not very often be what we really should do if all we take into consideration is one or even a few empirical theories. In the case that Darwinism and sentimentalism were true, does Ruse believe that non-Darwinian beliefs about morality might be harmful, or merely benign? In any case, on this view we are certainly going well "beyond the natural," since metaphysical research programs are no more natural a referent for right action than religious texts. Again, it would seem that confusion could be cleared if the point of emphasis was more simply that morality does not exist, at all, because we cannot really choose what we do but rather must obey our instincts. Ruse is concerned with analyzing the so-called illusion of morality, but claiming that "normative morality is as it is because of the biology" is contradictory. If human behavior is necessarily instinctive, then there is no normative morality; if there is normative morality, then human behavior cannot be strictly instinctive but rather rational.

Ruse (2012) asks,

> Suppose there is no objective reality. Why do most people, including most philosophers, find this hard to accept? To the Darwinian, the answer is obvious. If we did not believe that morality was objective, that it refers to real facts, then we would soon quit obeying it . . . . This is a case where biology is deceiving us for our own good, because Kant was right: if we stop being moral society breaks down and then we all lose. (p. 183)

Ruse (2012) asserts that our sense of moral objectivity amounts merely to our moral feelings, but since these are not actually objective, because they do not refer to anything objective out there in the world outside our heads, they are not "real" like natural facts, which supposedly refer to something that exists beyond the thoughts in our heads. A "real" moral fact must refer to some sort of objective fact that exists beyond the thoughts in our heads. But, does not sociobiology present the facts of evolution as morally relevant, as actionable, at least with regard to our moral beliefs regarding the actions we ought to take on the basis of our supposedly illusory sense of free will? How can "Reproduce!" not

be considered an objective "moral" maxim, or fact, if, as sociobiology argues, it is actually true for everyone, and that we ought to believe it to be true for everyone (even if, given the supposed lack of free will, we only have the illusion of choice in this matter)? Even if we actually act necessarily in this regard, at least we supposedly ought to believe that we act necessarily in this regard, even though we have a false sense of free will, and this in itself surely would amount to a prescribed moral fact. Although we might object that this would not actually amount to a moral fact regarding what we can actually do besides belief formation, since the sentimentalists contend that we necessarily act on our instincts regardless of our beliefs, it does seem to amount to something like an objective rather than illusory Darwinian reality for ethics. It seems hard to believe that having incongruent moral beliefs could possibly be conducive to Darwinian success. After all, Ruse could simply assert metaphysical determinism, and that ethics does not exist, and dispense with all the arguments about morality and normativity and all the rest if none of it really mattered. On the other hand, if, as Ruse suggests, we actually do objectify "morality," albeit in creating a self-wrought illusion, then how can we not let the Darwinian rules rule, if the world supposedly really is a Darwinian place? Our illusory moral beliefs would then line up with the natural world, and though we would be prescribing a belief system on the basis of an empirical theory (an ought from an is), that would presumably amount to true belief yielding more appropriate actions.

Ruse (1985) writes, "We are what we are, namely possessors of a psychology which feels there is an objective morality external to us and which we must obey. There may not be such objectivity, but evolution has us thinking otherwise" (p. 237). What sociobiology offers is merely a different foundation for objectivity—evolution, which Ruse (2012) defends as explaining morality "absolutely and completely." So, although Ruse asserts no foundation for ethics, no objectivity, no justification, apparently in order to avoid the naturalistic fallacy, this seems inconsistent with defending evolution as an explanatory basis (foundation) for ethics in the slightest, what with our supposed illusory yet ideally Darwinian moral beliefs. To argue that there is no foundation for ethics demands arguing that there is no foundation; to suggest that there is no foundation on the basis of a new or different foundation is contradictory. It does not seem plausible that our moral beliefs do not matter at all, in that they supposedly cannot interfere with our instincts on sentimentalism, which oddly enough seems to be the only way that Ruse could avoid suggestions that he is actually defending an objective

basis for ethics in Darwinism. Sociobiology seems essentially committed to offering a Darwinian foundation for ethics; the main point of the theory is to apply animal behavior to human and draw normative lessons thereby. Drawing nonethical descriptive comparisons between animals and humanity is the work of psychologists. Although Ruse (2012) argues against the attempts by evo-ethicists of an earlier era to draw normative lessons from the process of evolution generally ("They saw the evolution process as one that had direction, leading up to humans" (p. 170); "Better therefore to channel and direct it if one is able . . ." (p. 171); "Philosophers have a standard reply against all of this . . . . It comes from David Hume" [no ought from is](p. 171)), methodologically there does not seem to be much of a difference between the earlier attempts and Ruse's: natural processes are taken as rules for conduct, whether it be competition or reproduction.

Ruse (1994, 1999) describes morality as an adaptation:

> I have argued that normative ethics is a biological adaptation, and I would argue that as such it can be seen to have no being or reality beyond this (1994, p. 504); According to the "ethical skeptic," therefore, ethics—normative ethics—has evolved to make us good cooperators, because given the kinds of beings we humans are, cooperation is a good adaptive strategy in the struggle for existence. We have a moral sense because it is adaptively advantageous to have it, but ultimately (as in the case of the secondary qualities that appear so vividly to us) there is nothing that it is sensing! (1999, p. 218)

But how can adaptively advantageous cooperation ultimately amount to nothing? Either "moral" sense is adaptive, and therefore quite objective and real, or it senses nothing (unlike secondary qualities that are causally linked somehow to external stimuli), but "moral" sense cannot be both adaptive and illusory. That might make sense if the illusoriness referred strictly to the supposed false sense of free will associated with this "adaptive," and therefore necessitated, and therefore not actually "moral," sense, but that is not what Ruse is referring to here with his illusoriness. Ruse's illusoriness here refers to a false sense that somehow the "oughtness" that we have with regard to being cooperative (within our families and groups) refers to some sort of objective (divine or transcendent or natural) moral facts. Darwinians often like to offer arguments to counter religious influences, so these arguments can be interpreted as a rejection of religious deontology, but they do not seem to work as a rejection of deontological ethics altogether. Ruse (1994) writes, " . . . rather than an individual illusion—here we have a

collective illusion of the genes, bringing us all in. We need to believe in morality, and so, thanks to our biology, we do believe in morality. There is no foundation "out there," beyond human nature" (p. 505). If we are all necessarily in on the same illusion, does that not make the illusion objective, at least for us humans (or intersubjective, perhaps), and therefore not illusory? That is the only sort of objectivity that Hume was after, and which Ruse endorses. And, if morality is an adaptation, and so a product of evolution generally, since evolution extends beyond human nature, why is that not a foundation "out there, beyond human nature"? Ruse is fairly repetitive on this point, but the suggestion that morality is an illusion does not seem to be able to do the work that Ruse wants it to: he (1994) writes, "A major attraction to my position in my eyes is that one simply cannot be guilty of committing the naturalistic fallacy or violating the is/ought barrier, because one is simply not in the justification business at all" (p. 504). But in calling morality an adaptation, conducive to cooperation, and ultimately reproduction, Ruse would appear to be in the justification business. If he were not, he could be simply emphasizing that we necessarily behave how we do, and that free will and morality do not exist. Since our supposedly illusory beliefs in moral objectivity, which have in the past manifested themselves as religious beliefs but which we can now supposedly update thanks to the teachings of the Darwinians, do supposedly refer to the real natural facts of evolution and do supposedly lead to biological success, it is hard not to receive sentimentalist sociobiology as referring to a moral sense that does supposedly sense something and is not actually illusory now that we are biologically informed. In this case, our "morality" is justified by "nature"; we should choose to act (although supposedly our sense of free will is false) on the basis of our belief in Darwinism, just as others have chosen to act on the basis of other belief systems.

Wilson (1978) states: "... innate censors and motivators exist in the brain that deeply and unconsciously affect our ethical premises; from these roots, morality evolved as instinct" (p. 5). Supposedly, if "morality" is instinctive it is necessarily selfish and reproductively oriented; any tendencies to cooperation and "altruism" serve these ends and so manifest in consciousness as "moral" inclinations toward cooperative behavior, just as Ruse suggests. Although Ruse does a better job than Wilson of taking sociobiology through to its logical conclusion that morality is illusory, neither seem prepared to fully acknowledge that Darwinism nevertheless implies a moral belief system: though we supposedly always have and always will act instinctively so as to maximize

our Darwinian fitness in the process of natural selection, we should also now consciously embrace Darwinism as the basis for right action given our supposed recognition of its truths. Dennett (1995) argues,

> It does not follow from the fact that our reproductive ends were the ultimate historical source of our present values, that they are the ultimate (and still principal) beneficiary of our ethical actions. If Ruse and Wilson think otherwise, they are committing the "genetic" fallacy that Nietzsche (and Darwin) warned us about. (p. 470)

Ruse (1985) argues,

> Human culture in some overall sense must be biologically adaptive, and because moral behaviour is such a large part of culture, it too despite any appearances to the contrary must surely be adaptive. Otherwise, we have to admit that even in the most primitive peoples, a large portion of their behaviour is probably seriously dysfunctional. (p. 197)

Here is committed Darwinism; in casting culture as either adaptive (and therefore reproductive) or dysfunctional, Ruse is presenting a false dichotomy along with a stoutly Darwinian worldview. Ruse (1989) writes, "... commitment to adaptation at this point is not mere "reductionist dogma." Rather, it is a proper inference from one of the most powerful of scientific theories" (p. 203). Ruse is here discussing human reasoning and science as also adaptive; so-called "adaptationism" is an issue that generates much discussion in philosophy of biology literature. It asserts that all organic traits and products can and should be interpreted as somehow reproductively advantageous. Needless to say, with regard to human cognition it is controversial, for many believe that we have cognitively transcended selection pressures and have attained intellectual freedom from biological concerns. Ruse (1989) writes, "If you reject evolutionary epistemology, it is surely incumbent upon you to suppose some alternative of your own" (p. 203); but adaptationism cast even onto the specific workings of the human intellect does not seem a very obvious interpretation.

Although Ruse (1985) writes, "Hume's position is sometimes called 'moral scepticism'.... I do not... care for this label" (p. 237), Ruse (1994) states, "...I feel confident in arguing that ethical skepticism is... the way pointed by evolution" (p. 506); "...I am endorsing... 'ethical scepticism', and I must stress that the skepticism is about metaethical foundations, not the prescriptions of ethics" (p. 504). Descriptive instinctivism might more accurately be described as moral adaptationism,

for it offers a foundation of Darwinism upon which is placed traditional commonsense sentimentalism. Ruse (1994) continues,

> Alternatively, it is known as "non-cognitivism," although I shall . . . explain where I differ from other non-cognitivist positions like "emotivism" (p. 504); . . . if emotivism be the complete answer, genes for cheating would soon make a spectacular appearance in the human species—or rather, those genes already existing would make an immediate gain. The way in which biology avoids this happening is by making moral claims seem as if they were objective! (p. 507)

Rather than the typical "non-cognitive" suggestion that we declare actions—Bad! and Good!—strictly on the basis of personal feelings, Ruse (1994) contends that we necessarily and adaptively believe that everyone else feels the same way. This is still instinct or emotion, though, as Ruse (1994) writes,

> I may not offer justification for normative ethics; but surely, I must offer justification for the claim that normative ethics has no justification! In fact, this I think I can do, for I believe that sometimes when one has given analysis of why someone believes something, one has shown that the call for reasoned justification is inappropriate—there is none. (p. 504)

Descriptive instinctivism would seem to imply relativism (even considering the basic generality of human instinct, given the anthropological evidence of great diversity of moral sentiments) but Ruse's adoption of Hume's belief that we are all quite similar, although on evolutionary not statistical grounds, combined with our supposed instinctive belief in the objectivity of our moral feelings, allows Ruse (1994) to say, " . . . what I want to suggest is that—contra the emotivists—the meaning of morality is that it is objective. Because it is not, it is in this sense that it is an illusion; although, because it is, this is a reason why it is not relative—not to mention why you are finding my arguments so implausible" (p. 507)! Hume's surveying method for arriving at sentimental nonrelativism is not empirically credible, while Ruse's assertion that we all necessarily believe that we all have the same moral feelings is also not empirically credible. At least, Ruse like Hume would have to support these arguments with empirical evidence since they are empirical claims. Ruse (1994) takes a different route, continuing: "This is also a reason why I do not fear that my telling you all this will let you go away and sin with impunity. Your genes are a lot stronger than my

words. The truth does not always set you free" (p. 507). Similarly, Ruse (2012) states: "As the Freudian argues that you are denying the truth of the Freudian analysis because of your own problems, so the Darwinian argues that you assert the objective truth of morality because of your own nature, one that Darwinism has brought about" (p. 184)! In these fleeting remarks Ruse does after all assert that our supposedly illusory moral beliefs do not actually matter; that therefore his theorizing is presumably not intended to alter anyone's behavior because everyone's behavior is necessarily instinctive anyway (which of course contradicts common sense). As an empirical theory about ethics, sociobiologists must surely be subject to queries about demonstrable evidence, which seems to be lacking: sociobiology is quite speculative and simply contradicts normal human experience.

The most obvious contradiction with experience is sociobiology's characterization of moral deliberation as illusory, ultimately instinctive (reason is the slave of passion), and therefore necessarily selfish. It seems more reasonable to believe that a common human trait is an ability to really deliberate, and to consider the appropriateness of unselfish actions, and to actually do them, than to believe that we do not have that ability. Sociobiologists are committed to either this notion of instinctive deliberation, or else that unselfish deliberation is illusory and self-deceptive, which are both unempirical points of view. They cannot allow for rational self-discipline, as this cleaves ethics from an evolutionary explanation and casts Darwinism as merely something else to think about. Consider Darwin (1874/1936):

> In the case of man, who alone can with certainty be ranked as a moral being, actions of a certain class are called moral, whether performed deliberately, after a struggle with opposing motives, or impulsively through instinct, or from the effects of slowly-gained habit. . . . Although some instincts are more powerful than others, and thus lead to corresponding actions, yet it is untenable, that in man the social instincts (including the love of praise and fear of blame) possess greater strength, or have, through long habit, acquired greater strength than the instincts of self-preservation, hunger, lust, vengeance, &c. (p. 483)

Darwin is not as easily reconciled with sociobiology as sociobiologists suggest, mainly because while he declares a role for rational control of instincts in ethics, as Humeans sociobiologists like Ruse and Wilson do not. Without an element of rational control, "morality" is reduced to necessary selfishness, since even the social instincts are ultimately

selfish and cannot be considered of "greater strength" than the perfectly selfish instincts like lust and self-preservation. Darwin includes actions performed "impulsively through instinct" as moral; in the context of virtue that might make some sense (if the instincts have been intentionally brought to bear) but arational necessarily selfish actions do not warrant being called moral. For the sentimentalist sociobiologists, those are the only kinds of actions that exist.

Ruse (1989) writes, "There are strong causal connections between Darwin's science and the philosophy of Hume, whereas the connections between Darwin and Kant's philosophy, although not entirely absent, are much less sturdy" (p. 215). Of course, as Darwinians, sociobiologists need to convince us that Darwin can be easily brought along. Ruse (2012) writes,

> Darwin's metaethics, his justification for normative prescriptions, was thoroughly naturalistic. Any foundations have to be in terms of human nature and this is our biological human nature. What these foundations might be, however, or if indeed there are any foundations at all, is not a question raised by Darwin. (p. 159)

Darwin's moral epistemology is amenable to interpretation, perhaps because contradictory, but he certainly did offer ideas that reveal stark differences with Hume. Darwin offers an evolutionary history for morality beginning with social behavior in animals, but his description of human morality details a more distinctive break with the lower animals than that recognized by Hume or Ruse or Wilson. Darwin (1874/1936) writes,

> As far as deliberation, and the victory over opposing motives are concerned, animals may be seen doubting between opposed instincts, in rescuing their offspring or comrades from danger; yet their actions, though done for the good of others, are not called moral (p. 482); Why then does man regret, even though trying to banish such regret, that he has followed the one natural impulse rather than the other; and why does he further feel that he ought to regret his conduct? Man in this respect differs profoundly from the lower animals (p. 483); Man prompted by his conscience, will through long habit acquire such perfect self-command, that his desires and passions will at last yield instantly and without a struggle to his social sympathies and instincts, including his feeling for the judgment of his fellows (p. 486); The imperious word ought seems merely to imply consciousness of the existence of a rule of conduct, however it may have originated. (p. 486)

These passages might still be construed as Humean, for in describing how "passions and desires" yield to "social instincts" we might take that to mean that the more selfish feelings can be overruled by the more social (although above Darwin is quoted asserting that the selfish instincts are always stronger than the social). But Darwin's view might still be interpreted as all instinct, so far. Darwin (1874/1936) continues,

> The above view of the origin and nature of the moral sense, which tells us what we ought to do, and of the conscience which reproves us if we disobey it, accords well with what we see of the early and undeveloped condition of this faculty in mankind. The virtues which must be practised, at least generally, by rude men, so that they may associate in a body, are those which are still recognised as the most important (p. 487); The chief causes of the low morality of savages, as judged by our standard, are, firstly, the confinement of sympathy to the same tribe. Secondly, powers of reasoning insufficient to recognise the bearing of many virtues, especially of the self-regarding virtues, on the general welfare of the tribe. (p. 489)

This might still be construed as Humean moral epistemology, since Hume did not rule out a role for reason altogether. Even in the following remark Darwin (1874/1936) offers a description of moral diversity that might appear to contradict Hume, but perhaps not:

> Neither can we say why certain admirable virtues, such as the love of truth, are much more highly appreciated by some savage tribes than others; nor, again, why similar differences prevail amongst highly civilised nations. Knowing how firmly fixed many strange customs and superstitions have become, we need feel no surprise that the self-regarding virtues, supported as they are by reason, should now appear to us so natural as be thought innate, although they were not valued by man in his early condition. (p. 491)

Darwin (1874/1936) goes on to include a few remarks about how human faculties are developed more than animal partly for possessing an ability to reason, but then writes:

> Ultimately our moral sense of conscience becomes a highly complex sentiment—originating in the social instincts, largely guided by the approbation of our fellow-men, ruled by reason, self-interest, and in later times by deep religious feelings, and confirmed by instruction and habit. (p. 500)

So for Darwin conscience is complex indeed: a sentiment, ruled by reason, self-interest, and religious feelings, and guided and confirmed by approbation, instruction, and habit. And, Darwin may be right—but this characterization is not Humean. In his summary, Darwin (1874/1936) states,

> The moral nature of man has reached its present standard, partly through the advancement of his reasoning powers and consequently of a just public opinion, but especially from his sympathies having been rendered more tender and widely diffused through the effects of habit, example, instruction, and reflection. (p. 914)

In the context of evolution and selfish and social instincts, it is crucial that we decide whether we are capable of controlling our sympathies or not, whether sentiment really is "ruled by reason" (which certainly seems to be the case on the basis of human experience and/or human potential). We might wish for more in the way of explicit remarks on this from Darwin, but he does say enough to make himself clear that we cannot easily interpret him as Humean. Darwin (1874/1936) writes,

> Ultimately man does not accept the praise or blame of his fellows as his sole guide, though few escape this influence, but his habitual convictions, controlled by reason, afford him the safest guide. His conscience then becomes the supreme judge and monitor. Nevertheless, the first foundation or origin of the moral sense lies in the social instincts, including sympathy; and these instincts no doubt were primarily gained, as in the case of the lower animals, through natural selection. (p. 914)

This is perhaps the most explicit remark on moral epistemology that Darwin offers: when convictions become controlled by reason, then conscience becomes the judge, which is the foundation of morality now in us. Historically, the first foundation was the instincts; those are products of natural selection. If that is a proper interpretation, then Darwin is decidedly not Humean, and he decidedly does offer a foundation for genuinely moral epistemology—reason. Darwin (1874/1936) writes,

> As the reasoning powers advance and experience is gained, the remoter effects of certain lines of conduct on the character of the individual, and on the general good, are perceived; and then the self-regarding virtues come within the scope of public opinion, and receive praise, and their opposites blame. But with the less civilised nations reason often errs, and many bad customs and base superstitions come within the same scope,

> and are then esteemed as high virtues, and their breach as heavy crimes. (p. 913)

So perhaps we might find a way to interpret Darwin's remarks on tribalism more favorably. Since tribalism is on Darwin's view a product of group selection and social instincts, if fully moral humanity is capable of controlling or ruling instincts with reason, virtue, and conscience, then tribalism can be regarded as primitive, unruly, out of control—in a word, immoral. However, given Darwin's (1872/1936) choice of "The Preservation of Favored Races in the Struggle for Life" (an empirically empty but ideologically loaded phrase) as the alternate title for the *Origin*, that might be generous.

Ruse (2012) writes,

> Before writing the *Descent*, Darwin did actually read Kant's *Metaphysics of Morals* and in *Descent* actually quotes one of the more purple passages in that work (p. 158); In truth, however, Darwin was never really on that track. For Kant, morality had a kind of necessity, stemming from the conditions required for rational beings living together. If there are rational beings on Andromeda, they will think and behave like late eighteenth-century Germans. . . . Darwin to the contrary bluntly asserted that if things had gone otherwise, we might think that killing each other is the highest moral duty. (p. 158)

Ruse (2012) goes on to present the following quote from Darwin (1874/1936):

> I do not wish to maintain that any strictly social animal, if its intellectual faculties were to become as active and as highly developed as in man, would acquire exactly the same moral sense as ours. In the same manner as various animals have some sense of beauty, though they admire different objects, so they might have a sense of right and wrong, though led by it to follow widely different lines of conduct. If, for instance, to take an extreme case, men were reared under precisely the same conditions as hive-bees, there can hardly be a doubt that our unmarried females would, like the worker-bees, think it a sacred duty to kill their brothers, and mothers would strive to kill their fertile daughters; and no one would think of interfering. (p. 473)

Comparing moral sense with beauty is certainly an idea that Hume defends, and genetic determinism in morality also contradicts Darwin's notions of rational control, but Darwin's moral epistemology is inconsistent. Our point here is only that Darwin is not obviously Humean,

and so not obviously consistent with sentimentalist sociobiology, despite assertions to the contrary. Darwin apparently saw the potential for evolved moral rationalism; why do sociobiologists typically reject this possibility? Ruse's (2012) "Andromeda" remark is a point of repetition: he (1985, 1994) writes,

> We are stuck with the paradox that we do that which is right because it is biologically advantageous, rather than because it is right! This conclusion goes completely against the spirit of an objective ethics. As Immanuel Kant, one ardent supporter of an objective ethics, pointed out, such an ethics is nothing if it is not categorical, demanding right behaviour because it is right. Regretfully, given evolution, it is at least possible that we could find ourselves doing the objectively wrong thing because it is biologically advantageous (1985, p. 237); . . . although I am quite sympathetic to the Kantian perspective . . . I believe that, in one crucial way, my system of evolutionary ethics can never be that of the Kantian. For Kant, the ethics we have is uniquely that possessed by rational beings, here on earth and anywhere else. This, to the Darwinian evolutionist, smacks altogether too much of a kind of progressionist upward drive to the one unique way of doing things. . . . The Kantian wants to bar intergalactic relativism, and this I am not prepared to do. (1994, p. 508)

Kant problematically invokes "all rational beings" but only as a necessary metaphysical idea in the derivation of his practical philosophy, while also consistently clarifying that his epistemology of "Transcendental Idealism" in general is of necessity for us humans but that whether that necessity extends beyond us is impossible to decide (an issue explored at length in an earlier treatise—*On the Rejection of Kant by Evolutionary Epistemologists*). Regardless, the potential for rational objectivity among ourselves (which is the only extension we can or need concern ourselves with) does not imply evolutionary progress toward a predetermined goal, just the potential for objectivity for us. Perhaps there are other cognitive niches out there, different, but necessary for those who manifest them. Perhaps our mode of reasoning is a contingent product of evolution here on earth. Ruse's (1985) notion that there are actions which are biologically right for us, but objectively wrong, is an attempt to dismiss moral rationalism by suggesting that "reason" must necessarily extend to all possible cognitive beings, and so cannot be contingent, and so cannot be a product of evolution, and so cannot be relevant for us, who are necessarily wholly and fully the come-by-chance products of Darwinian natural selection. Sociobiology casts morality as just another adaptation, accidental, but there is nothing in Darwinism to

justify rejecting the possibility that human reason in general is an adaptation. Ruse (1989) himself admits this:

> I would still be uncomfortable about supposing that so fundamental an aspect of human nature as our reasoning abilities was entirely a nonadaptive byproduct of the evolutionary process. This is simply not how evolution works. When you have major features which seem to have adaptive virtues—and if reasoning does not have such virtues, I do not know what would—then you expect to find natural selection has been at work. (pp. 202–203)

If general reasoning is an adaptation, then why reject moral rationalism? If reasoning in general does not raise concerns about evolutionary progress and absolute necessity, then why should moral reasoning?

Hume (1751/1983) also presents this false dichotomy that morality is either purely contingent on peculiar human sentiments, or else must involve absolutely universal transcendent "reason":

> There has been a controversy started of late, much better worth examination, concerning the general foundation of morals; whether they be derived from reason, or from sentiment; whether we attain the knowledge of them by a chain of argument and induction, or by an immediate feeling and finer internal sense; whether, like all sound judgment of truth and falsehood, they should be the same to every rational intelligent being; or whether, like the perception of beauty and deformity, they be founded entirely on the particular constitution of the human species (pp. 13–14); The standard of the one, being founded on the nature of things, is eternal and inflexible, even by the will of the Supreme Being: The standard of the other, arising from the internal frame and constitution of animals, is ultimately derived from that Supreme Will, which bestowed on each being its peculiar nature. (p. 88)

But there is also the possibility of objective human reasoning, that is rooted in human nature and that might not extend beyond humanity, which Hume (1748/2000) (like Ruse) also acknowledges: "...experimental reasoning...on which the whole conduct of life depends, is nothing but a species of instinct..." (p. 81). Apparently for Hume there is the habitual/customary/instinctive connections of events that we refer to as causation, which counts as experimental reasoning, in contrast to pure or abstract reasoning. Hume defends sentiment as the foundation for "morals," in order to arrive at an ethics restricted to human nature, even though he acknowledges an objectivity (or intersubjectivity) in

human reason regarding causation that is based in human nature and need not be associated with absolute, transcendent, necessity. He, like Ruse, might therefore also have attempted to derive a rational foundation for ethics that was also rooted in human nature, based on his interpretation of human reason. The point for us here is that there is nothing about evolution or human reasoning that rules out moral rationalism: evolution itself does not imply that human reason is absolutely universal for all intelligent beings in the universe, and both Ruse and Hume even accept the possibility that reason might be humanly contingent. In the absence of further explanation, therefore, their rejection of moral rationalism might seem, at bottom, to involve some sort of noncognitive emotivism applied to moral epistemology: Instinctivism—Good! Rationalism—Bad!

Sentimentalists generally acknowledge a significant role for reasoning in moral deliberation, but insist that the final arbiter is some sort of felt passion, emotion, desire, or instinct, rather than reason itself. Reason is thereby cast as a calculative process, not a motive in itself, but if we are somehow able to sort through our various passions, and to choose to act on whichever one is appropriate, in the right way, for the right reasons, toward the right people, at the right times and so on, then this surely amounts to a faculty of rational control over our passions, which distinguishes moral people from humans and animals that always act on whatever passion is most immediately felt. Even if reason is not in itself a motive, the ability to select, manifest, or direct sentiments as needed is sufficient for arguing that human morality has a rational foundation. Instincts cannot be the ultimate foundation of morality if they are only a tool of rational discipline. However, the descriptive instinctivists such as Ruse and sentimentalists in general insist that such discipline is not only generally absent but generally impossible for human beings. Of course, ethics concerns how we ought to act, not how we do act, so both sides of this debate would benefit from empirical evidence for their point of view about human potential: can we, actually, control our instincts, or not? Descriptive instinctivists do have an empirical case; like Hume, they can point to how people do generally behave, but as Hume seemingly both admitted and denied, that is not what ethics is all about. Rather, ethics is about how we ought to behave, regardless of how most of us actually do behave most of the time. So in order to take sentimentalism seriously, psychological studies demonstrating that rational control is not within the normal range of potential human behavior must be provided, and such evidence

has never been produced. The evidence that sentimentalists do produce always concerns how some people, which they mean to suggest implies how all people, decide their actions when under observation. But it does not follow that humans are incapable of controlling their instincts, even if most people normally do not.

DeScioli et al. (2014) report that people will switch from their adherence to some moral values to other different moral values in order to advance their own self-interest:

> The human mind includes not only basic moral values but also the ability to strategically advocate for the moral principles that most benefit us. This pursuit of self-interest is tempered, however, by the constraints of coordination. People seek not only to benefit themselves but also to persuade other people that they are morally right in doing so. (DOI: 10.1098/rspb.2014.2112)

This might be construed as evidence that reason serves instinct after all, but of course we know that many and perhaps most people behave selfishly routinely, and that they can rationalize doing so in sophisticated ways. In order to make the case for sentimentalism, we would need evidence that they necessarily do so, in being incapable of acting selflessly and/or on the basis of rational assessment. Ethics is concerned with human potential, with what we ought to do, not with what we actually, often, or usually do. Yoder and Decety (2014) report that on the basis of magnetic resonance imaging (MRI), people who are engaged in "justice sensitivity" employ regions of their brains required for reasoning activities while emotional regions of their brains are inactive. Such evidence could not be construed as supportive of sentimentalism, obviously, in suggesting that not only is rational moral assessment within the range of human potential but also that it may not need the cognitive involvement of instincts at all.

In the absence of evidence that rational control is generally beyond human potential, we can get some peculiar arguments from the descriptive instinctivists: Wilson (1978) writes,

> Human emotional responses and the more general ethical practices based on them have been programmed to a substantial degree by natural selection over thousands of generations. . . . We must consciously choose among the alternative emotional guides we have inherited. To chart our destiny means that we must shift from automatic control based on our biological properties to precise steering based on biological knowledge. (p. 6)

It is quite possible that it is simply not the case, but even if "we must consciously choose among the alternative emotional guides" then how can "general ethical practices" be "programmed . . . by natural selection"? Are our conscious choices naturally selected? It would not make any sense to regard decisions as units of selection. If these choices are instinctive necessities, then how can they be regarded as choices? How can "ethical practices" possibly be programmed, and therefore not freely chosen, and still be ethical? Wilson (1978) writes, "Because the brain can be guided by rational calculation only to a limited degree, it must fall back on the nuances of pleasure and pain mediated by the limbic system and other lower centers of the brain" (p. 68). Can the brain be guided by reason, or not? For the sentimentalists, "a limited degree" traditionally means that reason is the slave of passion, as Hume put it, so that human rationality plays the role of pleasure/pain calculator. Surely, the consequences of our actions must be calculated rationally; if consequences are the end of reasoning, upon which we act, surely we must attach appetites to the various consequential predictions. But on what basis are we to believe, with the sentimentalists, that we necessarily select that consequence most pleasurable and act accordingly? For this contradicts common sense, if not regarding what most people do most of the time, certainly regarding what some people can do some of the time. The latter is all that ethics needs, but what must be true, for it to exist as a subject. If we must believe that we are necessarily pleasure seekers, then descriptive instinctivism is on that basis merely a derivative of metaphysical determinism, which denies the existence of morality, but which also contradicts common sense and has no empirical justification.

Hume (1751/1983) writes,

> It appears evident, that the ultimate ends of human action can never, in any case, be accounted for by reason, but recommend themselves entirely to the sentiments and affections of mankind, without any dependence on the intellectual faculties (p. 87); If you demand Why? It is the instrument of pleasure, says he. And beyond this it is an absurdity to ask for a reason. It is impossible there can be a progress *in infinitum*; and that one thing can always be a reason, why another is desired. Something must be desirable on its own account, and because of its immediate accord or agreement with human sentiment and affection. (p. 87)

But Hume's adamance simply fails to answer as to why we must choose to pursue whatever it is that we find most pleasurable. And, even if human reason were a mere pleasure calculator, that would not also

imply that we necessarily pursue pleasure, for why could it not be that reason calculates the pleasure but then we act so as to pursue something else, even on a sentimental basis? Obviously, some people pursue pain, others seem to pursue angst, or confusion, or some other sorts of "sentiments." Many pursue knowledge or enlightenment, or on the contrary ignorance or emptiness; but if we were to include these as sentiments, then the category becomes so broad as to be meaningless for the purposes of arguing that we cannot have rational pursuits. There simply does not appear to be observational evidence of human behavior in support of the sentimentalist view with regard to human potential, but merely with regard to common human behavior. So at best the sentimentalist evidence is statistical and inductive. That is, perhaps most people (90–95%?), most of the time (90–95%?), simply pursue pleasure. As moral epistemologists we can simply respond, That does not matter! Perhaps the majority of humans are pleasure seekers, the majority of the time, but what has that got to do with ethics?

Descriptive instinctivism can only be a coherent epistemological argument if it openly asserts determinism, but that cleaves the perspective from its empirical aspirations and contradicts the very existence of morality which presumes the possibility of freely chosen actions. Since reason admittedly plays a role, but since we are not permitted to act on anything other than our sentiments, which we have no other way of controlling than by what we would normally refer to as a faculty of reason, sentimentalist descriptive instinctivism must boil down to determinism. Hume (1748/2000) writes, "Our authority over our sentiments and passions is much weaker than that over our ideas, and even the latter authority is circumscribed within very narrow boundaries" (p. 54). For Hume's epistemology to make sense, we cannot have any authority over our sentiments at all, for if we did we would not have to act on whatever sentiment presents itself most strongly in our consciousnesses and instinctivism would give way to rationalism. Ruse (1985) writes, "...we do have some non-genetic power over our destiny..." (p. 85); but then also goes on to argue that, "...few today want to deny that there are some causes, conscious or unconscious, behind all human actions" (p. 87). So, do we have nongenetic power over our destiny, or not? Ruse (1994) states,

> The most crucial presupposition of ethics... is that we have a dimension of freedom. You must be able to choose between right and wrong, otherwise there is no credit for good actions and equally no credit for bad ones (p. 506); Although (and because) morality is an adaptation, I am not saying that we will always be moral—for biological and nonbiological

> reasons we may break from it. The point is that we can break from it. (pp. 506–507)

Yet Ruse (1994) also states,

> Did any moral thinker . . . ever truly think that we choose the rules of moral action? This is what makes traditional Social Contract thinking so implausible. Moral choice comes into whether or not we obey the rules of morality, not whether we choose the rules themselves. We are not free to decide whether or not murder is wrong. (p. 506)

According to Ruse (2012):

> We are determined by biology to have the dispositions that we have and by our culture in the ways that we have expressed (p. 176); These are sentiments laid upon us. But no one . . . has ever argued otherwise. Where we do have choice is whether we are going to obey the moral dictates. (p. 176)

Ruse (1994) acknowledges that free will is required in order for ethics to exist, but offers only freedom to obey or disobey innate dispositions and cultural norms, which are metaphysically determined (by way of either Darwinian or cultural destiny) and not a matter of choice. If supposedly "moral" rules are determined (by Darwinism) and not chosen, they could not properly be regarded as moral rules. And, if the rules are not chosen how do we come to recognize them as rules? Surely we cannot instinctively identify what could properly be considered rules of conduct—actual laws beyond the general Darwinian cliches—but must rather identify and choose rules with our faculties of reason, as is typically argued by social contract theorists. After all rules must be objective and apply to everyone at least within a given society, and obviously our sentiments are too wildly subjective to serve for law making (given the empirical evidence, which contradicts Hume's and Ruse's claims otherwise). Furthermore, if we can disobey our own innate sentiments or cultural norms (as Ruse suggests), might not we be able to do that in an orderly and social and therefore rational way, as has also been explicitly argued by the social contract theorists, such as when we are required to update our social rules (e.g., as when we need to amend our legal constitutions)? If we can possibly disobey or override our instincts, by what faculty would that be accomplished other than by what we might normally refer to as reason? And of course, if reason can override instinctive "ethics," then why do we need to take sociobiology seriously?

Wilson (1978) argues, "It would appear that our freedom is only a self-delusion" (p. 71); "The mind is too complicated a structure . . . to be predicted in advance by the individuals affected or by other human beings. You and I are consequently free and responsible persons in this limited sense" (p. 77). So ultimately we are metaphysically determined, but since we cannot discern all the machinations of our own determinedness, we experience that blindness as an illusion of free will. This is known as the compatibilist position regarding the compatibility of a seemingly free will that is actually illusory, and determinism. As Ruse argues, it renders the whole of morality and ethics as illusory, as if we are all necessarily living out a dream in which we believe ourselves to be behaving freely and morally but are actually being determined by indiscernible natural physical laws. To engage in moral theorizing at all is, for sentimentalists, thus to knowingly engage the dreamworld but with an abstract awareness of one's own puppetry, a kind of self-awareness that nondeterminists are supposedly lacking or refuse to accept. But since there is no scientific basis for taking metaphysical determinism seriously, it is the sentimentalists who seem to get themselves caught up in tangles by their metaphysical faith. If we reject blind unempirical faith in determinism, and take our actual objective human experience of free will as much stronger evidence than mere faith that it is actual and real, then sentimentalism is rendered much more fantastic than moral rationalism.

Alcock (2001) writes:

> When critics tag sociobiologists as genetic determinists, they may, ironically enough, be tapping into an evolved enthusiasm for free will and freedom of action, attributes that make many receptive to the depreciation of sociobiology (p. 46); Some readers of the "no data" criticism may have concluded that an absence of evidence on the genetic foundation of human social behavior constitutes evidence for the noninvolvement of genes in the development of our sociality (p. 52); But if it is sometimes possible for humans to overcome our evolved predispositions, and no sociobiologist would disagree, then wouldn't it be wise to understand just what effects past natural selection has had on us? (p. 195)

Why take seriously the notion of genetic determinism, or of an evolved enthusiasm for free will, or that an absence of evidence can be excused, if we can at the same time acknowledge that we are capable of "overcoming our evolved predispositions"? If we can act on a rational basis, sentimentalist sociobiology is simply false. We can all admit that we have genetic predispositions or instincts, and most of us—including

some sociobiologists—can admit that we are not behaviorally determined by our instincts. But in that case, sociobiology is only ethically relevant insofar as it can inform us about what our instincts are and how they manifest themselves, so that we might learn how to rationally employ them as we see fit.

The question of free will is a problem of metaphysics after all; there can be no necessary or obvious proof one way or another (unless one counts objective human experience as proof). Wilson (1975) argues, "... ethical philosophers intuit the deontological canons of morality by consulting the emotive centers of their own hypothalamic-limbic system" (p. 563); Campbell (1966) writes, "The need for values can be seen to arise from ... the fact of man's possessing an 'archaic neurological and endocrinological system partially but not completely under corticol control'" (p. 320). It seems unlikely that deciding what to do will ever be pinpointed to a particular region of the brain. Even if it could it is not clear how that would relate to free will. Might not emotions be willfully summoned; could thespians not testify to that? Even if not, do emotions necessarily override rational deliberation and free choices? Sentimentalists argue, Yes! The notion that there are ultimately identifiable causes behind all actions, which rule out free will, is a line of argument that Hume (1748/2000) develops:

> Where would be the foundation of morals, if particular characters had no certain determinate power to produce particular sentiments, and if these sentiments had no constant operation on actions? And with what pretence could we employ our criticism upon any poet or polite author, if we could not pronounce the conduct and sentiments of his actors, either natural or unnatural, to such characters; and in such circumstances? It seems impossible, therefore, to engage in science or action of any kind, without acknowledging the doctrine of necessity, and this inference from motives to voluntary actions; from characters to conduct (pp. 68–69); When again they turn their reflections towards the operations of their own minds, and feel no such connexion of the motive and the action; they are thence apt to suppose, that there is a difference between the effects, which result from a material force, and those which arise from thought and intelligence. But being once convinced, that we know nothing farther of causation of any kind, than merely constant conjunction of the objects, and the consequent inference of the mind from one to another, and finding that these two circumstances are universally allowed to have place in voluntary actions; we may be more easily led to own the same necessity to all causes. (p. 70)

Of course, not all of us are convinced that all there is to causation is constant conjunction; we are justified in believing, and know, that there are fundamental forces at work when billiard balls make contact that have nothing to do with repetitive human experience. Furthermore, Hume associates causation judgments generally with custom and sentiment; if we "feel no such connexion" with regard to our own thoughts, there is no custom, and no belief in causation, and so then why would we rule out free will? Apparently, free will is held to a different set of rules by Hume (see also Hume's (1748/2000) footnote 18, p. 71; "... liberty ... a false sensation ...")—without a feeling of causation, we have no basis for assigning it, yet we are supposed to assign it anyway, when it comes to our own thoughts and actions.

Hume (1748/2000) argues, "The same experienced union has the same effect on the mind, whether the united objects be motives, volitions, and actions, or figure and motion" (p. 69). Does Hume arrive at that generalization by surveying human behavioral patterns, as is his stated method? For it seems unlikely, as he admits, that many would report their moral experiences (as thoughts) as including something like the "felt necessity" that causation judgments typically involve, on his view. Since apparently not, what method are we employing other than sheer speculation? Hume (1748/2000) writes,

> Necessity, according to the sense, in which it is here taken, has never yet been rejected, nor can ever, I think, be rejected by any philosopher. It may only, perhaps, be pretended, that the mind can perceive, in the operation of matter, some farther connexion between the cause and effect; and a connexion that has not place in the voluntary actions of intelligent beings. Now whether it be so or not, can only appear upon examination; and it is incumbent on these philosophers to make good these assertions, by defining or describing that necessity, and pointing it out to us in the operations of material causes. (p. 70)

Like Alcock (2001) this method appears to be that old favorite—I speculate, now you must prove me wrong. Hume asserts determinism and demands that those who disagree explain themselves, as if his is the obvious view, when in fact his is the view that contradicts both common sense and even his own definition of causation.

Hume (1748/2000) writes,

> But as long as we will rashly suppose, that we have some farther idea of necessity and causation in the operations of external objects; at the same

> time, that we can find nothing farther, in the voluntary actions of the mind; there is no possibility of bringing the question to any determinate issue, while we proceed upon so erroneous a supposition. The only method of undeceiving us, is, to mount up higher; to examine the narrow extent of science when applied to material causes; and to convince ourselves, that all we know of them, is, the constant conjunction and inference above-mentioned. We may, perhaps, find, that it is with difficulty we are induced to fix such narrow limits to human understanding: But we can afterwards find no difficulty, when we come to apply this doctrine to the actions of the will. For as it is evident, that these have a regular conjunction with motives and circumstances and characters, and as we always draw inferences from the one to the other, we must be obliged to acknowledge in words, that necessity, which we have already avowed, in every deliberation of our lives, and in every step of our conduct and behaviour (p. 71); And it seems certain, that, however we may imagine we feel a liberty within ourselves, a spectator can commonly infer our actions from the motives and character; and even where he cannot, he concludes in general, that he might, were he perfectly acquainted with every circumstance of our situation and temper, and the most secret springs of our complexion and disposition. Now this is the very essence of necessity, according to the foregoing doctrine. (p. 72, footnote 18)

Perhaps taking the third person abstract perspective allows Hume to avoid the inconsistency regarding the absence of felt necessity within our own minds, but then Hume can be challenged empirically. If we were able to run the ideal experiment, in which a group of subjects were "perfectly acquainted" with another group of subjects and their "circumstances and dispositions," would the observers be able to predict the actions of the observees with perfect accuracy? It seems likely that probably not (since free will seems real enough to believe in), but even if they could, would that imply determinism? Just because people behave predictably does not mean that they behave deterministically; most of us surprise ourselves and one another and often do (and might do so but only once in a million). And if they did behave with perfect predictability, that still would not prove sentimentalism or determinism, anyway, since reason is more consistent than human emotions in general (and so they might simply be acting rationally). Sentimentalism is the main epistemological contention for Hume and now for sociobiologists such as Ruse and Wilson; it requires determinism to make sense, but that in turn undermines the view's empirical viability. And a sentimentalist moral epistemology must include determinism, or else cede moral rationalism. If we do not obey the instincts necessarily, we are free to deliberate and override, and with what else besides rational

self-discipline? But determinism renders morality either impossible (in negating choice) or illusory (we think we choose but actually do not), both of which contradict the empirical inspiration for sociobiology by rejecting objective human experience.

Finally, if we were to consider the possibility of organic, rather than natural, selection, and the irreducible elements of choice, decision, and indeterminism that are implied at even the most basic levels of organic life, might that resolve problems for sentimentalist, descriptive instinctivism? Natural selection is a determinist theory, so Darwinians are inviting difficulties in even attempting ethical theory, which generally presupposes free will. However, the indeterminacy of organic selection theory must still be confined within the problem of evolutionary persistence: organic actions must generally be self-preserving and reproductively advantageous in order for individuals and kinds to persist. Instincts, as evolved and heritable traits, are no less necessarily selfish on organic selection than natural. While sentimentalism might not be absolutely determinist on organic selection, it would still be necessarily egoist, and determinist in that limited sense if instincts cannot be overridden. The only other possibility would be that, in cognitively advanced creatures, there might exist an emotional capacity to override selfishness and instinct, which somehow puts rationality to work, but which somehow amounts to some sort of potential for ultimately arational emotive selflessness, that includes and amounts to free-willed emotional "choices" that can be praised and blamed. This would seem unlikely given the evolutionary basis of instincts as survival mechanisms, since it would amount to an inversion of the historical purpose of emotion.

Without a role for rational self-discipline it is difficult to conceive how we might be governed by emotion and yet "choose" anything at all, never mind being truly selfless in any sort of behaviorally routine, or humanly objective ways, but perhaps there is a case for evolved selfless sentimentalism that manifests some sort of override of egoism analogous to that attributed to rational discipline. Such a position does not appear to have adherents; if it were to draw any it would seem that a selfless arational emotive capacity, if it existed, would have to be proven necessary (descriptively) because it could likely not amount to a practical prescription for moral method if it were a matter of choice. Rational self-discipline, seemingly able to facilitate fully free choices, does not involve the sort of self-contradiction that would seem to be required by some kind of selfless emotions drawn from instinctive foundations. In any case evolved arational emotive selflessness would be relevant only in

humans, and if within our potential more likely a matter of our choice of which method is more practical. While sociobiology in the hands of Darwinians is generally determinist and egoist, since organic choice in general cannot be indulged on that view, in the context of organic selection moral epistemology is more a matter of human potential, chosen direction, and practical possibilities. If a descriptive instinctivism can be defended in the context of organic selection as more plausible than it seems, then perhaps we can expect such arguments to emerge, but if instinctivism is only a matter of choice, then the practicality of prescribed instinctivism (given the apparent inexistence of an arational potential for self-discipline) is taken up below (chapter 5).

CHAPTER 4

Descriptive Rationalism

§ 1—Science

Whereas descriptive instinctivism in the context of evolution amounts to necessary selfishness, given the natural history of emotions as self-serving instincts, and given the denial of any possibility of rational self-control, descriptive rationalism amounts to necessary selflessness, in ultimately abstracting from human nature altogether in favor of an egalitarian ideal of social and purely rational "agents." In contrast to descriptive instinctivism, which defines morality in terms of a willful description of human nature that does not include rational self-discipline, descriptive rationalism offers a willful denial of our natural human condition, both as instinctive animals and as an ecologically situated species. Whereas descriptive instinctivists deny that there is such a thing as a particularly human, rather than simply animal, nature (since instincts are common among us and the other animals), descriptive rationalists ultimately deny that human nature is morally relevant (in that rationality is presumed to transcend humanity, but is a kind of cognition in which we must partake, which defines and exhausts moral epistemology). Therefore, in respectively defining ethics as either necessarily instinctive or necessarily rational, we are offered a contrast between depravity and fantasy. Descriptive instinctivists are not prepared to acknowledge the evolution of human potential for rational discipline, but descriptive rationalists are not prepared to acknowledge that evolution has implications for what can be realistically regarded as practical reason. Peter Singer (1981/2011) refers to his perspective as sociobiology, but his version is atypical and unique: whereas Darwinism does generally imply an instinctivist and determinist sociobiology since Darwinism is fundamentally opposed to free will or even the possibility

of organic choice playing any significant role in evolution (on pain of incoherence), Singer (1981/2011) argues that sociobiology does not imply selfishness (pp. 44, 128, 129), but rather, "... enables us to see ethics as a mode of human reasoning which develops in a group context, building on more limited, biologically based forms of altruism" (p. 149).

A key point for understanding Singer's (1981/2011) point of view, and in particular why he insists that moral rationalism can be regarded as sociobiology (given the inconsistency between the freedom of will associated with rationalism and the determinism of Darwinian metaphysics), is that he asserts that moral reasoning can itself be regarded as distinctly a product of evolution. The more obvious route for any Darwinian wishing to defend moral rationalism is to simply admit the emergence of free will and rational decision making in humans at least, and to allow that at that point in our natural history we transcended Darwinian natural selection (and that therefore sociobiological derivations of morality are pointless). The Darwinian sentimentalists are obviously quite committed to their determinism in dismissing these empirically obvious developments as illusory. Singer (1981/2011), however, argues that we are capable of genuine (not illusory) practical reasoning, because it can be characterized as something like a biological trait, that as a species we have developed over the eons, and which we inherit as individuals. Practical reason is not merely a byproduct of general human reasoning ability that can simply override the instincts, but supposedly a refinement of animal social behavior with a distinctly instinctive ancestry. Such a perspective necessarily requires defending some quite mistaken ideas about how evolution works. Singer (1981/2011) casts practical reason as refinement, rather than control, of instinct, justifying a sociobiological derivation of morality, based on his arguments that group selection is real, and that somewhat unselfish behavioral traits can thereby evolve. But of course heritable traits are adaptive and reproductively self-serving, and so it is contradictory to suggest that natural selection can yield a heritable cognitive trait which is distinctly unselfish (which is what our ethical "mode of human reasoning" must amount to, on Singer's view, or else his sociobiological derivation would seem unwarranted)—truly unselfish heritable genetic traits simply cannot persist in the process of evolution. This is not to say that we are incapable of genuine unselfishness, or pure practical reasoning, for we obviously are, but just that they cannot be heritable biological traits unto themselves, but rather manifestations of our rational capacity for controlling our selfish instincts, which therefore do not warrant

sociobiological explanations. In assessing Singer's (1981/2011) position, while the biology errors are apparent, there emerges a popular theory of normative ethics—collectivist utilitarianism—which unto itself is not rendered impractical solely on the basis of evolution. Pure moral rationalism and utilitarianism and collectivism are not conjoined by moral epistemologists in general; formulations of both utilitarianism and collectivism could be theoretically associated with the moral epistemology recommended here—prescriptive rationalism—so the focus here is on Singer's (1981/2011) moral epistemology of descriptive rationalism: is it plausible that pure practical reason requires an evolutionary explanation, and is it practical for humans to conduct moral deliberation purely on a rational basis (to define morality as purely rational)?

Social behavior is not ethical behavior; if it were the social insects would be moral geniuses. Moral behavior presupposes choice, free will, and deliberation, which renders the sentimentalist sociobiology (theory of descriptive instinctivism) not actually a theory of ethics at all, but a theory of ethics denial. Nevertheless, Singer (1981/2011) regards animal social behavior as the precursor of ethics, which might appear to be commonsensical only so long as one denies or is unaware of the necessary selfishness of instinctive behavioral traits; when that biological fact is acknowledged, it is not plausible to regard social behavior as early morality. When group selection is invoked, and thereby instinctive animal behavior is regarded as somehow or somewhat unselfish, it apparently makes sense to some sociobiologists to perceive social behavior as very basic or primitive morality, even though as instinctive, social behavior could not possibly be free willed or unselfish. Truly unselfish behavior cannot possibly be instinctive; it can only ever happen in arational animals incidentally and not as a heritable trait of routine behavior, or in rational animals by means of an ability to override the instincts (or possibly as an artifact of epigenetics, as referenced above with regard to heritable homosexuality). This means that ethics is only possible in rational creatures, but not that ethics is necessarily wholly and fully (purely) rational by definition. The ability of the rational to override, but also to apply, employ, or summon instincts as appropriate, in order to successfully navigate this—not a metaphysical abstract—world, an ability which must surely be amenable to training and improve with experience and/or culture (and that is known as moral virtue), renders rationality as a necessary but not sufficient element of moral cognition. Singer (1981/2011) repeatedly insists that ethics began in instinctive animal social behavior (pp. xi, 4, 5, 54), arguing, "... sociobiology bears on ethics indirectly, through what it

says about the development of altruism . . . " (p. 5); "Attempts to draw sharp lines between ourselves and other animals have always failed" (p. 27); "Both human and non-human animals have innate tendencies toward behaving in particular ways" (pp. 27–28). Singer (2005) states, " . . . justice is not, at least in its origins, a human invention. We can find forms of it in our closer nonhuman relatives" (p. 479). However, the relevant distinction is not between human and animal, but free willed or determined; how free and deliberated the choices of animals are is a matter of speculation. Many other mammals might seem to be capable, but that does not amount to evidence that ethics is an evolved trait, or has roots in animal behavior, but only that many mammalian species might be capable of conscious deliberation. If "innate tendencies" are not free willed they are not moral, and if they are free willed then how can we plausibly regard them as distinct, heritable, evolved traits, in any need whatsoever of a sociobiological derivation?

Singer (1981/2011) argues, " . . . the forms of altruism observable in other social animals . . . render implausible attempts to deny ethics has its origin in evolved patterns of behavior among social animals" (p. 29); but Singer (1981/2011) also states, " . . . ethics can be explained as the product of evolution among long-lived social animals with the capacity to reason" (p. 106). This is confusing; is the origin of ethics social behavior patterns, or the capacity to reason? We know that it must be the latter, but Singer suggests that we can have it both ways. But we cannot: morality presumes rational free will and so cannot possibly have origins in innate behavior (instinct). Morality was born at that moment in time when an organism first acted on the basis of a rational assessment of a scenario (including taking its instincts into consideration), rather than on its instincts alone, and thereby rendered a decision that could be assessed as praiseworthy or blameworthy, not a decision that it had no choice but to make. Singer (2005) writes, " . . . the great moral philosophers of the past. . . . Lacked a proper understanding of how our norms may have arisen by natural selection. . . . Without this knowledge, they could observe our feelings and attitudes but not explain them adequately" (p. 477). But natural selection cannot yield evolved norms, for the concept of "norms" implies morality, which presumes free will and rational choices (which are amenable to praise and blame), which Darwinian natural selection generally forbids, and which are not possibly products of biological selection, because they may or may not be reproductively self-serving. Only selfish behavior traits can be produced by biological selection pressures, because in order to be inherited and be heritable they must be reproductively self-serving. "Feelings" and

"attitudes" (instincts) might be explained by natural selection, but they are necessarily self-serving and are not possibly moral norms (because they have not been rationally chosen, and thereby praisable and blameable). If "norms" were products of natural selection, then they could only be inherited cognitive dispositions, regarding which we might manifest an inherited illusion of their being freely chosen (as Ruse suggests), but which could only be instinctive and so not freely chosen and so not moral and so not norms. If we were to subscribe to Darwinism, and thus claim that indeed our sense of morality is illusory because it is actually an inherited instinct, then we should cease to apply terms like "norms" and "morality" to what we supposedly realize are not actually norms or morality, because since we have recognized our illusion for what it is we can now dispense with all such confusion.

However, Singer (1981/2011) is determined to hatch a Darwinian account for genuine morality, apparently at least in part in order to rail against religion, and needs a plausible evolutionary mechanism for the evolution of truly moral behavior as a trait unto itself (which is incoherent, given the necessary selfishness of all biologically inherited traits and the necessary freedom of choice presumed by the basic concept of morality). As a moral rationalist, Singer might settle for an account by which general reasoning ability gradually evolves to the point of being able to facilitate controlled animal and human behavior. That would be compatible with Darwinian natural selection up to the emergence of the rationally coordinated behavior; the sentimentalist sociobiologists maintain ideological purity in denying even that. Singer opts to pursue an adaptationist account for practical reason in particular, which leads him to offer even more implausible and mistaken assertions regarding altruism and group selection than some of the sentimentalist Darwinians. Since he declares belief in free will and rational control, we can only point out the problems and wonder, Why? Referring to Hobbes, Singer (1981/2011) writes, "The state . . . may reinforce our tendency to observe an ethical code, but that tendency exists before the social power is established. . . . Now we . . . have biological grounds for rejecting Hobbes's theory" (p. 24). Hobbes describes ethical codes as rational rules for social coherence, which required an additional motive of fear of punishment from the state in order to foster compliance. There is nothing about evolution that warrants rejecting a political philosophy like Hobbes's, but Singer believes otherwise because he thinks that instinctive behavioral customs that amount to social codes (which supposedly arise in the process of group selection) can be regarded as ethical, because he thinks unselfish instincts are possible. If even

somewhat reproductively selfless conduct can be an evolved behavioral trait, then morality supposedly predates rationality; but since truly altruistic instinct is impossible, morality cannot be instinctive (because ethical conduct must be freely chosen, and not necessarily obedient to reproductively selfish instincts).

Singer's (1981/2011) effort to establish the existence of reproductive selflessness via group selection would not allow for characterizing such biological altruism as moral behavior even if it succeeded, which it does not. And so Singer's (1981/2011) sociobiological discussion is in that sense misguided, for morality simply cannot be instinctive and still be morality. Hobbes is surely correct in asserting that rational laws of society cannot consistently motivate human compliance in the absence of state-sponsored enforcement of law and order; while group selection does not occur as a natural process of evolution, it might occur within the context of state-enforced social cohesion if legal constructs are implemented toward that aim. That is, group selection, if it exists, is a construct of human civilization, not a natural outcome of evolution; the sociobiology arguments for the existence of group selection in nature despite a complete absence of observational evidence seem like attempts to justify and rationalize a distinctively human behavior pattern (tribalism) that has demonstrably horrific potential. Singer's (1981/2011) characterization of group selection as a natural occurrence that has been rationally refined in humans is a misunderstanding of evolutionary biology, for group selection can only exist as a chosen product of human reason employing and manipulating instincts toward extremely dangerous and quite likely self-destructive ends.

Singer (1981/2011) writes, "Understanding the development of altruism in animals will improve our understanding of the development of ethics in human beings . . . "; but his own misunderstanding of biological altruism leads him astray. Singer (1981/2011) describes examples of biological altruism including warning calls, food sharing, and restrained fighting, characterizes genes as the unit of evolutionary selection, and adds that, " . . . any genes that lead to altruism will normally lose out . . . to genes that lead to more selfish behavior, before the altruistic genes could spread . . . " (p. 9). However: biological altruism does not cost individuals but benefits them genetically (which is the only kind of benefit that matters in evolution); on organic or natural selection altruistic behavior as a heritable trait must necessarily be genetically selfish; Singer's examples are not genetically unselfish in the slightest; and since biological altruism is a genetically successful behavioral strategy

genes that manifest it will not lose out. Only genuine (reproductively unselfish and/or rationally deliberated) altruism would lose out in biological competition, but it never occurs among the vast majority of animal life, and is only possible as a rational contradiction of necessary genetic selfishness. Singer (1981/2011) writes, "... two forms of altruism can be explained by natural selection: kin selection and reciprocal altruism" (p. 11); "Thus strictly selfish behavior... will not be favored by evolution" (p. 12); "... the sacrifices that... animals constantly make for their children.... Must count as altruism..." (p. 12). These remarks would not raise objections so long as we were to suppose that Singer is aware of the genetic selfishness of cooperation and caring for offspring. Mutualism and commensalism refer to evolutionary scenarios in which even different species evolve mutually beneficial and often quite intricate trajectories and behaviors; flowers and pollinating insects develop specific co-dependencies, as do clownfish and anemones. Biological altruism generally refers to behavior by animals toward members of their own species: Singer (1981/2011) states, "Reciprocal altruism seems not really altruism at all; it could more accurately be described as enlightened self-interest" (p. 42); but he also claims, "We can now see that sociobiology itself can explain the existence of genuinely altruistic motivation" (p. 45). Biological altruism is reproductively selfish, always and necessarily; genuine moral altruism based on free rational decision making is not and cannot be explained by sociobiology (unless sociobiology were to typically include explanations for the emergence of free will and rational self-discipline and the human transcendence of natural selection). It only creates confusion to refer to biological altruism as genuine when it is necessarily selfish genetically or could not exist (as a heritable trait), and to refer to genuine altruism as biological when the former must imply actual reproductive, rationally deliberated selflessness or else not be morally relevant.

Singer (1981/2011) writes, "... to explain how reciprocal altruism can get established... we need to allow a limited role for a form of group selection.... Suppose that... a lot of monkeys have genes leading them to initiate grooming exchanges.... Those who reciprocate could be better off than those who do not.... The reciprocal group now has an advantage, as a group, over other groups..." (p. 19–20). This example is reducible to individual selection: the grooming is selfishly cooperative, and a population of selfishly cooperative individuals will likely replace populations that are not selfishly cooperative. The group is not an evolutionary unit but just a local population, highly interrelated and

therefore kin selective. Kin that do not groom one another are less likely to persist and propagate their genes. Singer (1981/2011) continues,

> If we . . . allow group selection a role in the inception of reciprocal altruism, we can hardly deny . . . an evolutionary explanation for a more general tendency for altruistic behavior toward other members of the group. . . . A group would have to keep itself distinct from other groups for group altruism to work—otherwise more egoistically inclined outsiders would work their way into the group, taking advantage of the altruism. (p. 20)

We can simply deny the existence of group selection in this example, because there is not the slightest element of individually genetically unselfish behavior in play: kin selection, which is reproductively selfish, fully explains the biological altruism (grooming helps your family members to reproduce and thereby to spread your genes); there is no reason to worry about outsiders so long as they engage in selfish cooperative behavior for they are not likely to flourish within the population otherwise, and on the contrary populations need constant influx of new members to balance the outflow and to maintain genetic diversity. Populations being cut off from others one way or another is a precursor of speciation, a phenomenon most contrary to genuine altruism and morality (assuming a common mode of cognition). Singer (1981/2011) adds, " . . . group altruism would work best when coupled with a degree of hostility to outsiders . . . " (p. 20), but there is no "group altruism," just groups of kin-selecting cooperators, and any hostility to outsiders could only be warranted genetically if the outsiders were reducing, rather than increasing, the reproductive success of group members (and, of course, breeding with kin is typically not successful). Singer (1981/2011) continues, "It may be objected that . . . members of the group will be related . . . so what we have is not group selection at all, but rather kin selection. . . . Nevertheless . . . it is reasonable to describe what is going on as "group selection" even if it may ultimately be possible to explain what is going on in terms of kin selection" (p. 21). Are we really supposed to employ unhelpful, confusing, and plainly mistaken terminology and concepts in evolution theory just in order to indulge whatever collectivist political ideals happen to be informing our ideologies? That would not seem helpful in scientific or ethical discourse.

Singer (1981/2011) also offers an argument for altruism on the basis of the so-called "Prisoner's Dilemma": "If . . . they are altruistic to the extent of caring as much for the interests of their fellow prisoner as they

are for their own interests, they will. . . . Come out of this situation better than a pair of self-interested prisoners, even from the point of view of self-interest" (p. 47). In the context of evolution the premise ("caring as much for the interests of their fellow prisoner as they are for their own") is only possible in the case of kin selection: there could never be a species of organisms that cared about nonkin as much or more than themselves, for such a species could not possibly persist. As appealing as the concept of group selection apparently is for many theorists, it is simply up against an undeniable reality of organic evolution: organisms must promote the existence of their genes or else those genes unavoidably disappear. Since an organism's genes are carried only in their own bodies and in the bodies of their kin, organisms must defend their own and their kin's bodies, and pursue reproduction. Nonetheless, Singer (1981/2011) repeatedly insists that his explanation of group selection (even though he admits that it is not necessary) yields "genuine" altruism within the groups (which could only possibly be reproductively selfish biological altruism, and thus kin selection, or else the behavior could not persist as a heritable trait): "The Prisoner's Dilemma explains why there could be an evolutionary advantage in being genuinely altruistic . . . " (p. 47); "Evolution would therefore favor those who are genuinely altruistic . . . " (p. 49); " . . . genuine altruism could have come about consistent with the theory of evolution" (p. 128). These statements are simply incompatible with the basic concept of evolution by changes in populations of individuals: there are no genuinely altruistic (reproductively selfless) heritable traits, behavioral or otherwise; altruism can only ever be toward kin and/or reciprocally advantageous in instinctive organisms. Given kin relations, high levels of cooperativeness can develop to the point of completely cooperative strategies of genetic propagation, as in the social insects. In the absence of high levels of genetic relatedness, instinctive genuine altruism is evolutionary suicide, pure and simple, such that genuinely altruistic heritable traits are impossible.

Singer (2005) similarly asserts: " . . . selection . . . between smaller, isolated breeding groups, happens. . . . There could be selective pressures that favor self-sacrifice for the benefit of the group" (p. 478). Genetically heritable traits cannot possibly be self-sacrificial, but only reproductively self-serving, and produce behavioral instincts which in nonrational creatures could only yield determined not free-willed choices, and so biological altruism and its natural history are morally irrelevant. Singer (1981/2011) seems motivated by the ideals of collectivist politics, but he also (like Ruse and Kitcher) seems rather careless regarding the rather sinister implications of his false interpretation: " . . . group loyalty

in modern times was only too clearly demonstrated by Hitler's . . . arousing the nationalistic feelings of the German people, and Stalin's . . . war effort" (p. 51); "The group bias of our ethics . . . shows itself in the high praise we give to patriotism" (p. 51). Since there is no reason to believe that group selection exists, there is no reason to believe that tribalism is anything other than a cultural exploitation of what must undoubtedly be very strong and generally healthy human instincts for kin selection. To suggest that evolution causes tribalism by way of group selection is to mistakenly deny or be unaware that the idea of group selection is itself a cultural exploitation but of the biological sciences, and not an actual force of natural causation.

Singer's (1981/2011) entire characterization of biological altruism as the "root" of ethics must be regarded as false and is likely very misleading for nonbiologists. Although the science is flawed, that might not seem like a major problem to many of his readers. The contradiction between the necessary selfishness of biological altruism, and both the freedom of will and the selflessness of rationalist moral epistemology, could be resolved if Singer were only to admit that human rationality amounts to an ability to override instincts, because genuine altruism contradicts biological altruism, but Singer's (1981/2011) view is that moral reasoning is a refinement, a natural extension, of instinct. It would also help if Singer included arguments to the effect that somewhere along the line we learned how to be unselfish on the basis of reason, but Singer only offers his biologically mistaken view of how we learned how to be instinctively unselfish by means of group selection, and of course if he were to argue that unselfishness is a product of reason that would remove the rationale for offering a sociobiological explanation of ethics in the first place. Singer's (1981/2011) theory creates a false impression of how instinct and reason relate, compare, and function. Since it is an epistemological and scientific argument, we are surely justified in expecting both precision and empirical plausibility; after all the whole point of these discussions is to discern the extent to which evolution explains or informs an accurate account of moral epistemology. Neither Ruse nor Singer (nor Kitcher nor the Darwinian virtue theorists, below) offers convincing reasons for taking sociobiology seriously; Ruse because his position amounts to denying that ethics exists, and Singer because his position incorrectly claims that reproductively selfless altruism can arise as a heritable trait (it cannot), which then supposedly facilitates a smooth behavioral transition to genuine, rational, selfless morality in general (but this requires an ability to override the selfish instincts).

Singer (1981/2011) characterizes the process by which our supposedly unselfish ethical instincts come to be applied to an ever-widening group, via transformation into pure practical reasoning, as an escalator: "Beginning to reason is like stepping onto an escalator that leads upward and out of sight. Once we take the first step, the distance to be traveled is independent of our will . . . " (p. 88). This amounts to another kind of argument that appears in evolutionary epistemology literature, which contends that reason itself (and science and culture with it) somehow evolves autonomously from organic evolution. Singer (1981/2011) states:

> Reasoning will develop on a principle similar to biological evolution (p. 99); Why should our capacity to reason require anything more than disinterestedness within one's own group? (p. 113); This suggestion overlooks the autonomy of reasoning—the feature I have pictured as an escalator (p. 113); The idea of a disinterested defense of one's conduct emerges because of the . . . requirements of group living, but in the thought of reasoning beings, it takes on a logic of its own which leads to its extension beyond the bounds of the group. (p. 114)

These are rather speculative remarks; many of us would characterize "reason" as not much more than "inferring," an ability that is surely dependent on general intellectual capacities to absorb, understand, and interpret the meaning and implications of ever greater amounts of information or data. To suggest that reason has some sort of ontological existence unto itself, and that it evolves, in some sort of way that relates or coincides with and even somehow causally contributes (according to Singer) to organic evolution, is interesting but far-fetched. Also here is the notion that practical reason, at a certain stage, is limited to group altruism, since it is borne of and apparently not quite fully removed from kin selection. This is where the confusion of Singer's biology takes a rather heavy toll: even as rational beings we supposedly struggle to overcome our supposed innate tendency toward group selection. Cast as purely a manifestation of instinct, innate tribalism is a dangerous enough idea, but when cast as a manifestation of innate practical reasoning patterns tribalism would seem to amount to a rather disturbing human characteristic, that would be much more difficult to manage. If rational thinking is actually genetically determined or influenced, that would amount to sentimentalism, but Singer's view is that we engage in abstract moral reasoning, which apparently must struggle to overcome group instincts, because it is itself born of those very instincts. Given

the idea that practical reason is a refinement of instinct, which blurs the distinction between reason and instinct, Singer (1981/2011) seems to suggest that practical reasoning is naturally biased toward tribalism as a result of its evolutionary history. Singer offers no arguments to the effect that practical reason must simply override or control group instincts, but rather that in "escalating" or "extending" it is practical reason itself that is supposedly somehow evolving from being group oriented.

Fortunately, Singer is mistaken: he (1981/2011) states, "We are dealing with a stage of human development for which there are no historical records. . . . Nevertheless, the account I shall give is internally coherent and fits the evidence available . . . " (p. 90). Singer's account is neither coherent nor evidential. Biological altruism—always selfish and generally kin selection—exists; genuine altruism is human rationality, which also exists. Singer's "group altruism"—instinctive-cum-rational genuine altruism restricted to tribe members, and only overcome by some sort of ontologically autonomous escalator of evolving "reason"—does not exist. At least, that is what the demonstrable empirical evidence from evolutionary biology and other sciences indicates. This means that tribalism is best understood as a cultural exploitation and potentially a perversion of kin selection instincts, which might potentially be well managed to positive ends. Singer (1981/2011) does fill in some details regarding how practical reason supposedly evolves:

> Gradually . . . our brains grew and we began to reason . . . (p. 91); In a dispute . . . the demand for a reason is a demand for a justification. . . . Thus the reason offered must be . . . equally acceptable to all (p. 93); . . . the transformation of genetically based social behavior into social customs involved the first limited application of reason to what had hitherto been under the unchallenged control of our genes (p. 94); The readiness with which we can bring particular events under a general rule may be the most important difference between human and animal ethics (pp. 94–95); Reason breaking beyond the boundary of customary morality is classically embodied in the life and death of Socrates. (p. 96)

However: there is no evidence that equality has ever played a significant role in the evolution of any pack-oriented species (such as ourselves) rather than quite rigid and brutally enforced hierarchy which eliminates any ancestral impetus for group justifications by individuals; genetic behavior amounting to a set of rules need not involve reason at all as countless arational social species exemplify; and if it requires the likes of Socrates in order for the escalator of evolving reason to insinuate itself

into human natural history than humanity would not seem to have a very promising potential. Although it is an interesting problem—how it came to be that we humans gained the ability to decide what to do on a rational not instinctive basis—neither group justifications, rule-following, nor messianic change-agents, seem as likely as straightforward growth in general human intelligence and self-awareness. It is probably fair to suggest that many humans are even now not actually capable of moral behavior, for the lack of these, but for those who are capable, they are simply smart enough, perhaps with the benefit of education, to practice self-discipline.

While Singer's (1981/2011) biological derivation appears mistaken and confusing, he does think that evolution eventually arrives at pure moral rationalism, which is a formidable and well-traveled position in moral epistemology. So we might try to simply put aside the group altruism and escalator of reason arguments (the sociobiology), and focus on the practicality of what Singer regards as the final evolutionary product—pure ideal rational abstraction. As Singer (1981/2011) writes, "... it is ... plausible that reasoning should lead us to a more and more universal view of ethics" (p. 135). Yet Singer (1981/2011) defines moral reasoning as group reasoning: "To reason ethically I have to see my own interests as one among the many interests of those that make up the group, an interest no more important than others" (p. 118). Rational group reasoning derived from instinctive group altruism would not seem to easily translate into group transcending morality, or even into any sensible notion that reason is not ultimately serving (kin) instincts as it struggles to expand outward. However, if Singer (1981/2011) were a sentimentalist sociobiologist, he would not argue that, "... genuine, non-reciprocal altruism directed toward strangers does occur" (p. 134); or that, "... genuine altruism ... becomes much easier to understand if it is not feeling, but reason that is chiefly responsible for it" (p. 140). So while the evolutionary route by which Singer (1981/2011) arrives at moral rationalism is unrealistic, pure moral rationalism is where he arrives: "... impartial consideration of the interests of all is the rational basis of ethics" (p. 108); "Wherever there are rational, social beings, whether on earth or in some remote galaxy, we could expect their standards of conduct to tend toward impartiality, as ours have ..." (p. 106). Abstract collective reasoning for the sake of behavioral impartiality is most definitely biologically and otherwise selfless, and therefore a contradiction of biological altruism fundamentally, and so could not possibly be an evolved cognitive trait but rather a product of our general human reasoning and abstraction capabilities. While Singer (1981/2011)

would have us believe otherwise, pure moral rationalism is essentially not sociobiological, but normative, in the sense that it amounts to an argument that in order to be moral, in order to behave appropriately, we must be rational, and strictly so. It is not reasonable to argue that we have to engage in rational abstractions involving the collective reasoning of pure rational agents in order to behave at all, but pure moral rationalism is the position that we must do so in order to behave morally at all. Ethics is thereby defined (descriptively) as essentially a matter of pure practical reasoning, which warrants consideration just in the context of evolution even if practical reason cannot be plausibly derived as a refinement of a heritable instinct for group altruism.

Abstract moral rationalism cannot be an evolved trait but must be an application of general reasoning and intelligence (like mathematical or musical ability), which surely are products of evolution with a natural history of selfishly serving the instincts. Searle (2001) writes,

> Rationality is a biological phenomena. Rationality in action is that feature which enables organisms, with brains big and complex enough to have conscious selves, to coordinate their intentional actions, so as to produce better action than would be produced by random behavior, instinct, tropism, or acting on impulse. (pp. 141–142)

Rationality generally and practical reasoning in particular are undoubtedly self-serving if we want them to be, and are undoubtedly informed with all types of biological data including instinctive. In order to apply practical reason impartially, in order to render a definition of morality as purely rational (the position defended by descriptive rationalists), that requires of ethical conduct an act of will which contradicts our instinctive impulses of selfishness. Rather than an evolved cognitive trait, pure practical reason must be an ability manifested by human rationality generally to override our heritable cognitive and other traits. Rather than a refinement, it would be more precise to characterize pure practical reason as an ability to control, or override, or separate and lift-off from instinct, that apparently no other animal species on earth possesses. Singer (1981/2011), his sociobiology derivation notwithstanding, winds up squarely in rationalist territory with his requirements of abstract impartiality, and invocation of "all rational beings," and so is committed to its implications: Searle (2001) states,

> An effort has been made in the Kantian tradition . . . to derive altruism from autonomy. If, because of my autonomy or freedom, I have to will

> my own actions; and if the will is subject to constraints of generality such that I am rationally required that each thing I will, I should be able to will as a universal law; then I will be rationally required to treat other people as my equals in the moral realm, because the universal laws that I will apply equally to me and to them. (p. 151)

One of the main points of descriptive rationalism is to abstract from human nature, in order to facilitate total impartiality, from which are derived equality, consistency, and lawfulness. Even given a sociobiological derivation of practical reason (implausible though it is), Singer (1981/2011) has us humans arriving at a stage of cognitive development which supposedly commits us to the employment of pure moral rationalism. In committing to moral rationalism, Singer is committing (us, now) to ultimately deriving morality not from human nature but from the concept of reason itself, and then to applying that derivation to human nature. Rescher (1997) writes, "Discerning our specifically good potentialities requires more than a knowledge of human nature as such; it requires taking a view of the good of man—a normative philosophical anthropology" (p. 157). Kant (1797/1996, 1785/1996) writes,

> A metaphysics of morals cannot be based upon anthropology but can still be applied to it (1797/1996, p. 372); . . . to determine the entire faculty of pure practical reason . . . it is of the greatest practical importance not to make its principles dependent upon the special nature of human reason . . . but instead, just because moral laws are to hold for every rational being as such, to derive them from the universal concept of a rational being as such, and in this way to set forth completely the whole of morals. . . . Unless we are in possession of this, it would be . . . impossible to base morals on their genuine principles even for common and practical use, especially that of moral instruction, and thereby to bring about pure moral dispositions and engraft them onto people's minds for the highest good in the world. (1785/1996, pp. 65–66)

At bottom descriptive rationalism amounts to an argument for how we ought to think practically, that amounts to defining morality as a matter of rational abstraction, especially from the peculiarities of human nature (and so the typical invocation of "all rational beings"). Singer (1981/2011) contends that this is an outcome of Darwinian evolution involving group selection, combined with an autonomous escalator of evolving reason, such that we should supposedly perceive morality as a natural outgrowth of a smooth evolutionary transition from ancestral group instincts to pure rational abstraction. But there is no group

selection and only selfish and determined instinctive behavior, and there is no reason to take seriously the notion that reason manifests its own autonomous evolution beyond simply the growth of human intelligence, and therefore the sociobiological derivation is unwarranted.

§ 2—Normativity

The line between normativity and epistemology is blurry in the case of descriptive rationalism, but this section will focus on what pure moral rationalists regard as the good, which boils down to defining morality as purely rational, while the following section will focus on the practicality. Regarding the good and the method we ought to employ in its pursuit, Singer (1981/2011) defends utilitarianism; " . . . the theory that an act is right if and only if it does at least as much to increase happiness . . . as any possibly alternative act" (p. 64); "New knowledge . . . can only affect the utilitarian's estimate of what . . . will maximize happiness. It cannot throw doubt on the principle itself" (p. 64). Utilitarianism has its origins in the work of Hume and Bentham, who define happiness in terms of pleasure, which in the context of evolution reduces to instinctivist sociobiology unless somehow pleasure is defined as a function or product of rationality. That would typically involve running an Aristotelian argument for a life of intellectual endeavor and high-minded contemplation, but in the absence of that, in arguing that we must engage in impartial abstract collectivist reasoning, inherently egalitarian, in order to be moral, even if we were to play along with Singer and believe that this is some sort of natural outcome of human evolution, unless we are to believe that we all must necessarily think that way (which is not plausible), Singer appears to (must) be defining happiness as rational collectivism, and thereby characterizing reason itself as the practical end of morality. That would seem to amount to defending something at least somewhat akin to Kant's "kingdom of ends" as the highest good (though Kant does not characterize that as having anything to do with happiness). Since Singer (1981/2011) insists that collectivist reasoning is a refinement and expansion of naturally selected group-restricted biological altruism, it is difficult to avoid concluding that Singer, too, is committing the naturalistic fallacy: happiness is good, the good is collectivism, collectivism is an evolved trait. Whereas we might interpret the social Darwinians as regarding biological competition as the highest good, and the sentimentalist sociobiologists as regarding Darwinian reproductive fitness as the highest good, Singer defends group altruism as the highest good. Each version implies an inference of the morally

right from a speculatively significant element of evolution theory, rather than a deliberative, measured assessment and incorporation of demonstrable biological evidence into calculations of right action (in other words, strong evidence included as premises in complex ethical arguments and/or as elements of wise moral intuitions).

That is not what Singer (1981/2011, 2005) claims to be doing with his theory: he writes,

> Values must provide us with reasons for action (1981/2011, p. 74); Facts, by themselves, do not. . . . No amount of facts can compel me to accept any value, or any conclusion about what I ought to do (1981/2011, p. 75); No matter how often the fallacy of reading a moral direction into evolution has been pointed out, people still commit it. (2005, p. 482)

It seems reasonable to object that there must be some amount of facts that can compel action, since we must act on the basis of information from one source or another, of facts of one kind or another. If there was no information we would not be able to act at all, and in fact there would be nothing to do, so facts and information must amount to reasons for actions eventually. The point of the naturalistic fallacy seems to be that right action is not easily, obviously, directly, or simply inferred from one or a few simple facts about nature, not that no amount of information can ever amount to a justification for right action. Furthermore, as Searle (2001) argues, " . . . to say that something is true is already to say that you ought to believe it, that other things being equal, you ought not to deny it" (p. 148). So in considering whether someone has committed the fallacy, our task is simply to assess whether premises validly or necessarily infer conclusions; whether actions are actually justified by the set of reasons that motivate them. Singer employs his sociobiological derivation of ethics to warrant rational collectivism, which seems like a conclusion not necessarily inferred by his premises. However, Singer (1981/2011) claims,

> I have been speculating. . . . No ethical conclusions flow from these speculations (p. 53); Even if we should uncritically accept the sociobiological view. . . . The nature and justification of fundamental ethical values, would remain untouched (p. 68); Explanations of what ethics is, whether anthropological or sociobiological, cannot tell me what I ought to do . . . (p. 81); Biological explanations of ethics can only perform the negative role of making us think again about moral intuitions which we take to be self-evident truths but can be explained in evolutionary terms. (p. 84)

But Singer (1981/2011) goes to lengths to argue that we must choose rational collectivist utilitarianism, because that has been the evolutionary source of moral behavior all along due to the natural selection of groups which require group altruism to exist, and because evolving "reason" has provided some sort of causal impetus toward expanding inclusiveness. Either evolution is the justification for rationalist utilitarian collectivism, or it is not; if the latter, then we need not indulge sociobiology; if the former, then we appear to have a naturalistic fallacy. Singer echoes Ruse in denying that he is defending an evolutionary foundation for ethics while he defends an evolutionary foundation for ethics. However, we have already considered that the sociobiological derivation is fallacious, and these remarks seem to amount only to Singer denying that he is offering an invalid naturalist foundation of ethics by denying that he is offering a naturalist foundation at all. Still, since Singer's (1981/2011) final product is rationalist utilitarian collectivism, might that be a defensible moral procedure merely in the context of evolution, regardless of whether it has somehow resulted from our natural history?

Singer (1981/2011) writes, "The principle of impartial consideration of interests . . . withstands challenges from alternatives. . . . It alone remains a rational basis for ethics" (p. 109); " . . . let us cling to the . . . idea that ethics evolved out of our social instincts and our capacity to reason. And let us cling to the principle of equal consideration of interests . . . " (pp. 110–111). The reference to clinging would seem normative; Singer wavers between suggesting that ethics is by definition necessarily utilitarian collectivism, and suggesting that ethics merely ought to be utilitarian collectivism. He clarifies himself in the 2011 "Afterword" to the original 1981 text of *The Expanding Circle*: " . . . that 'one's own interests are one among many sets of interests' can be accepted as a descriptive claim . . . but to add that one's own interests are 'no more important than the interests of others' is to make a normative claim" (p. 199). Singer (1981/2011) goes on to consider arguments regarding the existence of objective reasons to act, and concludes that while they are possible they do not necessarily translate into motive, or actual acts:

> Nevertheless, if we can accept the idea of objective normative truths, we do have an alternative to reliance on everyday moral intuitions that, according to the best current scientific understanding, are emotionally based responses that proved adaptive at some time in our evolutionary history. (p. 204)

Although in the original 1981 text Singer may not have admitted so, as noted it cannot possibly be the case that we humans must necessarily think in terms of rationalist collectivist utilitarianism, despite Singer's assertions that somehow that mindset is implied by our natural history, so we have to interpret the rationalist collective utilitarianism as a normative claim whether Singer admits it or not, which he eventually does (in 2011). So that leaves us with assessing Singer's (1981/2011) general argument that rationalist collectivist utilitarianism is an objective reason for action (a normative truth). The fact that objective reasons for action do not necessarily translate into actual action should not be surprising since that is what free will is all about—deciding whether to act. As Searle (2001) writes,

> A . . . feature of reasons for acting is that if the reason is taken as a reason for the performance of a free action, it cannot be taken by the agent as causally sufficient. If he thinks of himself as truly compelled, then he cannot think of himself as freely acting on a reason. (p. 140)

Ethics presupposes free will, which in turn presupposes that people do not have to act on their reasons for acting, and do not have to not act on reasons for not acting. As ethicists all we can do is try to figure out which actions are justified by which reasons (or which nonactions, or which nonreasons).

Searle (2001) presents many arguments regarding what he refers to as a gap between reasons for acting and actually acting, in which free will and rationality function, and which helps clarify the motivations to act that spring from rationality or emotion; either can amount to reasons for acting, but free actions are always rationally chosen. If emotional instincts close the gap between reasons for acting and acting, then acting is not free, Searle (2001) would say. Since we seem to have an ability to hold our instincts at bay, and act on them when and if we want to, there is no reason to believe that we are instinctively determined beings. Singer (1981/2011), in blurring the line between reason and instinct, also blurs the line between free will and determinism; are we utilitarians because that is how we are instinctively-cum-rationally determined to think? That is how Singer comes across in his 1981 text, but then in the 2011 "Afterword" he comes across as suggesting that utilitarianism is a preference, but then are we somehow innately biased in that preference? If not then is the sociobiology somehow suggestive of a normative anthropology, as suggested by Rescher and Kant? That

is, does evolution prove that collectivist rational utilitarianism is what is best for humanity? That would suggest that we should be working on a kingdom of ends. Singer (1981/2011) writes, "... if the capacity for reasoning brings with it an appreciation of the reasons for extending to strangers the concern we feel for our kin and our friends, evolution would not eliminate this rational appreciation of the basis of ethics..." (p. 139). This is a more plausible perspective that would better serve Singer's argument for utilitarianism: rather than genuine altruism somehow being an evolved transformation of biological altruism (which beside being impossible, when combined with preference totaling also suggests that reason serves passion, which is incompatible with Singer's arguments for rational abstraction), if ethics is a byproduct of general reasoning, perhaps even an accident of evolution, which does seem possible, then utilitarianism can be defended on strictly rational grounds and avoid all the confusion that arises by associating it with instinct.

Singer's (1981/2011) defense of consequential reasoning meets no objection from evolution, even if we were to believe that it is somehow tainted with instinctive selfishness on the basis of a supposed transformation. Collectivist reasoning is not synonymous with consequential reasoning, however, and does involve a more direct contradiction of instinctive selfishness. Utilitarianism typically involves both collective and consequential reasoning, along with either emotivism or rationalism, but it too generally becomes tainted by tribalism if we are to believe that it is an evolutionary product of group selection. Whereas traditional sentimentalist utilitarianism does not contradict instinctive selfishness, in striving to achieve a balance between satisfying one's own and kin's desires and satisfying the community's, and might reduce to an enlightened instinctive egoism in the context of evolution (though not to a moral theory given the sentimentalist denial of free will), rationalist collectivism involves the extra step of abstraction from human nature and individuality in order to consider ourselves as equal, negotiable, rational agents. That is, we are required to become necessarily selfless on Singer's (1981/2011) theory, which again simply does not seem plausible as an evolutionary trait of human reasoning in itself, but furthermore also does not seem like a practical normative suggestion. While there are no easy inferences from evolution to ethics, one of the easiest is to keep in mind that evolution is ongoing and that we are no less vulnerable to extinction, die-offs, and ecological disruptions than ever. We must engage in measured selfishness or fail to persist either as individuals or as kinds; there are no collections of pure rational agents

in nature, so we need to be very careful in considering whether or not that is a practical or a suicidal ideal.

Singer (1981/2011) writes,

> Taking the impartial element in ethical reasoning to its logical conclusion means . . . accepting that we ought to have equal concern for all human beings (p. 119); The shape of human ethical systems is an outcome of the attempt of human societies to cope with this tension between collective reasoning and the biologically based desires of individual human beings. (p. 147)

Utilitarianism was first concocted by Bentham as a recommendation to government and it works best when regarded as a political approach to serving the public. Morally, it is not clear that the good of all either is or should be our most basic value, since that kind of selflessness is extremely rigorous, risky, and probably suicidal in the context of evolution. If we were to truly have equal concern for all human beings, we would not likely persist as individuals or as families, which would eventually result in the worst possible thing for humanity—extinction. Ironically, equal concern for all humanity would seem to imply prioritizing one's kin; prioritizing one's kin is what would seem, on the basis of evolution, to be best for all humanity. To define morality as collective and individuality as biological is plainly ideological, yet another attempt to exploit biology, and possibly the most dangerous normative suggestion that one could possibly make in the context of evolution. Like it or not, ecology is brutal and will simply eliminate us entirely, eventually, one way or another. Rationalist collectivism is surely a useful strategy, but one among many. Furthermore, Singer (1981/2011) seems naively optimistic regarding the dangers of tribalism, the embers of which are so consistently stoked by sociobiologists:

> The shift from a point of view that is disinterested between individuals within a group, but not between groups, to a point of view that is fully universal, is . . . only just beginning to be accepted on the level of ethical reasoning . . . (p. 113); The circle of altruism has broadened from the family and tribe to the nation and race, and we are beginning to recognize that our obligations extend to all human beings. (p. 120)

Singer's concept of an "expanding circle of altruism" seems like something of an insult to human rationality, since "circles" only exist as kin, or as tribal exploitations of kin selection instincts, and moral progress

must be a matter of their being rationally disciplined or eliminated, not expanded. Singer's (1981/2011) derivation of moral rationalism from group altruism and his concept of an expanding circle create a persistent impression that human reason is somehow influenced or biased or nuanced by human instinct; reason is neither the slave of passion nor the master on Singer's (1981/2011) view but something somewhere in between (or else we would not need to hear anything about struggling to expand our circles of moral inclusiveness, rather than getting right to creating Kant's kingdom of ends). While it is reasonable to suggest that an instinctively rooted interest in close genetic relatives can be exploited for the purposes of tribalism, given conditions such as geography and race, it does not seem realistic to suggest that such instincts can be exploited for the benefit of all humanity and all sensitive creatures—at that scale the notion becomes contradictory. And characterizing rationality as innately tribalistic (or else ethical reasoning would simply dispense with circles altogether) surely cannot be of any help toward expanding the circles, simply because such circles are not possibly of rational origin and need not amount to an obstacle if we are actually capable of pure moral rationalism.

Singer (1981/2011) writes, "... impartiality ... involves justifying one's conduct to one's tribal group or society" (p. 111); "... the standard of impartial concern for all is unimpeachable, so far as the individual is concerned" (p. 165). Such impartiality taken to its logical extreme leads Singer (2008/2011) to the notion of intergalactically objective practical reason, which is a typical move for abstract moral rationalists. Rescher (1997) writes,

> There is one maximally inclusive [perspective] that includes not only *homo sapiens* but also whichever high-powered extraterrestrial and even celestial intelligences there may be, embracing the totality of rational beings. Accordingly, the WE/US group in question consists of rational beings/agents in general. (p. 15)

Kant (1785/1996) writes,

> To determine the entire faculty of pure practical reason ... it is of the greatest practical importance not to make its principles dependent on the special nature of human reason—as speculative philosophy permits and even at times finds necessary—but instead, just because moral laws are to hold for every rational being as such, to derive them from the universal concept of a rational being as such ... (p. 65); Practical good ... is that

> which determines the will by means of representations of reason, hence not by subjective causes but objectively, that is, from grounds that are valid for every rational being as such. (p. 67)

It would seem wise to reconsider which supposed goods qualify as practical, compared to what might have seemed practically good before we had a modern sense of evolution. Abstracting from human nature in favor of "pure rational agents" does not seem like an especially practical idea, since it was not pure rational agents who were our ancestors, who successfully navigated this world well enough to bequeath it to us, but human beings. And it will not be "pure rational agents" who will either flourish far into the future or flail and disappear rather shortly, but human beings. Pure rational agents are not instinctive, and so by definition not of this world, so the odds of them successfully navigating this world are low, since instincts are powerful and highly effective mechanisms for persisting here on earth, which is where we are, not in an imaginary kingdom of pure rational ends. Like utilitarianism (considered unto itself), pure rational collectivism in itself is most practical as a political ideal, not an ethical, since it seems to have more to do with how society must be constructed and function than with what we ought to do as individuals on a moment-to-moment, day-to-day basis. Rawls (2001) writes,

> The idea of society as a fair system of social cooperation is quite naturally specified so as to include the ideas of equality . . . and of reciprocity . . . (p. 96); . . . fair terms of social cooperation are to be given by an agreement entered into by those engaged in it. . . . Given the assumption of reasonable pluralism, citizens cannot agree on any moral authority, say a sacred text or a religious institution or tradition. Nor can they agree about a moral order of values or the dictates of what some view as natural law. So what better alternative is there than an agreement between citizens themselves reached under conditions that are fair for all? Now this agreement . . . must be entered into under certain conditions. . . . These conditions must situate free and equal persons fairly and must not permit some to have unfair bargaining advantages over others (p. 15); . . . the conception of the person as free and equal is a normative conception . . . given by our moral and political thought and practice . . . (p. 24); This conception is not to be mistaken for the conception of a human being (a member of the species homo sapiens) as the latter might be specified in biology or psychology without the use of normative concepts of various kinds . . . (p. 24); . . . the significance of the original position lies in the fact that it is a device of representation or,

> alternatively, a thought-experiment for the purpose of public- and self-clarification. (p. 17)

It also seems reasonable to insist that ethics and politics are not the same subject, and therefore reasonable to suggest that Singer (1981/2011) attempts to render a moral theory that is politically biased. We might or might not agree with his political ideals, but we can justifiably wonder whether political ideals are suitable ethical ideals, since the two subjects involve different concerns and problems. Ethical problem number one, especially in the context of evolution, is staying alive, and it would seem right to suggest that there is nothing wrong about trying to protect one's kin, either, in preference to strangers. Even from a collective standpoint, if nobody struggles for the sake of their own and their kin's well-being, we will all surely disappear. Engaging in political thought experiments, or entertaining abstract communities of ideal rational agents, surely have useful functions, but do seem like questionable candidates for being fundamental principles of normative ethics. We do not all live in democracies (even when we live in a "democracy"), and it must surely be impractical to act on the basis of rationalist thought experiments if everyone around you is behaving instinctively. Kant (1788/1996) writes, "... since this method has never yet been widely practiced experience can say nothing of its result..." (p. 262). This is ethics we are engaging in—concerning methods for deciding what we ought to do. In the context of evolution, experience must be considered good and cannot be dismissed by organisms who intend to ecologically persist. Excessively abstract thought experiments as a guide to conduct might actually be bad if not employed with the benefit of experience.

In addition, Singer (1981/2011) argues against objective ethical rules while simultaneously defending pure moral rationalism, collectivism, and consequentialism, which are all rules. This is similar to Ruse, who also argues against objective ethical rules (in arguing that they are illusory), even while defending Darwinian basics such as reproduction and competition as rules (although we supposedly have no choice in following them instinctively, but informed Darwinians ought not resist). At least, from a flatly empirical perspective regarding human cognition, according to which we simply are rational and free willed and can choose our behavior including by controlling our instincts (that is the basic human experience), both Singer's and Ruse's rules can be taken as moral rules, in that they would need to be intentionally chosen and are therefore subject to praise and blame and thereby moral. But on Singer's (1981/2011) perspective, it is not quite clear whether his rules

are actually intentionally chosen (and thereby moral) or are instinctively determined (and thereby not moral) or perhaps something in between (which is why Singer's theory creates confusion), given his theory about practical reason being rooted in instinctive group selection and having to struggle to overcome "circle"-think. Adopting Ruse's perspective, the rules of Darwinism are clearly instinctive at bottom, and thereby not moral but determined, which of course befits Darwinian determinism and ethics-denial but is plainly unempirical. Singer (1981/2011) writes:

> What . . . of an ethical theory which emphasizes not goals or consequences, but moral rules . . . ? (p. 66); New information could show that following a specific set of moral rules will lead to a catastrophe; but it is precisely the nature of these absolutist moral theories that those who hold them remain unmoved by the consequences of following the moral rules. (pp. 66–67)

Does that mean that we should drop pure rationalism, collectivism, and consequentialism, if ecological conditions warrant? Does Singer's sociobiological derivation of these rules even allow for the possibility of our dropping them, or are we too predisposed to practically reason according to them, given the supposed evolutionary links between practical reason and kin or group selection?

Consequential reasoning may be impossible to drop and by itself cannot be regarded as a moral theory, for any and every action has consequences that must surely be taken into consideration. In a sense we are necessarily consequentialist; even Kant justifies his categorical imperative to universalize all our moral decisions with pursuit of the highest good, which according to him is a kingdom of perfectly rational, consistently lawful, pure rational agents, based on his now dated belief that nature itself is fundamentally lawful. Or, alternatively, one might obey the Ten Commandments ultimately out of fear or hope of the consequences, not simply for the love and respect of the rules themselves. We can decide how much weight or priority to give consequences; for utilitarian moral theorists the consequences are a top priority (even though they must have in place a rule regarding the ultimate aim, typically happiness measured in terms of pleasure but not necessarily), but for deontologists the rules are the more immediate deliberative consideration (for the rules are typically God given, or reflect the value of rationality itself, and must therefore be obeyed regardless of the consequences). It is not clear where Singer falls; do we follow his rules

because of their consequences of ever-more inclusive collective rationalism, which is itself a rule, and what he appears to have in mind as the highest good of all (in which case rules are the means and the ends of his supposed consequentialism)? Or do we follow the rules because we are too cognitively predisposed due to the natural history of practical reason, to think otherwise (in which case the rules are not actually chosen and therefore not actually moral)? Singer (1981/2011) writes, "So ethics loses its air of mystery. Its principle are not laws written up in heaven. Nor are they absolute truths about the universe, known by intuition. The principles of ethics come from our own nature as social, reasoning beings" (p. 149). Clearly, the sociobiologists have an axe to grind regarding religion, but the rules defended by Singer are on no surer footing than the rules of organized religion, are probably less rigorous not more, and actually come across as rather religious anyway. Singer (2005) states, "Morality is a natural phenomenon. No myths are required to explain its existence" (p. 479); but morality is natural insofar as human rationality is natural, and fabricating group altruism and intergalactic moral objectivity as the origin and aim of ethics is myth-making at its finest.

Another problem for even basic rules like utility and collectivism is that ethics is not math, and actions are not numbers; there is a limit to how much precision and consistency is possible concerning the actions of an animal species like us. Rescher (1997) writes,

> Rational belief, action, and evaluation are possible only in situations where there are cogent grounds (not just compelling personal motives) for what one does. And the cogency of grounds is a matter of objective standards. The idea of rationality is in principle inapplicable where one is at liberty to make up one's rules as one goes along. (p. 9)

Descriptive moral rationalists believe that rational objectivity really is fully implementable (even while appealing to the abstract in pure rational agents and intergalactic objectivity), rather than more realistically defend moral rationality as an ideal, or a virtue, of good conduct, that may not be translatable into specific instructions. Rescher (1997) continues,

> Obviously, what is rational for someone to do or to think hinges on the particular details of how this is circumstanced—and the prevailing circumstances of course differ from person to person and group to group. The rulings of rationality are indeed universal, but conditionally

> universal, subject to a person-relativity geared to the prevailing circumstances. (p. 11)

For Rescher (1997) this means,

> Thus while moral objectives and basic principles—those top levels of the hierarchy of moral norms—are absolute and universal, "slack" arises as we move further down the ladder, leaving room for (quite appropriate) contextual variability and differentiation (p. 141); It is eminently rational to form one's judgments on the basis of experience. Different people (eras, cultures) have different experiences. (p. 11)

But now again we seem to be at risk of contradiction: supposedly we are not justified in making up rules as we go along, but we are justified in acting on the basis of personal experience applied to particular circumstances.

Singer (1981/2011) writes,

> Those who regard the rules of morality as eternal truths often try to rule out exceptions to them. Since no rule short enough to serve as a useful guide to action can cover all the cases which may face us, the attempt is fore-doomed . . . (p. 164); The way to avoid this kind of dishonest nonsense is, of course, to abandon any pretense that moral rules are exceptionless truths. Once we understand that they are social creations . . . always ultimately subject to critical scrutiny from the standpoint of impartial concern for all, the need for jesuitical reasoning about moral rules vanishes. (p. 165)

Singer is here referring to the rules of a social code but it makes no difference. His normative argument involves rules that may as well be eternal given their supposed derivation from evolution, and which are also subject to exceptions like any and every rule. Singer (1981/2011) argues that we ought to abandon the notion that moral rules are exceptionless, even while necessarily subjecting them to the supposed moral rule of impartial collectivism. It would seem helpful to regard moral rules, or laws, as generalizations extrapolated from the particulars of human experience and potential. There is apparently no inherent lawfulness to our minds or to nature, so moral rules can be regarded as useful guidelines, and moral rationalism as a moral ideal or virtue, the appropriate application of which depends on character and expertise.

Rather than rational rules, which require wisdom for application, and are therefore an unsuitable foundation for objectivity in themselves,

rational values might be a better candidate, which in the context of evolution might be judged with reference to nature, thought not simply derived from nature. Oughts about ises, not simply from. Rescher (1997) writes,

> People do not choose what it is that is in their interests. Rather, this is something that is set for them by the physical, social, and situational circumstances of their lives. The issue of what advantages one (health, freedom of action, etc.) is something objective . . . (p. 129); People are no doubt the definitive authorities regarding what pleases them, but certainly not regarding what benefits them. And this objectivity of people's interests carries in its wake also the objectivity of interest-promotion—and thus of morality (p. 129); Given the nature of the human situation, we are impelled (insofar as rational) to align our values and our needs (p. 173); An evaluative rationality that informs us that certain preferences are absurd—preferences that wantonly violate our nature, impair our being, or diminish our opportunities—fortunately lies within the human repertoire. (p. 173)

An attractive element, in the sense of practicality, of this perspective is that it does not seem to require invoking objectivity as a metaphysical construct (which is the point of invoking alien rationality/rational kingdoms/collective impartiality), but rather recognizing the inherent objectivity of the human condition, especially ecologically considered. We might try to learn to regard ourselves abstractly in the process of moral deliberation, in order to better assess our scenarios from an impartial, objective "metaethical" stance. Or we might rely on the wisdom of experts and authorities, which is often manifested in practical rules, law, and religion, and even seek guidance in applying rules to particular situations when feasible. This might amount to a rather maternalistic normativity, but assessing objective needs is always difficult from the first-person perspective. Another morally convenient element of the human condition, objectively considered, is that our own needs and the needs of others do not necessarily conflict: Rescher (1997) writes,

> This issue of human flourishing will inevitably involve such things as: using one's intelligence, developing (some of) one's productive talents and abilities, making a constructive contribution to the world's work, fostering the good potential of others, achieving and diffusing happiness, and taking heed of the interests of others (p. 157); We thus arrive at a socially oriented demand of individual morality, an injunction to act so as to realize a social order in which action for prudential self-advantage

> is—at least by and large—also coincidental with action for the common good. (p. 169)

But it can be argued that human flourishing demands pursuing the interests of others, not merely taking heed, and that coordinating individual with common goods (cooperating) is a prerequisite for survival and evolutionary persistence. After all, of all the countless organisms that have ever flourished on earth, only a tiny proportion has concerned themselves with anything like ethics; the prevalence of successful cooperation in nature suggests that we ought listen to our instincts quite carefully.

Kant (1788/1996) writes, "The majesty of duty has nothing to do with the enjoyment of life . . . " (p. 211), and generally dismisses happiness as the pursuit of personal pleasure. Singer (1981/2011), in defining the good of all (within the group) as our highest preference (a tribalistic manifestation of Kant's "kingdom of ends"), is also thereby committed to a sense of duty that is collectivist and rationalist. These conceptions would seem to invert the practical role that rules must play; rather than rules first, then needs, we must first discern needs, and only then concoct practical rules. While too much pleasure must surely be unwise, can necessary lawfulness in personal action, or instinctively rooted yet supposedly rationally required pursuit of impartial collectivism, always best serve our objectively ascertained values? In defending not merely rational deliberation but rationality itself as the highest good (manifested as impartial collectives), descriptive moral rationalism presents an argument to the effect that the purpose of ethics wholly considered is to construct a world in which human relations are conducted on a purely rational basis. That is, that ethics itself has a purpose, which involves social engineering, toward an ideal goal; that would seem to be the point of asserting that in order to be moral one must be strictly rational.

Rescher (1997) states, "Morality, after all, is an end-oriented purposive enterprise. . . . For it is morality's object to equip people with a body of norms (rules and values) that make for peaceful and collectively satisfying coexistence . . . " (p. 128). This is a Hobbesian notion that morality only exists in the context of a societal collective. But appropriate actions surely have a longer natural history than that; ecologically appropriate actions need not be rationally or collectively considered actions at all; and transforming humanity into a rational collective of equals would be to transform our species into something that it has clearly never been before at any scale, that clearly has never existed before during the entire

evolution of life on earth, that probably is impossible for us to achieve, and that may or may not be ecologically viable. The closest thing to a rational collective in nature is the colonies of the social insects, which surely operate on the basis of rules, which though instinctive translate into behavioral orderliness just as would strict obedience to rational rules, but which are certainly not egalitarian and could not persist if they were. On the contrary, it is the inequalities of colonial organisms that allow their existence. The concept of a purely rational egalitarian human collective may be biologically impossible in practice, and human attempts to construct such collectives must surely be of very high risk, simply because they do not exist and have not ever actually existed anywhere in nature so far as we know. Attempts to commandeer ethics for the sake of ecologically impossible political ideals seem dangerously ideological (no less so than Darwinian tribalism). In the context of evolution, we neither can nor should aim for necessary selflessness in all our actions; nature does not care if we commit suicide either individually or collectively. Selflessness is a choice that we can and sometimes must make, but very carefully because evolutionary persistence simply does not work that way.

While Singer's (1981/2011) general argument concerns a supposed evolutionary predisposition for collectivist moral reasoning (based on group selection), which his "escalator of reason" carries to ever-larger "circles" of inclusiveness, he nevertheless allows that social codes must not be too strict:

> Taking seriously the idea of impartial concern for all would be impossibly demanding . . . (p. 159); So an ethic for normal human beings will do well to limit the demands it makes . . . so that the standards it sets can be recommended to people with a realistic hope that many will meet them. An ethic of rules can do this. . . . (pp. 159–160)

Carefully constructed rules can supposedly move humanity in the right direction: "We may attempt to foster tendencies that are desirable from an impartial point of view and to curtail the effects of those that are not . . . " (p. 155). Singer (1981/2011) also recognizes the issue of basic biological practicality:

> Human nature is not free-flowing. . . . But its direction can be altered . . . (p. 156); If the manner of our evolution had made our feelings for our kin, and for those who have helped us, stronger than our feelings for our fellow humans in general, and ethic that asks each of us to work

> for the good of all will be cutting against the grain of human nature. (pp. 156–157)

"The grain" supposedly refers to human instinct for tribal behavior, and the "ethic" that Singer is arguing for must be a product of his escalator of human rationality. Supposedly, sophisticated social codes can facilitate the rational expansion of our instinctively inward looking collectivism toward the final destination of including all humanity equally (and for Singer, all sentient creatures). That involves the immodest presumption that descriptive rationalists recognize something that nature does not, and that evolution is a mistake which rational collectivism can correct. Kant (1785/1996), the father of the rational collective ideal, at least had contemporary physics on his side:

> Everything in nature works in accordance with laws. Only a rational being has the capacity to act in accordance with the representation of laws, that is, in accordance with principles, or has a will (p. 66); Hence nothing other than the representation of the law itself, which can of course occur only in a rational being, insofar as it and not the hoped-for effect is the determining ground of the will, can constitute the pre-eminent good we call moral . . . (p. 56); The ground of this principal is: rational nature exists as an end in itself. (p. 79)

Although a utilitarian rationalist, it is difficult not to interpret Singer (1981/2011) as in agreement with Kant on this last point at least, in his defense of impartial egalitarian rational collectivism as the highest good. But physics is no longer on the side of this ideal (since apparently not everything in nature works in accordance with laws, including and especially free-willed organisms). Kant (1788/1996) writes, "We are indeed lawgiving members of a kingdom of morals possible through freedom and represented to us by practical reason . . . " (p. 206), but Kant also states that we are indeed not (in admitting that his method is not actually in practice), and hopefully we never will be (pure rational agents in an intergalactically objective kingdom of ends).

§ 3—Epistemology

Regarding the practicality of descriptive rationalism, there are three difficulties. One problem is a parallel: sentimentalists define morality in terms of human instincts, descriptively, in denying the possibility of rational control. While the rationalist argument is prescriptive in

the sense that they do not deny that we can behave instinctively, the descriptive rationalists define morality in terms of human reason. Both take an apparent human faculty, and more or less equate morality with it. So while we can certainly question the biological practicality, and thereby the goodness, of descriptive rationalism, we can also question whether morality can even be conceived of as strictly and solely rational, rather than morality merely requiring the potential for rational self-discipline (in the application of instinct, among other things). Ethics cannot be deduced from rationality, or produced with an analysis of reason alone, because the concept of reason does not entail morality; this is another ought from is oversimplification, because morality depends on empirical content. No oughts from ises (although Searle (2001) says ises necessarily infer beliefs, which can be regarded as actions, and therefore oughts), but generally oughts are about ises that include ises other than the ises of human reason. How can we take seriously the notion that an abstract ideal is the fundamental consideration of morality, to be applied to humanity in terms of a normative anthropology, when the abstract ideal is a metaphysical concept borne of and restricted to humanity, but which bears no relation to actual human conditions? It is like playing a mind trick on ourselves, and like an experiment with existence. Luckily, "reason" does not yield very much metaphysics anyway; all that it needs to refer to is the human power of inference. Singer (1981/2011) writes, "The aim of a rational challenge to blind evolution should be that required by an impartial standpoint: advancing the interests of all, impartially considered" (p. 169), but the existence of human rationality itself does not somehow imply impartial collectivism—this is a value claim (which Singer acknowledges), of dubious practicality.

Searle (2001) writes,

> Just as a theory of truth will not give you an algorithm for discovering which propositions are true, so a theory of rationality will not give you an algorithm for making the most rational decisions (p. xv); Assume universally valid and accepted standards of rationality, assume perfectly rational agents operating with perfect information, and you will find that rational disagreement will still occur. (p. xv)

One of those disagreements would surely be the necessity of impartial collectivism. Singer (1981/2011) argues, "...once we have begun to justify our conduct publicly, reason leads us to develop and expand our moral concerns, drawing us on toward an objective point of view" (p. 147); the suggestion would seem to be that somehow reason itself

necessarily implies collective rationalism. If we can just think rationally enough, and let reason reign, supposedly a kingdom of ends will appear. But the impartial objective stance is motivated by the value of equality, which is an ideal that has never actually existed in any evolutionarily meaningful sense. If one does not care about equality, then one need not justify on that basis and one need not assume an objective stance. How many of our actual relations in life are on a truly equal footing, or should be? Parents and children, teachers/students, doctors/patients—equality is a political value primarily, and many relations require or deserve it, but equality considerations cannot encompass the whole of human interaction. Many actions are justifiable on subjective and particular grounds, and if you were to try to argue that all rational parents, for example, if just like yourself, in a situation just like yours, with a child just like yours, should do what you will do, it would seem rather pointless and distracting, since the action can be justified by arguing that this is what you will do, in your situation, with this child of yours, and you believe that some other people would agree, but not necessarily, and you cannot recommend that this is what everyone else should do because no such situation as yours has ever happened before or ever will. We would readily admit in most scenarios a range of tolerable actions, outside of which would be wrong, but within that tolerable range there does not seem much point in reflecting on the lawfulness of each and every action, for the sake of constructing an ideal rational kingdom. Simply put, we can be rational and do right without being perfectly lawful, impartial, objective, or collectivist. All that moral rationalism requires is self-discipline of our emotions, and thereby free will, in order to properly infer, along with a defensible explanation of actions within tolerable limits. That is more compatible with the imprecision that ethics involves: we praise and blame for coming close to the mark and for trying to do right, but perfection is neither expected nor required, in keeping with the basic moral concept of tolerance.

Kant (1785/1996, 1797/1996) writes,

> Since the concept of causality brings with it that of laws in accordance with which, by something that we call a cause, something else, namely an effect, must be posited, so freedom, although it is not a property of the will in accordance with natural laws, is not for that reason lawless but must instead be a causality in accordance with immutable laws but of a special kind; for otherwise a free will would be an absurdity (1785/1996, p. 94); . . . hence a free will and a will under moral laws are one and the same. If therefore, freedom of the will is presupposed,

> morality together with its principle follows from it by mere analysis of its concept (1785/1996, p. 95); But since the human being is still a free (moral) being, when the concept of duty concerns the internal determination of his will (the incentive) the constraint that the concept of duty contains can be only self-constraint (through the representation of the law alone); for only so can that necessitation (even if it is external) be united with the freedom of his choice. (1797/1996, p. 513)

Here again we see Newton's influence on Kant: defining causality as lawful, because nature itself is by definition lawful, yields a conception of free will that must also be lawful, because unless free will involves the implementation of self-given purely rational law it will necessarily be subjected to the laws of material nature and would thereby be not free but rather determined. Free will must be causally effective independently of material nature, and so must be lawful unto itself, because if it were not lawful unto itself it could not be causally effective (because causation is necessarily lawful on Kant's Newtonian worldview). On that ontological perspective, Kant (1785/1996) is justified in arguing, "Thus whoever holds morality to be something and not a chimerical idea without any truth must also admit the principle of morality brought forward" (p. 93).

However, our notions regarding the lawfulness of material nature have changed, yielding on ontology of probabilities, quanta, and dark matter and energy. Since free will no longer has to overcome material determinism, free will might be conceived of as free and lawless (absolutely free). Natural laws are empirical generalizations, and moral laws are helpful guidelines and items of social contracts. Searle (2001) writes,

> There is no self-contradiction in imagining causes that occur without instantiating any universal regularities (p. 154); . . . acting on impulse can be as much free as acting on a universal law (p. 156); Some very cautious persons restrain themselves from ever acting on impulse, whereas free spirits often allow their impulses to move them (p. 156); Kant was wrong: free action does not require acting according to a self-created law. (p. 156)

Certainly, that corresponds with our experience of free will; it is doubtful that many even imagined that we had to be lawful in order to be free willed before Kant presented his ideas. Though physics has changed, as with evolution theory moral theory is also heavily influenced by science and can also tend to let science get out ahead of it. Kant (1785/1996)

writes, "Now, where determination by laws of nature ceases, there all explanation ceases as well . . . " (p. 105).

Kant's moral theory is an explanation of ethics very much historically located in the context of material determinism; he (1785/1996) writes,

> It is equally necessary that everything which takes place should be determined without exception in accordance with laws of nature (p. 102); Hence freedom is only an idea of reason, the objective reality of which is in itself doubtful. . . . (p. 102); . . . yet for practical purposes the footpath of freedom is the only one on which it is possible to make use of our reason in our conduct; hence it is just as impossible for the most subtle philosophy as for the most common human reason to argue freedom away (p. 102); But the rightful claim to freedom of will made even by common human reason is based on the consciousness and the granted presupposition of the independence of reason from merely subjectively determining causes, all of which together constitute what belongs only to feeling. (p. 103)

Nowadays, we do not need to concern ourselves so much with reconciling free will and science, which removes a motive for defending descriptive moral rationalism, since the idea that free will must be lawful unto itself in order to not be lawful according to material nature is no longer compelling. Whereas Kant believed that descriptive rationalism was necessary in order for ethics to exist at all, even given our conscious experience of free will, now descriptive rationalism is apparently motivated by political ideals of egalitarian collectivism.

Singer (1981/2011) argues that reason will inherently or necessarily lead us toward impartial collectivism, partly on the basis of his escalator idea that reason manifests a progressiveness unto itself, and partly on the basis of egalitarian public justification. Both arguments seem like dubious attempts to attach essential traits, or define human reason in new ways. Political ideals are inherently empirical ideals, since they can only be based on current and ideal political conditions. We cannot do politics without knowing what we are like, and what is possible and practical for us, as human beings. The idea that reason will necessarily lead us in any particular direction is interesting but doubtful; we do not even know whether human rationality is a distinctly human or possibly mammalian or earthly cognitive mode (or trait), or a broader cognitive space (or niche) into which we have ascended. Is our mode of cognition fixed or static, or dynamic and in flux? Is it an ecological niche which we have only partly entered or discovered, or a created manifestation of

our species which we might be able to modify or expand? Maybe there really are other creatures who share the cognitive niche with us, or have before us, or will after us, or maybe not. Just considered as a moral or political ideal, collective reasoning is not necessarily safe: Rescher (1997) states,

> In seeking to do what any reasonable person would do in my circumstances I will have to reckon with the fact that others will be operating in circumstances that differ substantially from mine. Differences in time and place loom large. The cognitive state of the art is one thing in the twentieth century and another in the Greece of Aristotle's day. . . . The uniformity of rational process need not constrain a substantive uniformity of belief. It would be utterly contrary to reason for differently situated thinkers confronted with different bodies of evidence to think exactly alike. (p. 68)

It seems reasonable to suggest that all thinkers not only do not, but should not think alike. Rescher (1997) writes, "Only in ideal circumstances is consensus probatively decisive, and not amidst the messy complexities of the real world" (p. 45). All in all, equating morality with, or defining it strictly in the terms of, human rationality does not seem any more reasonable or plausible than in the case of instinctiveness, especially considering that we can all achieve a rational consensus, and yet be collectively mistaken.

A second problem with descriptive rationalist epistemology is that regardless of whether or not an analysis of the concept of reason yields morality, human cognition does not seem equipped or constructed in the way that would apparently be required. Our minds are full of desires and instincts that have little if anything to do with reasoning, which can be managed but not ignored—at least, not if we wish to stay alive and reproduce. So it does not seem possible for us to regard ourselves as purely rational beings, rather than as beings with a potential for rational self-discipline. We can define ourselves as purely rational as a thought experiment, but if we allow that human beings are beings with the capacity to persist as organisms for the duration of a normal human lifespan, and successfully reproduce, then we cannot realistically define ourselves as purely rational agents, because survival and reproduction depend on instinct. If humans never felt hungry, would they eat? If humans were never attracted to the opposite sex, would they reproduce enough to persist as a kind? We should not regard abstract concepts as real, and real entities as false: humans are instinctive by nature, necessarily so; instinct is an essential trait of all animal life forms that

cannot be defined away while still referring to an animal life form. Searle (2001) writes,

> The single most remarkable capacity of human rationality . . . is the capacity to create and to act on desire-independent reasons for action (p. 167); . . . cases of actions for which the antecedent beliefs and desires really are causally sufficient, far from being models of rationality, are in fact bizarre and typically irrational cases (p. 12); . . . rationality is possible only where irrationality is possible, and that requirement entails the possibility of choosing between various rational options as well as irrational options (p. 17); In a situation in which you are in the grip of an overpowering rage . . . totally out of control, you have no sense that you could be doing something else. (pp. 15–16)

Searle (2001) generally defends a perspective on rationality in which free will is characterized as a gap, between reasons and actions. The reasons do not compel actions but do manifest intentions, which may or may not be acted upon. This amounts to a model in which instinctive or emotional actions effectively eliminate the gap of free will by being causally sufficient in themselves, in contrast to rational actions:

> If by "cause" we imply "causally sufficient conditions," then free actions are not caused by anything. That is what makes them free. To put this point more precisely: What makes an action free at the psychological level is that it does not have antecedently sufficient causal conditions. The self performs the act, but it does not cause the act. Nothing fills the gap. (p. 157)

However, this seems to exclude the possibility that we might voluntarily allow the gap to be filled, by instinct; that the gap may be something that we can manipulate and employ in consciously applying, summoning, or employing instincts as we see fit. On this view, an overpowering rage might not necessarily be a matter of being absolutely out of control but a matter of temporarily permitting one's rage to express itself, or of voluntarily giving in to it in belief that rage suits a particular situation better than rational deliberation. Hunger, lust, fear, courage, and instinctive behaviors in general might, with experience and education, be successfully employed in this way. Searle (2001) demonstrates the tendency of epistemologists to cast will as necessarily either rational or instinctive, as one or the other but usually not some sort of combination. This generally results in eliminating the possibility of free instinct; of instincts willfully summoned and applied. And this is odd; if one were

to go by the literature on the subject, one might conclude that freely summoning emotion is rare or impossible, even though people do it constantly, even young children. So while Searle (2001) contends that acting on desire-independent reasons is what sets humans apart, another distinctive capacity may be acting on free-willed rationally summoned and/or allowed desires.

Rescher (1997) writes,

> Consider the question: can one be simply too rational in the management of one's life (p. 35); . . . one cannot be too rational for one's own good (p. 36); . . . the appropriate indulgence of our personal preferences and individual idiosyncrasies has its limits. Idiosyncratic aims and preferences certainly deserve to have a place in some departments of personal life, but science (rational inquiry) and human interaction at the social level (moral and ethical comportment) are not among them. (p. 37)

Again, this amounts to necessary selflessness, not only in terms of pursuing that which we personally need to flourish, but also in terms of abandoning any meaningful sense of personal independence and identity. In addition to being biologically impractical, this is also cognitively impossible for us. To suggest that personal preferences must be ignored in order to participate in ethical conduct amounts to banning humanity from morality. People must pursue preferences in order to do the basic things that organic life requires; those preferences are informed by instincts and are extremely diverse depending on innumerable variables; so if moral rationalism demands entirely abandoning the pursuit of instinctive personal preferences, then moral rationalism entirely abandons humanity. Impulses must be indulged, in order to navigate this world. There is no point in offering cognitive prescriptions that are self-destructive, because they will run up against people's survival instincts and be ignored.

Singer (1981/2011) writes,

> Anyone capable of reasoning [can] understand the objective point of view . . . (p. 140); . . . reason brings with it the possibility . . . of following objective standards of argument, independently of the effect this has on the increase of our genes in the next generation. (p. 169)

Since the objective view, on Singer's account, involves group altruism, pure rational beings, utilitarianism, egalitarianism, and so on, as an empirical claim it seems unlikely that anyone could understand it. More

importantly, it seems unlikely that very many would agree with it (if many did, our species would have a problem). Even more importantly, it is unlikely that many could possibly think and behave that way while simultaneously flourishing as human beings. Even if they could, would they be thinking morally or politically? Rawls (2001) writes, "... judgments of political justice.... Are judgments given under conditions in which our capacity for judgment is most likely to have been fully exercised..." (p. 29). Do we really want to argue in moral epistemology that all right actions are by definition as well deliberated as political convictions? Is that really a realistic suggestion for deciding what to do, on a constant basis, moment-to-moment, day-to-day? Can it really result in human flourishing, either individually, familially, or collectively?

Singer (2005) writes,

> We can take the view that our moral intuitions and judgments are and always will be emotionally based intuitive responses, and reason can do no more than build the best possible case for a decision already made on nonrational grounds.... Alternatively, we might attempt the ambitious task of separating those moral judgments that we owe to our evolutionary and cultural history, from those that have a rational basis.... It seems to me worth attempting, for it is the only way to avoid moral skepticism. (p. 487)

Singer (2005) describes a variant of the trolley dilemma, in which one is forced to choose between the deaths of one stranger or five, by having to push the one off of a bridge:

> The death of one person is a lesser tragedy than the death of five people. That reasoning leads us to... push the stranger... (p. 486); It might be said that the response that I have called "more reasoned" is still based on an intuition.... But if this is an intuition.... It does not seem to be one that is the outcome of our evolutionary past. (p. 486)

Kant (1785/1996, 1788/1996) writes,

> The pure thought of duty and in general of the moral law, mixed with no foreign addition of empirical inducements, has by reason alone... an influence on the human heart so much more powerful than all other incentives... that reason... despises the latter and can gradually become their master; on the other hand a mixed doctrine of morals, put together from incentives of feeling and inclination and also of rational concepts,

> must make the mind waver between motives that cannot be brought under any principle, that can lead only contingently to what is good and can very often also lead to what is evil (1785/1996, pp. 64–65); . . . the incentive of the human will . . . can never be anything other than the moral law. (1788/1996, p. 198)

However, consider the trolley scenario with a more evolution-relevant twist; one must choose between the saving of one life or five, but the one life is a close relative, while the group of five are total strangers, as unrelated as can be. The relative is also next to the decider, as in the typical setup. If the decider decides to save the family member, could we possibly assign blame? Many would argue no. Could the decider have made that decision in the absence of instinct? Many would argue no (the epistemological argument here is only that deciders have the ability to, and sometimes should, consciously allow instinctive actions if they want to). So might it be that instinct has led to a right action? Many would argue yes. Consider also that if all humanity routinely chose to save strangers over close relatives, the results would be catastrophic for our species, since there has never been and never could be a species of organisms that did not pursue the persistence and reproduction of genetic traits on an individual and kin basis. Since it would be catastrophic to routinely save strangers and sacrifice relatives, it could not be right as a matter of moral law or objective impartial utilitarianism (regardless of the epistemological basis for the decision). All in all, since the instinctive choice might be the right choice, the purely rational choice might be wrong, in which case pure moral rationalism might lead to evil, not instinct.

A third problem with moral rationalism is that even considered solely as an ideal; it is impractical and even misanthropic in rejecting human nature as essentially bad or wrong. Not only is an epistemology of pure practical reason and all its trappings impractical and impossible, it is not even something that we should admire or look up to, as how we would think if only we were better than how we are. Collectivism and objectivity, utility and pure agents, impartial kingdoms of ends, are all useful moral concepts, but cannot be regarded as wholly comprising ethics. Making an abstraction the aim/end/definition of ethics, while overriding and denying the realities of human nature and the natural world, is pie-in-the-sky, high-risk metaphysics. Pure moral rationalists refer to the science of morals; while we allow a role for metaphysics in science, we do not equate the two, so why would we do that in ethics? Descriptive moral rationalism does not seem wholly wrong, but it does not seem wholly practical—we need respect for biological realities also, many of which are empirical and instinctive. Lawfulness might

be regarded as one virtue among many, and virtues generally as ideals not laws, but if instincts contribute to the well-being and flourishing of humanity, and if individual flourishing biologically translates into that of others, then why not regard the wise application of instinct also a virtue? We can employ rational principles without having to necessarily engage solely in pure rational abstraction in order to be right. Since the instincts cannot be turned off, and must be dealt with anyway, the necessity of incorporating them wisely, without abandoning objectivity, renders character and experience as the first principles of right action. Instincts under control are not necessarily selfish, but potentially redirected toward appropriate relations. Under a rational principle of moral character, rational abstraction can serve as a tool and facilitator in the discernment of practical rules of engagement and society. And in the context of a theory of organic selection, in which evolution is fundamentally a matter of choice not chance, in which free will is real not illusory, our decisions are not up against a deterministic material world working in the opposite direction. We assume absolute responsibility for our decisions, our fate, for ourselves and for one another. Evo-ethics is not a matter of extreme competition and hoped for natural selection, of justified conflicting purposes within a game that necessarily produces winners and losers at every instance. We are free to create whatever sort of relations and societies we want, within the restrictions of a viable ecological existence.

Singer (1981/2011) writes,

> Conflict and confusion are built into ethics in several ways: in the division between our nature as biological organisms and our capacity to follow impartial reasoning: in the clash between individual and social points of view; and in the need to uphold ethical rules which on rare occasions should nevertheless be broken. (pp. 167–168)

However, these conflicts might only exist in the eye of the beholder, and as artifacts of eons of ethical theorizing. Rescher (1997) writes, "Moral agency is an essential requisite for the proper self-esteem of a rational being. To fail in this regard is to injure oneself where it does and should hurt the most—in one's own sight" (p. 160). Of course, moral agency for Rescher is purely rational, which implies that instincts are self-injurious. Rescher (1997) writes,

> People's "feelings" unquestionably form an important part of what constitutes their interests, and thus deserve respect from the moral point of view (p. 132); Emotions, illusions, and delusions are in a way real

> enough—we have real fears of ghosts and real experiences of mirages. But while such of-oriented experiences are real enough, those ghosts and mirages that they purport are not. They are figments of our imagination. And this fact of their inaccessibility to others precludes their qualifying as objective (p. 4); . . . phobias, groundless anxieties, delusions, senseless antipathies, and irrationalities of all sorts. These must be erased, so to speak—and left blank (p. 9); . . . the counsels of reason afford the most promising systematic prospect of realizing our objectives (p. 116); Admittedly, reason offers us no categorical guarantees; yet, if we abandon reason there is no better place where we can (rationally) go. (p. 120)

How anyone could honestly believe that pure moral rationalism is a more practical method than even pure instinct is quite mysterious; have not the instincts served us and our ancestors well for literally hundreds of millions of years? Pure moral rationalism—how long has it been serving us well?

Kant (1785/1996) writes,

> Now in a being that has reason and a will, if the proper end of nature were its preservation, its welfare, in a word its happiness, then nature would have hit upon a very bad arrangement in selecting the reason of the creature to carry out this purpose. For all the actions that the creature has to perform for this purpose, and the whole run of its conduct, would be marked out for it far more accurately by instinct . . . (p. 51); In this case it is entirely consistent with the wisdom of nature if we perceive that the cultivation of reason . . . limits in many ways—at least in this life—the attainment of . . . happiness . . . indeed it may reduce it below zero . . . because reason . . . is capable only of its own kind of satisfaction, namely from fulfilling an end which in turn only reason determines, even if this should be combined with many infringements upon the ends of inclination. (p. 52)

In the context of evolution, the reduction of happiness, and/or disregard for preservation and welfare, to "below zero," equals suicide. Kant counsels against suicide, of course, arguing that it would be a rational contradiction within a kingdom of pure rational agents. It is tempting to believe that Kant would overhaul his moral philosophy rather thoroughly in light of modern biology and physics. For us, it is enough to take note that there is at least one prominent moral rationalist who acknowledges, in a roundabout way, the risk of pure moral rationalism to our individual and collective existence. Kant (1785/1996) writes,

> Here, then, we see philosophy put in fact in a precarious position, which is to be firm even though there is nothing in heaven or on earth from

> which it depends or on which it is based. Here philosophy is to manifest its purity as sustainer of its own laws . . . that must have their source entirely and completely *a priori* and, at the same time . . . expect nothing from the inclination of human beings . . . or, failing this, condemn the human being to contempt for himself and inner abhorrence. (p. 77)

Given the scientific context in which Kant worked, we can appreciate his moral philosophy as historically situated, but unlike his work on theoretical reason (the 1st Critique), which seems to enjoy support from current science, his moral philosophy, and descriptive moral rationalism generally, appears to have been rendered quite problematic.

CHAPTER 5

Prescriptive Instinctivism

§ 1—Science

It does seem reasonable to conceive of both human instinct and human rationality as distinct faculties, even though they may not be so easily distinguished in terms of experience or physiology: we do have a capacity to gather complicated types and amounts of information, and to interpret and comprehend it in order to draw inferences, and this capacity must grow in power and be closely associated with increases in general intelligence, and we also have a capacity for manifesting innate reactions and unlearned appetites that can direct and motivate our behavior and decisions, which are inherited genetically as biologically successful adaptive traits. Descriptive instinctivists (sentimentalists) argue that our instincts, although amounting to information, are so cognitively dominant that they employ our rationality in order to satisfy the motives that they yield. We experience hunger, and so seek food, or sense food which triggers hunger, and various sensory and remembered information is corralled and put to work until the hunger is satiated, for example. Supposedly, there exist no other motives than instinctive, so right action is necessarily reduced to instinctive action; instincts are inherited and not learned or controlled; free will is an illusion and genuine choice does not exist. On the other hand, descriptive (pure moral) rationalists argue that reason can generally incorporate our instincts as sources of information, but ought not to in discerning right action, as a rule, since as traits instincts are self-serving survival mechanisms, which are incompatible with and will necessarily confuse abstract deliberations about which actions pure rational agents must perform in order to construct an ideal society or collective of equals. Moral motives, on that view, are purely rational and necessarily selfless,

in the sense that our personal preferences, identities, and individual well-being must be abrogated in the interests of the collective; free will is necessarily of purely rational motivation and completely unaffected by instinctive drives; moral choices are by definition thereby performed not by humans but by abstract metaphysical avatars—pure rational agents. The descriptive instinctivist position amounts to asserting that ethical humans do not and cannot actually exist, while the descriptive rationalist position also amounts to asserting that ethical humans do not and cannot actually exist. Both are therefore rather strange theories, for ethics is the subject of what it is that we humans ought to do, not the subject of what we humans are incapable of doing, or incapable of being. While we wish to avoid any false inferences from the facts of evolution to our theories of ethics, we must surely conclude that evolution renders humanity quite vulnerable and potentially miraculous, within the context of natural history, and therefore very much in need of a truly and biologically practical epistemological approach to discerning right action. Since we are in possession of two quite powerful faculties in instinct and reason, and since the harsh realities of evolution dictate that we need employ all of the abilities which have facilitated our persistence and ascendance, a mixed moral epistemology that characterizes positive roles for both faculties would seem appropriate. The few sociobiologists who defend a mixed moral epistemology cast instinct in the lead role on normative grounds; they argue that while we are capable of acting on both reason and instinct, we ought to allow instinct to guide us, on the basis of a Darwinian interpretation of evolution.

Philip Kitcher (2011) writes, "... there are grounds for attributing a major directive role to emotions in some instances of normative guidance" (pp. 78–79); "Abstract reflection and reasoning are hardly more reliable than the emotional responses..." (p. 84). Kitcher (2011) does not dismiss human rationality as necessarily a slave of passion in the way that descriptive instinctivists do, but even though he offers statements that seem to suggest otherwise, his theory of pragmatic naturalism boils down to the position that instincts are ultimately responsible for our thinking ethically at all, and still ought to govern our deliberative process. That is, his instinctivism is prescriptive, not descriptive. Kitcher (2011) states,

> The search for a single type of psychological causation... always more reliable... is foolishly utopian (p. 84); No special sort of psychological process is likely to be better at producing appropriate behavior.... The

> group that supplies a variety of psychological dispositions for altruistic response obtains greater relief from altruism failures. (p. 131)

However, these claims of epistemological pluralism are inconsistent with the arguments that Kitcher (2011) develops which only allow rationality a servile role because it is less reliable in the context of his (flawed) conceptualizations of biological altruism and group selection. Kitcher (2011) has us acting on the basis of "progressive desires" but these must function in facilitating natural selection, and so must be instinctive at bottom, and heritable, and so not rational, or else the sociobiological derivation is without warrant. On a less speculative interpretation of evolution, a mixed moral epistemology that prescribes for rationality a controlling role is more plausible on both empirical and practical grounds. But, like Singer (1981/2011), Kitcher (2011) portrays morality as a function of group altruism, but without anything quite like Singer's escalator of reason to supposedly facilitate our transcendence of tribalism; Darwinian group selection somehow results in refined human desires that supposedly can also yield expanding circles of altruistic inclusiveness, yet these supposedly moral desires are supposedly even now advantageous in terms of group selection. Nietzsche also defends instinctive action as more evolutionarily reliable but on the basis of individual (not group) selection, although compared to Nietzsche, Kitcher (2011) seems like polished academic political correctness (in contrast to Nietzsche's studied affrontery). Whereas Nietzsche brashly presents a vision of instinctively driven nobles and racial eugenics (apparently absorbed in an attempt to offer a dialectical antithesis to Kant's rationalism and/or Christianity, so as to manifest a movement of Hegelian metaphysical spirit), Kitcher (2011) offers a persuasively understated defense of instinctively driven tribal conflict (apparently absorbed in an attempt to offer a naturalist and/or atheist account of ethics, so as to manifest a furtherance of the Darwinian paradigm).

While Singer (1981/2011) describes his work as sociobiology even while arriving at very different conclusions than the sentimentalist sociobiologists, Kitcher is a critic of sociobiology even though he offers a stoutly Darwinian theory of ethics. Kitcher (2003) writes,

> Darwin's evolutionary theory could have gone the way of phlogiston chemistry . . . and many other discarded theories. It didn't, not because evolutionary theorists are stubborn ideologues but because the kinds of observations that would have discredited it . . . have not been made. Far

> from being "vacuous" or "unfalsifiable," evolutionary theory sticks its neck out again and again. (p. 372)

Kitcher (2003) displays a common trait of Darwinians, of trying to take ownership of evolutionary biology altogether by attempting to obscure the difference between Darwinism and evolution. Darwinians are ideologues, exactly because observational evidence has been before their eyes all along in the form of organic purposiveness, and because they will often not stick their necks out to acknowledge even in current literature the significant body of scientific counter-evidence. Kitcher (2003) writes:

> Wilson's discussion of ethics . . . and those undertaken in collaboration with . . . Ruse, are deeply confused . . . (p. 321); . . . a critique of human sociobiology that simply uproots the current occupants of this part of the intellectual landscape will not suffice (p. 301); . . . part of the sociobiological enterprise . . . should simply be abandoned. What remains should be thoroughly cleansed (p. 301); . . . I have offered a blueprint for the transformation of human sociobiology, insisting on the disavowal . . . of inferences about genetic determination of traits . . . (p. 301); . . . this suggestion . . . I . . . regard as the most important step in the replacement of the "cardboard Darwinism" of traditional human sociobiology. (p. 302)

Much of the sociobiology literature is concerned with the influence of inherited genes on behavior, and Kitcher (2003) argues against any simple gene-behavior reductionism in favor of a more holistic analysis that includes roles for culture and the environment in behavioral development. Kitcher (2003) writes,

> Once human behavioral ecology has rid itself of the errors of genetic determinism . . . the large obstacle that must be overcome is the identification of those aspects of the behavioral phenotype that actually have functional significance (p. 314); If developmental psychology, neurobiology, and evolutionary analyses are undertaken together, then the grain of truth in orthodox human sociobiology . . . might flower into something significant. (p. 314)

Kitcher (1985) offers critical remarks regarding sociobiology and ethics in general:

> My principal goal has been to explain as clearly as possible what sociobiology is . . . and how the ambitious claims . . . rest on shoddy analysis

> and flimsy argument (p. viiii); . . . organisms that seemed to pose a threat to Darwin's theory of evolution, precisely because their actions could not be viewed as subordinating fitness to nonevolutionary ends, give way to the organism we identify as the being that chooses its own ends (p. 75); Pop sociobiology is unsatisfactory when its practitioners rely on inadequate models and when they fail to relate their analyses to . . . observed . . . behavior (p. 180); . . . pop sociobiology offers guesses about the ways people actually behave (and have actually behaved) based on "evolutionary expectations." The expectations are drawn from a truncated version of evolutionary theory in which the optimizing hand of selection is seen in every detail of human social life. (p. 239)

Kitcher (1985) contrasts "pop sociobiology" with his own approach:

> Sociobiologists ought to resist labeling the examples they study with such terms as "kin selection," "reciprocal altruism," and so forth. The main task is to explore the relative fitness of various forms of behavior . . . (p. 111); . . . I shall try to expose the deficiencies of pop sociobiology by contrasting the claims of pop sociobiologists with the work of those who study the behavior of nonhuman animals . . . (p. 131); . . . the true political problem with socially relevant science is that the grave consequences of error enforce the need for higher standards of evidence. In the case of pop sociobiology, commonly accepted standards are ignored. (p. 435)

Unfortunately, Kitcher's (2011) theory of ethics commits the errors which he ascribes to "pop sociobiology": he relies on genetic determinism, adaptationism, selectionism, relies on inadequate models, and does not provide observational evidence.

Kitcher (2011) relies heavily on the concept of biological altruism:

> At some point in our evolutionary past . . . our ancestors acquired an ability to live together in small groups. . . . That achievement required a capacity for altruism. It also prepared the way for unprecedented forms of cooperation, and ultimately for the enunciation of socially shared norms and the beginning of ethical practice. Altruism is not the whole story about ethics, but it is an important part of it. (p. 17)

Living in groups is no achievement for many animal types do it; living in groups does not necessarily require biological altruism (schooling fish, for example, are not considered altruists); but mainly, biological altruism has nothing to do with ethics because it amounts strictly to individually advantageous behavior and is an inherited instinctive

trait manifested by many animals including ourselves. Kitcher (2011) writes,

> Altruists are intentional agents whose effective desires are other-directed (p. 20); Before our human ancestors invented ethics, they had a capacity for psychological altruism (p. 35); Psychological altruism is real, it is exemplified in maternal concern, and it originally evolved through the most fundamental type of kin selection. (p. 42)

Kitcher's (2011) psychological altruism is the equivalent of Singer's group altruism—a supposed innate tendency to act in the interests of others solely within the group. Singer (1981/2011) attributes tribalism to some sort of an innate tendency of human rationality as a refinement of tribal instinct (because pure practical reason would need not recognize any circles if it were not somehow predisposed to, while if reason can simply control instinct a sociobiological derivation is unjustifiable), but Kitcher (2011) attributes tribalism simply to tribal instincts, which should be trusted and acted upon without interference from human rationality, in order to facilitate Darwinian group selection. Kitcher's (2011) theory includes an emphasis on "achieving cultural success" (p. 131), which distinguishes him from Singer (1981/2011) (whose intention at least is to transcend cultural Darwinism rather than promote it) and places Kitcher (2011) in the Nietzschean and Spencerian territory of regarding the Darwinian evolutionary process as essentially right-in-itself and best left unimpeded. Kitcher (2011) writes,

> Pragmatic naturalism has affinities with both pragmatism and naturalism. In focusing on ethical practice and its history, it attempts to honor John Dewey's call for philosophy to be reconnected with human life. . . . The naturalism consists in refusing to introduce mysterious entities—"spooks"—to explain the origin, evolution, and progress of ethical practice. (p. 3)

Darwinism itself is spooky, offering as it does natural selection as the mysterious force of organic creativity, but Kitcher's (2011) reliance on group selection (and innate tribal instincts) as the foundation of ethics must be regarded as an appeal to a spook of the type he has in mind because it simply does not exist. Kitcher (2011), like Ruse and Singer, is thinking of religious deontology in referring to spooks but not solely: "Appeals to a divine will, to a realm of values, to faculties of ethical perception and "pure practical reason," have to go" (p. 4). However, even

Kitcher's (2011) concept of psychological altruism is spooky: even if group selection existed, group altruism would amount even then to selfish behavior, since in promoting the group's selective fitness individuals would be promoting their own, just as they actually do in kin selective and cooperative behavior generally. Kitcher (2011) defines psychological altruism in terms of serving the desires of others versus serving one's own desires, arguing that the latter is egoistic and the former altruistic, as if there is a meaningful difference between the two in the context of either kin or group selection, but there is not a meaningful difference and so this definition is misleading. Any and every genetic heritable trait, behavioral or other, is necessarily reproductively self-serving. In other words, serving the desires of others is a means to the end of serving one's own desires, if the behavior is instinctive.

Kitcher (2003) writes,

> My aim is to understand ways in which human altruism might evolve. . . . To develop a representation of the type of altruism that is of most interest to philosophy . . . (p. 181); One way to develop this . . . is to think of an altruist as an individual with a psychological disposition that involves modification of desires that might otherwise lead to action so that the desires that ultimately cause action take into account the interests of others. (p. 181)

But taking into account the desires of others is simply a prerequisite for acting toward another individual at all; surely we take into account others' desires even while we act selfishly. Mothering animals which satisfy the hunger of their offspring are of course satisfying the desires of their offspring while they serve their own genetic, evolutionary, and instinctive interests. That is not the morally interesting type of altruism, which ethicists regard as essentially involving genuine (including and especially reproductive), free willed (not instinctively determined) selflessness. Kitcher (2003) writes,

> Some biologists [claim] that the evolutionary explanations . . . account for all altruistic behavior, revealing the human actions we prize to be "ultimately selfish." It is not hard to rebut the . . . argument, showing that there are important differences between the biologists' conception of altruism and the everyday notion. But simply identifying argumentative flaws leaves a complex of problems: What is human altruism—that sort of altruism we take to have moral significance —and how might it evolve? (p. 177)

But then Kitcher (2003) adds:

> I take human altruism to be that admirable behavior which is most readily identified in our own species but which may also be present in the actions of other organisms (p. 190, note 5); It will also become clear that this account bears on attempts to understand the emergence of cooperative behavior among rational egoists, and thus connects with projects in economics and in moral philosophy. (p. 190, note 6)

How can we possibly be expected to take seriously the notion that there are "important differences" between the "biologist's conception of altruism" and "human altruism," while at the same time suppose that human altruism amounts to "admirable" and "cooperative" behavior by "rational egoists"? There is nothing meaningfully different between rational egoist behavior and instinctive egoist behavior in the context of an evolutionary analysis, unless one specifies that the rational egoism is free willed and not simply reason serving passion (which Kitcher (2003) does not, but Kitcher's (2011) view is that reason ought obey instinct—prescriptive instinctivism—after all). If egoism is rationally controlled then the goal of selfishness might or might not be biological reproduction, but if egoism is either descriptively or prescriptively instinctive, then selfishness is reproduction oriented (since instincts are heritable traits which persist simply because they promote their own biological reproduction). Kitcher (2003) writes,

> I suggest that altruism involves analogous problems to those which arise in connection with *akrasia* and compulsion: for unless the altruist is genuinely moved to value what is given up in performing the selfish action and genuinely wants to help the other(s), there is no altruism of the inspiring—human—kind. (p. 182)

But there is no genuine altruism of the inspiring human kind but only biological altruism, so long as the actions are to the genetic benefit of the individual performing them (and on a par with insect behavior), which will nevertheless obviously often involve some sort of costs and help and can still be instinctive and genetically advantageous (as with parenting).

Kitcher (2003) writes,

> Altruistic tendencies are favored by selection. But how can this be altruism, real altruism, if the organism ends up gaining by its action? The question is as natural as it is misconceived. The alleged "gains," in terms

> of spread of genes, are outcomes that all but a minute fragment of cognitively sophisticated organisms are unable to represent and, even for those organisms who can represent the outcomes, only the volitionally disordered would be moved to action by the representation. What is important is that the organism fights desires that in the absence of effects on others, would have led unproblematically to action, and that the desires that cause behavior are formed by recognizing the consequence for another's welfare. We are inclined to retract our admiration for an apparently altruistic act when we suspect that the agent might have seen forthcoming benefits. But there is no reason to take a similar stance when we are confident that the causal explanation of the action involves recognition and response to the needs of another. (p. 183)

This is a quite confusing interpretation that cannot be correct: Kitcher (2003) describes instinctive behavior in parenting, that of all possible behavior is of the highest genetic benefit to the parenting individuals, the vast majority of whom obviously have no inkling of genetics and are behaving strictly on the basis of innate behavioral traits. Are we to believe that genetically selfish animal behavior becomes "real altruism" in every instance in which organisms experience conflicting desires but in which the kin selection instincts win them over and yield action? In that case, real altruism is biological altruism and should not be referred to as real because it is not morally significant, because it is instinctive, and not a matter of choice, subject to praise and blame. Are we to believe that actions which are genetically beneficial to the individuals performing them, although they involve both some costs to themselves and some benefits to beneficiaries, somehow count as unselfish just because the organisms are not intelligent enough to understand the genetically selfish implications of their conflicting desires? In that case almost any and every action performed by social organisms is real altruism, but there would not be any distinction between real and biological altruism. Referring to whether or not organisms comprehend modern genetics is a red herring; on Kitcher's (2003) view, we do not admire human parents because they understand the genetic benefit of their behavior, but we do admire as real altruism every animal instance of cost-bearing, desire-conflicted, instinctive actions that benefit others besides the performing individuals but which are ultimately genetically selfish. If real altruism is to be morally interesting altruism, it must refer to actions that are genuinely costly to the individuals performing them, including and especially genetic costliness, and to behavior that is not instinctively driven and therefore necessarily selfish, or else we must admit that morality does not exist because genetically selfish

behavior is simply a precondition for the existence of organic life and evolution altogether—to equate real altruism with genetically selfish behavior is to equate ethics with animal behavior. Kitcher's (2003) endnote 5 (above) that "human altruism" amounts to "admirable behavior" that is "present in the actions of other organisms" must therefore refer to biological altruism and not the morally relevant concept of altruism, which must include true selflessness including genetic, and which has not been proven to occur in organisms besides humans. Kitcher (2003) asks, "... conceiving altruistic behavior, as biologists do, as behavior that promotes the fitness of another organism at costs in fitness to the agent, how can propensities to engage in such behavior originate and be maintained under natural selection" (p. 177)? Biological altruism does not lower the fitness of individuals performing it, but increases it, since fitness must be defined in genetic terms or is meaningless, and only because biological altruism increases fitness could it possibly have evolved.

If we restricted ourselves to the evo-ethics literature, we would likely conclude that biological altruism is a confusing and complex concept of theoretical biology, but it is taught in introductory biology courses without too much trouble. It simply refers to behavior that organisms engage in that yields benefits to beneficiaries while also yielding genetic advantage to the performers. It is common in the animal kingdom, instinctive, does not require high intelligence, and cannot be considered moral since as instinctive it is necessarily advantageous genetically and cannot involve choice or free will in typical organisms that are incapable of overriding their instincts (which for all we know implies that animals are incapable of morality). Much confusion arises when sociobiologists attempt to derive a naturalist, Darwinian, atheist account of ethics from the evolution of necessarily selfish behavior—but confusion must be involved when we try to extract blood from a stone. It is just as confusing for Kitcher (2003) to apparently try to pass off biological altruism as real/genuine/moral/human/selfless altruism, and to try to explain human morality on that basis, even while acknowledging that such an analysis amounts strictly to a derivation of egoist cooperation, as it is for Singer (1981/2011) to try to pass off animal behavior that amounts to kin selection as evidence for, and as something that should be referred to as, group selection. Such arguments come across like rhetorical sleights of hand, and suggest agendas that have little to do with evolutionary biology or ethics.

On the basis of prisoner's dilemma (p. 55) and game-theory (p. 60) analyses, Kitcher (2011) concludes, "This ability to form coalitions, and

ultimately to constitute a stable social group, expresses a further expansion of those fundamental psychologically altruistic tendencies attributed in the case of maternal care" (p. 64). Kitcher (2011) also needs his version of biological altruism, based on group selection, to extend beyond kin to nonrelatives, but he produces no observational evidence of organisms that engage in genetically unselfish behavior toward nonkin because it does not exist. Psychological altruism based on maternal care yields kin but not group selection; instinctive selfish biological altruism (which is all that inherited genetic behavioral traits could ever be) is not morally relevant. Kitcher (2011) goes on to describe a series of stages by which ethics has supposedly evolved in the context of group selection: starting with psychological altruism (p. 73), yielding rule following on the basis of a fear- and other emotion-based conscience (p. 87), followed by agreements on social codes (p. 97), which amount to evolutionary experiments that subject the groups to the pressures of Darwinian natural selection (pp. 107–108): "...on occasion some Darwinian consequence of a particular ethical code, for example, the fact that the children of those who subscribe to it tend to survive and flourish, plays a role in the acceptance of that code by other groups" (p. 109). So ethics is supposedly produced by the instinctive capacity for considering the desires of others, instinctive conscience amounting to self-directed internalization of tribal rules, and instinctive Darwinian cultural competition in which reproductively conducive social codes yield a selective advantage. Thereby, ethics has supposedly evolved as necessarily instinctive, so necessarily selfish (because even group altruism behavior would need be genetically selfish to persist as a heritable trait), and necessarily tribal. Kitcher (2011) writes, "...we should expect a loose correlation between cultures securing many adherents and cultural practices advancing biological reproduction" (p. 108). As an instinctive and tribal theory of ethics, Kitcher (2011) is in admittedly dangerous territory:

> The Nazi attempt to purge Europe (and potentially the world) of "vermin" or the killing fields of the Khmer Rouge. Many people feel a powerful urge...to say there is something objectively wrong about what was done.... Exploring ethical variation across time avoids some of the tangles figuring in cross-cultural debates about relativism. (p. 139)

However, Kitcher (2011) is ill-equipped for mounting an argument against tribal extremism, even though he is well equipped against relativism—his objectivity is Darwinism, and in diminishing the

significance of human rationality he is as committed as the "cardboard sociobiologists" he condemns.

Kitcher (2011) writes,

> Desires possibly independent of Darwinian advantages, have also shaped the evolution of the ethical project. . . . Nobody should suppose them conducive to ethical progress. That means . . . only that progressive transitions are not to be identified with those promoting Darwinian or cultural success, a point simply recapitulating . . . the failure of crude evolutionary reductionism (p. 213); Historians and philosophers have singled out a particular kind of movement as constitutive of advances. They have talked of "the expanding circle." (p. 214)

However, Singer (1981//2011) at least argues that an escalator of evolving reason expands group altruism to ever wider circles of inclusiveness. How can human desires, originally and still instinctive and heritable and therefore selfish at bottom even if somehow "possibly independent of Darwinian advantages" (or else they could be called "reasons"), possibly be expanded outwards toward ever-less genetically related members of a species? Even group altruism instincts would have to be selfish in order to persist; instinctive altruism beyond the group is completely implausible. And, if these "human desires" are not after all instinctive but at some stage become rational (and therefore reasons), then as in the case with Singer (1981/2011) why would we need a sociobiological derivation of ethics rather than simply accepting the emergence of human rational self-discipline as the birth of morality? Kitcher (2011) continues, " . . . .acquiring new desires . . . counts as progressive" (p. 217); " . . . the extension of some rules, already protecting group members . . . produces satisfaction of endorsable desires for group members . . . " (p. 260); " . . . progress [is] conceived as functional fulfillment and refinement" (p. 262). In committing to instinctive morality, Kitcher (2011) has no basis for believing that those instincts can be extended even beyond kin, never mind to members of other tribes, in any sort of routine, heritable, genetically, or culturally selective/adaptive manner. That would amount to instinctive and/or cultural selflessness, which is incompatible with Darwinism and an even quicker route to extinction than pure rational selflessness. So Kitcher's (2011) fleeting notions regarding moral progress are rather incompatible with his sociobiological derivation and characterization of human group behavior as essentially instinctive. We would need more extensive argumentation regarding how human desires can become detached from their evolutionary roots, somehow in a way

that does not involve rational control (because rationality negates the justification of an evolutionary explanation of ethics), which would seem impossible. If ethics is instinctive not rational, how can it possibly transcend instinct? If ethics is rational (which it must be), then we do not need sociobiology.

Kitcher (2011) can fairly be characterized as empirically unrealistic: "The project began in small, egalitarian societies, in which people with limited tendencies to psychological altruism lived together" (p. 229), but there is no evidence of fundamental egalitarianism in human societies, ever, which would be a requirement in order for ethics to have evolved as an egalitarian instinct. Kitcher (2011) writes, "At the dawn of the ethical project . . . dictatorship was not a realistic possibility" (p. 228). Does he really mean to suggest that hominid tribes were not hierarchical, with dominant males and females who more or less gave orders? Kitcher (2011) does acknowledge that, " . . . there remained plenty of limitations of hominid altruism and resultant tensions . . . " (p. 394, note 18). Kitcher (2003) writes that he defends,

> . . . a biological model that might provide a more convincing account of the origin and maintenance of altruistic behavior toward nonrelatives in cognitively sophisticated organisms (p. 178); The heart of my approach is to focus on organisms that have the cognitive capacities for recognizing others and reacting to their past behavior . . . (p. 181); But, as recent reviews of alleged cases of reciprocal altruism have made abundantly clear, there are few, if any, instances of reciprocal altruism among organisms lacking the abilities central to the account I have given. (p. 181)

But while there are many examples of biological altruism and/or cooperation both among cognitively sophisticated (which could recognize others and react to past behavior) and unsophisticated organisms, even when not closely related genetically, and even across species, there are no examples of genetically unselfish/genuine/ethically relevant altruism even among cognitively sophisticated nonhuman organisms but rather just selfish cooperation (biological altruism). And, since extremely complex cooperation has evolved among related but cognitively simple organisms (insects), if such advanced instinctive cooperation among nonrelatives was genetically advantageous (possible), there is no reason for it not to appear even among the cognitively simple—but it does not (although there is a lot of sophistication; flowering plants and insects, for example). Basically, if it is instinctive behavior, it must be reproductively selfish; if it is reproductively unselfish, it must be human (or perhaps epigenetic).

Kitcher (2003) writes,

> A discriminating altruist might mistakenly choose to play with someone who had already defected on it (p. 188); A more adequate model would suppose that the organism acts as if it had an internal chart on which members of the population were divided into the good . . . and the not-so-good . . . (p. 188); To understand the evolution of mutual grooming under natural selection, we therefore need to consider the evolution of cooperative behavior in iterated optional Prisoner's Dilemmas. (p. 197)

Organisms that are cognitively sophisticated enough to remember unrelated members of a population and all their past interactions might not be behaviorally governed strictly by instinct; groups of unrelated members do not actually exist in primate populations (Kitcher's point of reference); the cooperative behavior that Kitcher is concerned with (grooming, for example) is not attributable to some sort of instinct for group altruism but simply kin altruism and/or high intelligence; the evolution of cooperative behavior does not warrant consideration of prisoner's dilemmas since in natural populations of instinctive organisms behavioral traits must benefit the individuals involved or else the behaviors cannot persist as genetic traits. Without a plausible empirical case for group altruism, Kitcher's (2011) arguments for group selection falter, and the sociobiological derivation of ethics falters with it. There is no group altruism, no group selection, no instinctive desire to help nonrelatives, no instinctive desire for group competition, no natural selection of social codes, no natural selection in general, and no such thing as instinctive morality. Though presented as empirical arguments, Kitcher's (2011) claims amount to rhetorical flourishes by a determined Darwinian, who like his fellow travelers comes across as somewhat careless in defending rather dangerous interpretations of both ethics and biology. "Instinctive morality" and "group selection" are contradictory notions.

Some of Kitcher's (2011) ideas seem inspired by Huxley (1893), who writes:

> I have termed this evolution of feelings out of which the primitive bonds of human society are so largely forged, into the organized and personified sympathy we call conscience, the ethical process (p. 51); I have endeavoured to show that, when the ethical process has advanced so far as to secure every member of the society in the possession of the means of existence, the struggle for existence, as between man and man, within that society is . . . at an end. (p. 54)

Part of the group selection myth is the notion that Darwinian competition stops within the groups, but that makes no sense at all since even in group selection organisms would act selfishly in helping kin and non-close-relatives or else disappear. That is, even if groups could somehow reproduce genetically and be selectable as distinct units the way that individuals are (which they cannot) that would not eliminate the necessity of individual competition within the groups, since a group of organisms would still need to go about the business of individual reproduction and all the individualistic competition that demands or else the entire group would disappear—groups could never amount to or be comparable with or replace organisms in the evolutionary process (since groups would/do actually become organisms if/when they develop a capacity to reproduce strictly on behalf of the member individuals). One difference between Kitcher (2011) and Huxley is in the notion of early egalitarianism: Huxley (1893) writes, "The most rudimentary polity is a pack of men . . . and having made the very important advance upon wolf society . . . they agree to use the force of the whole body against individuals who violate it and in favour of those who observe it" (pp. 66–67). Obviously wolves are not egalitarian but hierarchical, and the comparison of hominids with the wolves and other pack-hunting species is more apt than egalitarianism. But that would undermine Kitcher's entire approach.

Huxley (1943/1969) writes,

> A new type of organization came into being—that of self-reproducing society. So long as man survives as a species . . . there seems no possibility for any other form of life to push up to this new organizational level. Indeed there are grounds for suspecting that biological evolution has come to an end (p. 123); In any case, it is only through social evolution that the world-stuff can now realize radically new possibilities. Mechanical interaction and natural selection still operate, but have become of secondary importance. For good or evil, the mechanism of evolution has in the main been transferred onto the social or conscious level. (p. 123)

This is quite similar to Kitcher's (2011) characterization of ethical progress, in which social codes become units of natural selection, perhaps even more so than the individuals or the groups. At least Huxley (1943/1969) explicitly admits "for good or evil," which is a normative claim, and an ought from an is, in the sense that evolution supposedly has its means and ways and should not be interfered with but rather

embraced and participated in (as extremely competitive, individually and culturally selectable Darwinians, of course).

Kitcher (2011) claims Dewey as a source: Dewey (1939) writes,

> To assume the existence of final and unquestionable knowledge upon which we can fall back in order to settle automatically every moral problem involves commitment to a dogmatic theory of morals. The alternative method may be called experimental. It implies that reflective morality demands observation of particular situations, rather than fixed adherence to *a priori* principles; that free inquiry and freedom of publication and discussion must be encouraged and not merely grudgingly tolerated; that opportunity at different times and places must be given for trying different measures so that their effects may be capable of observation and of comparison to one another. (p. 775)

That seems quite compatible with Kitcher's (2011) notions of cultural Darwinism, of reproductively successful social rules, and of experiments of living. Dewey (1939) writes,

> The needs of practice, of economy, and of efficiency have themselves compelled a continual deepening of doubt and widening of the area of investigation. It is within this evolution that we have to find our stages of thinking (p. 838); Hence, the fourth [stage]—covering what is popularly known as inductive and empirical science. Thought takes the form of inference instead of proof (p. 848); It aims at pushing out the frontiers of knowledge, not at marking those already attained with signposts (p. 849); That aesthetic and moral experience reveal traits of real things as truly as does intellectual experience . . . is rarely affirmed. (p. 1042)

If, as Dewey (1939) argues, human thinking has evolved to the stage of empirical inference, and moral experience is of real, presumably empirically discoverable things, is that kind of pragmatism compatible with Kitcher's (2011) suggestion that moral progress occurs by means of new desires? If morality is experimental, with no fixed principles, does that mean that pragmatic naturalism would allow dropping notions of natural selection altogether, as morally irrelevant, if that is what the evidence implies?

Spencer (1892) also offers arguments that are similar to Kitcher's (2011):

> The true moral consciousness which we name conscience, does not refer to those extrinsic results of conduct which take the shape of praise or

> blame, reward or punishment . . . but it refers to the intrinsic results of conduct . . . intuitively felt (p. 337); Though, while the moral nature is imperfectly developed, there may often arise conformity to the ethical sentiment under a sense of compulsion by it; and though, in other cases, non-conformity to it may cause subsequent self-reproach . . . yet with a moral nature completely balanced, neither of these feelings will arise, because that which is done is done in satisfaction of the appropriate desire (p. 338); . . . I have argued that conformably with the laws of evolution . . . there has been, and is, in progress, an adaptation of humanity to the social state, changing it in the direction of such an ideal congruity. And the corollary before drawn and here repeated, is that the ultimate man is one in whom this process has gone so far as to produce a correspondence between all the promptings of his nature and all the requirements of his life as carried on in society (p. 275); That which in the last chapter we found to be highly-evolved conduct, is that which, in this chapter, we find to be what is called good conduct, and the ideal goal to the natural evolution of conduct, we here recognize as the ideal standard of conduct ethically considered. (p. 44)

Kitcher's (2011) characterization of conscience as an evolved instinct of inner fear in response to tribal rules, his characterization of ethics as a product of Darwinian evolution generally, and his notions regarding progress as a refinement of desires are each similar to Spencer's (1892) ideas.

Nietzsche also arrives at some conclusions similar to some of Kitcher's (2011); although not a Darwinian, Nietzsche appears to have been deeply influenced by Darwin and evolution in general. Gayon (1999) writes, "Nietzsche refused to reduce the problem of the origin of morals to the problem of the origin of 'altruism'; nor did he accept the interpretation of the moral (and cultural) progress of mankind as a march toward universal altruism" (p. 157); on that issue Nietzsche seems correct (for biological altruism cannot yield morality). Gayon (1999) states, "Nietzsche [argued] that the very concept of natural selection was built as an unconscious transposition of some sort of altruistic and egalitarian moral into biological discourse" (p. 188); " . . . He rejected the notion of species selection, but did not have the Darwinian notion of individual selection" (p. 188). Nietzsche does not offer his own theory of evolution, but only contradictory remarks: he (1881/1982, 1887/1956) writes,

> The impartial investigator who pursues the history of the eye and the forms it has assumed among the lowest creatures . . . must arrive at the great conclusion that vision was not the intention behind the creation

> of the eye, but that vision appeared, rather, after chance had put the apparatus together. A single instance of this kind—and "purposes" fall away like scales from the eyes! (1881/1982, p. 125); The "evolution" of a thing, a custom, an organ is not its *progressus* towards a goal, let alone the most logical and shortest *progressus*, requiring the least energy and expenditure. Rather, it is a sequence of more or less profound, more or less independent processes of appropriation, including the resistances used in each instance, the attempted transformations for purposes of defense or reaction, as well as the results of successful counterattacks (1887/1956, p. 210); The democratic bias against anything that dominates or wishes to dominate . . . has gradually so sublimated and disguised itself that nowadays it can invade the strictest, most objective sciences without anyone raising a word of protest. In fact it seems to me that this prejudice now dominates all of physiology and the other life sciences, to their detriment, naturally, since it has conjured away one of their most fundamental concepts, that of activity, and put in its place the concept of adaptation—a kind of second-rate activity, mere reactivity. Quite in keeping with that bias, Herbert Spencer has defined life itself as an ever more purposeful inner adaptation to external circumstances. But such a view misjudges the very essence of life; it overlooks the intrinsic superiority of the spontaneous, aggressive, overreaching, reinterpreting and re-establishing forces, on whose action adaptation gradually supervenes. It denies, even in the organism itself, the dominant role of the higher functions in which the vital will appears active and shaping. (1887/1956, pp. 210–211)

Apparently, between 1881 and 1887 Nietzsche changed his mind; certainly, his later conceptualizations of evolution are more compatible with Lamarck than Darwin. Gayon (1999) writes,

> Nietzsche thought that the principle of the struggle for existence was not so much false as unimportant. Hence his final formulation: "struggle for power" rather than "struggle for life," "will to power" rather than "will to live," "power" rather than "survival," "augmentation" rather than "conservation" or "preservation," "nutrition" rather than "competition," Lamarckism rather than Darwinism. (p. 172)

Still, some of Nietzsche's (1881/1982, 1887/1956) conclusions about ethics sound familiar:

> Faith in reason, with which the validity of these judgments must stand or fall, is, as faith, a moral phenomenon (1881/1982, p. 4); . . . morality is nothing other (therefore no more!) than obedience to customs, of

> whatever kind they may be; customs, however, are the traditional way of behaving and evaluating (1881/1982, p. 10); What distinguishes this feeling in the presence of tradition from the feeling of fear in general? It is fear in the presence of a higher intellect which here commands, of an incomprehensible, indefinite power, of something more than personal—there is superstition in this fear (1881/1982, p. 11); What punishment is able to achieve both for man and beast, is increase of fear, circumspection, control over the instincts. Thus man is tamed by punishment, but by no means improved; rather the opposite. (1887/1956, p. 216)

These are each notions that Kitcher (2011) offers variations of: faith in reason is normative and misguided (but that goes for instinct also so we should employ both); morality amounts to social custom (but might simply be right action); self-control is based on fear (which must be more unstable than rational self-discipline) that somehow yields progressive desires.

Kitcher (2001) writes,

> Beyond requiring that researchers pursue their experiments in morally appropriate ways . . . there are no further moral, social, and political standards to which the practice of science is accountable (p. 90); Once we have abandoned the idea of a context-independent conception of epistemic significance, we see that judgments about lines of inquiry inevitably weigh the rival merits of various practical goals. (p. 91)

Kitcher (2011) defends his ethics not as science, but as scientifically informed speculation or hypotheses, and argues for research along the lines he suggests. Presumably, Kitcher really believes that group selection is true, and that cultural Darwinism is real, but he does not adequately acknowledge that these are very risky ideas (and neither do sociobiologists in general). Kitcher (2011) contends that tribal instinct is safer than pure reason ("Many of the most horrific deeds of the twentieth century were carried out in the name of abstract principles" (p. 84)), on the basis of striving for cultural success in the context of Darwinian natural selection. Abstract moral rationalism may be dangerously selfless in the context of evolution, but the far more obvious candidate for explaining the ideology behind recent outbreaks of mass tribal warfare is Darwinism, and especially cultural Darwinism based on the metaphysical myth of natural group selection. Tribal instinct probably does not exist, but the cultural exploitation of kin instinct certainly does: Fry and Soderberg (2014) offer anthropological evidence that tribal conflict

may only have come about as a result of civilization (the onset of city-states) and may not have been a primary source of violence for our earlier ancestors. If group selection did exist, it surely would have yielded an instinct for war, as implied by the sociobiologists (and by Darwin himself), but that view would be well served with empirical evidence to support it. While we do persistently engage in tribal warfare, it may well be attributable to cultural exploitations of instincts, in the service of abstract theories, and so is not likely attributable to either instinct alone or rationality alone but rather to both: human societies persistently develop belief systems that justify warfare, and Darwinism and sociobiology would appear to be prime examples.

Ruse, Singer, and Kitcher each acknowledge the connection of their ideas with the two World Wars, and offer fleeting reassurances, but their overall arguments considered in depth (and Darwinism in general, of course) would certainly seem to have the potential to serve as scientific justification for the most destructive of all human behavior. Kitcher (2011) repeatedly reminds his readers that his is a possible explanation of ethics (pp. 11, 12, 90, 91, 100, 106, 128, 130, 137, 239, 389), but there is not enough empirical evidence to warrant believing that his theory actually is possible; Dennett (1995) (most unusually) notes that science is not just another verbal description (p. 495). Even on Kitcher's (2001) own terms, the nature of his scientific speculations is questionable; Kitcher (2001) is inspired by research into the human genome, which caused considerable concern at the time, but the dangers of genomics would seem slight compared to the dangers of tribalism. Nietzsche (1887/1956) writes,

> Strictly speaking, there is no such thing as a science without assumptions: the very notion of such a science is unthinkable, absurd. A philosophy, a "faith" is always needed to give science a direction, a meaning, a limit, a *raison d'etre* (p. 288); . . . all science, natural as well as unnatural (by which I mean the self-scrutiny of the "knower") is now determined to talk man out of his former respect for himself, as though that respect had been nothing but a bizarre presumption. (p. 292)

Kitcher (2001) appears to agree with the first point; Kitcher (2011) and sociobiologists in general would seem to exemplify the second (although not on Nietzsche's terms).

Dewey (1939) writes,

> The charge that is brought against the non-empirical method of philosophizing is not that it depends on theorizing, but that it fails to use

> refined, secondary products as a path pointing and leading back to something in primary experience. The resulting failure is threefold. First, there is no verification, no effort even to test and check. What is even worse, secondly, is that the things of ordinary experience do get enlargement and enrichment of meaning as they do when approached through the medium of scientific principles and reasonings. This lack of function reacts, in the third place, back upon the philosophic subject-matter in itself. Not tested by being employed to see what it leads to in ordinary experience and what new meanings it contributes, this subject-matter becomes arbitrary and aloof—what is called "abstract" when that word is used in a bad sense to designate something which exclusively occupies a realm of its own without contact with the things of ordinary experience. A first-rate test of the value of any philosophy which is offered us is this: Does it end in conclusions which, when they are referred back to ordinary life-experience and their predicaments, render them more significant, more luminous to us, and make our dealings with them more fruitful? Or does it terminate in rendering the things of ordinary experience more opaque than they were before, and in depriving them of having in "reality" even the significance that they had previously seemed to have? (pp. 1045–1046)

Kitcher's (2011) supposedly empirical and evolutionary theory of pragmatic naturalism, at least in terms of science, does not appear either pragmatic or naturalist.

§ 2—Normativity

Kitcher (2011) writes, "The . . . ethical project is a sequence of ventures in developing . . . codes, in which . . . the dominant mechanism is a cultural analogue of natural selection" (p. 103). Ethics must reduce to survival of the fittest on Kitcher's (2011) arguments, since cultural Darwinism reduces to group Darwinism which reduces to individual Darwinism (since groups do not reproduce). There is no doubting that, in the context of evolution, survival is especially good. Unto itself claiming that survival is good is not problematic, for it does not seem possible that any moral theory could possibly suggest otherwise and still be a theory concerning what humans ought to do. Evolutionary biology emphasizes our delicate and fleeting locale in natural history, our precarious ecological situation, and biology generally serves as a constant reminder of just how complex yet vulnerable human existence really is. So evolution must yield an added emphasis on human survival, simply because if we do not make survival our top priority our odds of persisting day to day as individuals, and as a species in the

medium term, are low. But Darwinian survival is a different ball of wax than mere biological survival, what with all the metaphysical baggage that it entails, and a moral theory based on Darwinian survival of the fittest must include all that baggage or else not be Darwinian. Mainly, and according to Kitcher (2011), that means survival under the control of instinct, in direct competition with one another (cooperation notwithstanding), including within and between groups, as if we humans were not much more sophisticated than much simpler organisms. Whereas Ruse argues that survival is necessarily instinctive Darwinian individualism, and Singer argues that survival is a matter of rational abstraction albeit somehow constrained by instinctive concern with tribalism, and so a collective problem of Darwinian group selection, Kitcher (2011) argues that survival ought to be instinctive as a matter of reliability, since our odds of survival are better if we follow our instincts, which amounts to arguing that survival is a matter of both individualistic and group selection. Compared to Singer's (1981/2011) rational collectivism, Kitcher's (2011) approach might seem more reliable (in that at least our instincts have a track record whereas moral abstractions do not); it is not clear that Kitcher's (2011) approach actually amounts to anything much different than Ruse's at bottom since group selection does not exist, but compared to survival on the basis of instinct under the control of human rationality (rather than merely under the control of the instinctive fear that moral conscience supposedly amounts to) Kitcher's (2011) approach must be less reliable. It is the sort of problem that might be cleared up if we could somehow run comparative experiments, but we cannot. Kitcher (2011) does not actually compare his moral theory (as a survival strategy) to rational self-discipline but only refers to pure practical reason as a spook. On the basis of common sense and normal human experience, it would seem a stretch of the imagination to believe that our survival does not benefit from our rationality, and of course rationality itself is also a major product of evolution which must therefore be biologically advantageous.

Perhaps Kitcher might agree with Nietzsche (1881/1982) or (1887/1956):

> How did rationality arrive in the world? Irrationally, as might be expected: by a chance accident. If we want to know what that chance accident was we shall have to guess it, as one guesses the answer to a riddle (1881/1982, p. 77); We need only recount some of our ancient forms

> of punishment: stoning . . . breaking on the wheel . . . piercing with stakes, drawing and quartering, trampling to death with horses, boiling in oil or wine . . . the popular flaying alive, cutting out of the flesh from the chest, smearing the victims with honey and leaving hum in the sun, a prey to flies. By such methods the individual was finally taught to remember five or six "I wont's" which entitled him to participate in the benefits of society; and indeed, with the aid of this sort of memory, people eventually "came to their senses." What an enormous price man had to pay for reason, seriousness, control over his emotions—those grand human prerogatives and cultural showpieces! How much blood and horror lies behind all "good things"! (1887/1956, pp. 193–194)

Human rationality considered simply as the capacity to absorb information and correctly draw inferences, taking instinctive information into consideration but not necessarily acting on it, is much more ancient than medieval Europe, and much more realistic a basis for morality than anything that could possibly be produced through torture. Rationality might also be regarded as a fine example of a biological trait that may not have arisen by chance but rather due to the purposive behavior of organisms, in successfully choosing to act upon the basis of intelligent inferences rather than instinctive impulses. Although Kitcher (2011) does not offer a full explanation for why he thinks a principle of rational discipline (virtue) is unreliable, of course allowing reason a role in evolution is tantamount to allowing organic purposiveness a role, which is the antithesis of Darwinism, while allowing rational control a function in the natural history of ethics renders Darwinism irrelevant.

Kitcher (2011) writes, "To obtain the level of social harmony enabling . . . limited society to emerge, classes of previously occurring altruism failures . . . had to be remedied. Expanding the circle does just that" (p. 237). But is it empirically plausible to argue that, on the one hand, ethics is instinctive and tribal and progresses by acquiring new desires through a process of natural/cultural selection, while arguing on the other hand that tribal conflicts are resolved by remedying altruism failures through expanding circles of inclusiveness? Is it plausible to suggest that tribal instincts are the foundation of human behavior, yet that without allowing rational control they can somehow be transformed into collective instincts? Singer's (1981/2011) argument, that tribal instincts are transformed into abstract tribal reasoning, at least allows for the possibility of an expanding circle (though his theory would be much stronger if he were to argue both that reason can simply override kin altruism and that group selection has nothing to do with it).

Kitcher's (2011) theory seems more contradictory—that tribal instincts alone can somehow yield nontribal behavior. Kitcher (2011) writes,

> Ethics must continue to promote social harmony. . . . Now it must do so on an expanded field of desires (p. 239); Ethical principles are also required to respond to conflicts within the individual's expanded repertoire of desires, and in this sphere, prescriptions for character development emerge. (p. 239)

Here again the group selection myth takes a rather heavy toll: instincts, as heritable traits, must be selfish or else disappear; group selection could only yield biologically altruistic "expanded desires" but they would have to be selfish desires even if group selection existed; even on the group selection myth it is not credible to suggest that biological altruism (which despite Kitcher's obfuscations is all that his real/human/admirable yet egoist altruism can amount to) can lower individual success (fitness) and persist as a heritable genetic trait; hence, an individual's "expanded repertoire of desires" (instincts in the absence of rational control) cannot yield "ethical principles" unless morality is defined as egoistic. Kitcher's (2011) argument, however, in defending group and cultural natural selection while apparently allowing for the possibility of human rational self-discipline, is not that ethics is necessarily egoist (which is the descriptive instinctivist position) but that ethics ought to be egoist (prescriptive instinctivism), since instinctive egoism will better facilitate our natural selection as individuals and groups. So we have a rather murky ethical theory in Kitcher (2011): instinctive tribal egoism can supposedly yield an expanding circle even though a truly expanding circle (beyond kin) would require reproductively selfless instincts which are impossible; we ought to be instinctively egoist in remedying altruism failures toward nonkin even though instincts as heritable cannot serve the interests of nonkin and to do so even up to that amount required by group altruism would pose an enormous (and therefore impossible) evolutionary risk; Kitcher's (2011) group instincts therefore cannot be considered highly reliable but rather self-destructive (which is why there is no innate genuine altruism or group selection in nature but only in theories); the only plausible explanation for expanding circles (societal growth) is that human rationality can simply override instinctive-genetic paranoia regarding nonkin and enable us to recognize that entering society is in our best interests.

Kitcher (2011) writes, " '. . . The authority is that of life'. My approach to the objection that naturalism loses the authority of ethics will endeavor to articulate what I take Dewey to have had in mind" (p. 264, footnote 13); "Pragmatic naturalism differs from previous attempts to link ethics to our evolutionary past. It does not propose to identify ethical properties in evolutionary terms, say, by equating what is good with what is adaptive" (p. 9). If life is the authority, and Darwinism governs life, and instinctive group altruism governs our actions, then how can the good be anything other than the adaptive? Kitcher's (2011) argument is a case for the rightness of actions which can facilitate natural selection, either as individuals or as groups, in constructing codes that amount to successful "experiments of living," which yet somehow supposedly can allow for expanding circles of inclusiveness. If our "progressive desires" can somehow become unmoored from natural selection and biological evolution and become rational desires, then just as with descriptive rationalism (if the supposed escalator of reason could only yield rational self-discipline) there would be no need to engage in an evolutionary explanation of ethics. If not, we need an analysis of when and how we gained unselfish, nonadaptive (biologically/evolutionarily) desires, how they must be transmitted culturally not genetically, how they must not amount to suicidal self-destructiveness like pure rational collectivism, and how these supposedly progressive desires can be regarded as plausible without being under the control of human rationality after all (and therefore not instinctive but deliberated desires, otherwise known as reasons). Since that is not Kitcher's (2011) approach (because rational not instinctive desires are not heritable traits, and so do not require a Darwinian explanation), his view seems to lead to equating the good with evolution, to another invalid ought-from-is inference. Kitcher (2011) would need rationality to unmoor desires from instincts in order to render plausible his arguments regarding how "new desires" and "expanding circles" lead to human morality, but his attempt to derive somewhat unselfish instincts from group selection which can then morph into some sort of societally concerned desires turned out by natural-cultural selection is even more misguided than Singer's (1981/2011) attempt to derive a smooth evolutionary transition from the supposedly somewhat unselfish instincts of group selection to tribally predisposed pure moral rationalism.

Human instincts cannot ever be biologically unselfish and still be instinctive (reproductively advantageous), and human rationality

cannot ever be necessarily predisposed toward tribalism and still be rational (free willed); therefore both Singer and Kitcher create confusion with their preoccupation with deriving unselfish instincts via the group selection myth, and in their negligence in not attending to the requirement that morality must include free will, and thereby praise and blame, in order to exist. Ruse at least recognizes and admits that a commitment to Darwinism renders morality impossible, and characterizes it as part of our general delusion of free will. Singer (1981/2011) believes that real free-willed morality exists, but his sociobiological derivation renders practical reason as tribalistically hobbled and so not fully free willed in having to struggle to expand our circles of inclusion (which is implausible and contradicts the essential meaning of practical "reason"), even while offering pure moral abstraction as the definition of ethical deliberation (which is also implausible in rejecting instinct altogether in assessing appropriate actions). Kitcher (2011) apparently does not believe that real free-willed morality is impossible, but just that since human social behavior has and continues to arise through natural-cultural selection, their does not appear to be any functional/practical role for rational self-discipline in this supposed natural process. Real free-willed morality can exist as a deliberate choice of individuals, but they would presumably weaken their tribes thereby. Kitcher (2011) renders ethics as an adaptive trait (as do Ruse and Singer), subject to Darwinian selection pressures at group and ultimately individual levels, but which does not amount to some sort of an illusion (as with Ruse), and which does not somehow morph from being a matter of instinctive behavior to being a matter of rational abstraction (as with Singer), because our supposedly progressive desires really are functional (in a Darwinian sense), and so should be adhered to without interference from human rationality. That must be what Kitcher's (2011) theory amounts to given his rejection of moral rationalism in favor of supposedly progressive human desires that must remain instinctive (if they are not the products of rational deliberation, and if they remain functional in natural selection).

Kitcher (2011) does not well explain his progressive desires, but Dewey (1939) writes:

> There is a contrast between the natural goods—those which appeal to immediate desire—and the moral good, that which is approved after reflection. But the difference is not absolute and inherent. The moral good is some natural good which is sustained and developed through consideration of it in its relations; the natural enjoyment which conflicts

> with the moral good is that which accompanies some desire which persists because it is allowed to sway action by itself, apart from the connections which reflection would bring to light (p. 770); But reflective attachment to the ends which reason presents is enormously increased when these ends have themselves been, on earlier occasions, natural goods enjoyed in the normal course of life (p. 771); . . . the most significant change that would issue from carrying over experimental method from physics to man concerns the status and import of standards, principles, rules. With the transfer, these, and all tenets and creeds about good and goods, would be recognized as hypotheses. (p. 791)

Dewey (1939) describes science as the final stage in the evolution of human thinking and as a matter of rational inference, recommends scientific reasoning for ethics, yet still believes that the "morally good" can be reduced to the "natural goods" of "immediate desire." Unless those goods are intentionally chosen this is the same category mistake that appears so often in the literature—the morally good must be praiseworthy, and so rationally and freely chosen, and so cannot be reduced to immediate desires, which are not praiseworthy or blameworthy unless they are rationally and freely (not impulsively) acted upon. Whereas Ruse's categorical error is in more or less recommending a Darwinian belief system as an approach to living successfully even while casting morality and free will as illusory (at least then our illusory moral beliefs will match the real supposedly Darwinian world), Singer commits the categorical error in casting instinctive group altruism as the root of morality (but at least practical reason supposedly struggles via its escalator in order to eventually yield actual morality); Kitcher commits the categorical error in also casting instinctive group altruism as the root of morality, but in his case apparently we should not try to transcend the group altruism instinct but rather we should adhere to our supposedly progressive yet still instinctive desires. Since Kitcher (2011) does not suggest with his appeal to "psychological pluralism" and "reliability" (p. 131) that our epistemological adherence to our supposedly progressive desires (which are ultimately instinctive since functional in Darwinian group selection and reliable on a biological reproduction basis) is necessary, in the sense of being a limitation of human cognition (in which case he would be a sentimentalist), we have to receive his theory as prescriptive instinctivism, for the sake of Darwinian success. Thus, since we are choosing to act on instinct generally, in principle, as a functional rule in the context of natural-cultural selection, this general instinctive rule of action would be a moral rule, in the sense that

we can praise or blame ourselves for choosing to adopt this rule as our moral epistemology.

Kitcher's (2011) combination of an appeal to "life" as the moral authority, with an appeal to instinctive desire as the most reliable cognitive method for deciding what to do, and his appeal to Darwinian competition, would seem to involve implications that Nietzsche more fully acknowledges. Gayon (1999) writes, "For Nietzsche, perspectivism was not only a characteristic of human knowledge but also a characteristic of all life, or, even more, 'the fundamental condition of all life'" (p. 191). Nietzsche (1887/1956) writes,

> To speak of right and wrong *per se* makes no sense at all. No act of violence, rape, exploitation, destruction, is intrinsically "unjust," since life itself is violent, rapacious, exploitative, and destructive and cannot be conceived otherwise. Even more disturbingly, we have to admit that from the biological point of view legal conditions are necessarily exceptional conditions, since they limit the radical life-will bent on power and must finally subserve, as means, life's collective purpose, which is to create greater power constellations. (p. 208)

Kitcher's (2011) pragmatic naturalism explicitly argues that social codes must serve Darwinian cultural competition; Darwinism dictates that individual conduct must serve reproductive competition. An especially satisfying element of Nietzsche's work is his sublime sensitivity to nature's brutality (in contrast to the avoidance of it by the sociobiologists), which makes him one of the most truly naturalist philosophers of significance: he (1881/1982, 1887/2001) writes,

> We have to learn to think differently—in order to last, perhaps very late on, to attain even more: to feel differently (1881/1982, p. 60); With morality the individual is instructed to be a function of the herd and to ascribe value to himself only as a function. Since the conditions for preserving one community have been very different from those of another community, there have been very different moralities; and in view of essential changes in herds and communities, states and societies that are yet to come, one can prophesy that there will yet be very divergent moralities. Morality is herd-instinct in the individual. (1887/2001, p. 115)

Whereas Kitcher's (2011) ideas seem similar with regard to new desires and morality, a major difference is Nietzsche's individualism, but Nietzsche was correct about that, in terms of how evolution works.

Nietzsche's "herd instinct" is Singer's and Kitcher's group altruism; humans do not manifest herds, of course, so there is no such thing as herd instinct in us, or group selection, but obviously there are group moralities. Since moral culture cannot be instinctive; however, it cannot be modified or improved upon by instinct either, but only by reason. Instincts and the desires that must be derived only from the instincts if we are to reject rationality as unreliable or dysfunctional are neither good nor bad in themselves but simply traits, which we actually can use toward whatever we decide is good or bad, including our own survival (or our own demise), as we see fit, because we actually can exercise rational self-discipline, after all. Survival is good, but instincts in the minds of rational creatures may or may not be employed to that end. Kitcher (2011), like Nietzsche, offers us but one general rule—to follow our instincts in order to function well in the context of evolution—and even though we might supposedly have progressive desires these are nonrational (on Kitcher's view) and therefore instinctive; hence, prescriptive instinctivism as a moral epistemology cannot be regarded as a type of prescriptive rationalism after all, on the basis of allowing that we can rationally decide what to do, but that we basically only have one choice to make, which is to obey our instincts, which without rational discipline may well "progress" due to natural selection but will lead to our behaving as if we were sentimentalists, though not necessarily but rather by choice.

Nietzsche (1887/2001) writes,

> There are enough people who could well entrust themselves to their inclinations with grace and without care, but who do not for fear of the imagined "evil essence" of nature! That is why there is so little nobility among human beings; its distinguishing feature has always been to have no fear of oneself, to expect nothing contemptible from oneself, to fly without misgivings wherever we're inclined—we free-born birds! And wherever we arrive, there will always be freedom and sunlight around us. (p. 167)

Note that Nietzsche is declaring that acting on instinct as a rule is noble or good, in opposition to the view (of the descriptive rationalists like Kant) that acting on instinct is evil. Instincts are in themselves neither morally good nor evil unless and until they have been freely chosen as the basis for actions; they can also be regarded as nonmorally good or as natural virtues in that they help us to survive like the senses. But just as it would not make much sense to suggest that it is morally good to

act on the senses, as a rule, for surely we must decide what to do with the information they provide, similarly it does not make much sense to suggest that it is morally good to act on the instincts as a rule, for surely we must decide what to do with the information they provide. To intentionally ignore our rationality, in favor of the instincts, as a rule, or to intentionally ignore our instincts, in favor of our rationality, as a rule, are both obviously impractical. Both the descriptive rationalist attempt to define morality as purely rational—to equate reason with the good—and the prescriptive instinctivist attempt to cast instinct as more reliable—to equate instinct with the good—are mistaken. Whereas descriptive rationalism cannot be a practical choice of moral epistemology in the context of evolution simply for being too abstract, prescriptive instinctivism cannot be a practical choice of moral epistemology either, simply for being too bestial.

Nietzsche refers to entrusting ourselves—why then does he not allow rationality a role in such trust? He (1881/1982) writes,

> Everywhere today the goal of morality is defined in approximately the following way: it is the preservation and advancement of mankind; but this definition is an expression of the desire for a formula, and nothing more. Preservation of what? is the question one immediately has to ask. Advancement to what? Is the essential thing—the answer to this of what? and to what?—not precisely what is left out of the formula? So what, then, can it contribute to any teaching of what our duty is that is not already, if tacitly and thoughtlessly, regarded in advance as fixed? Can one deduce from it with certainty whether what is to be kept in view is the longest possible existence of mankind? Or the greatest possible deanimalisation of mankind? How different the means, that is to say the practical morality, would have to be in these two cases? Suppose one wanted to bestow on mankind the highest degree of rationality possible to it: this would certainly not guarantee it the longest period of duration to it! Or suppose one conceived that attainment of mankind's "highest happiness" as being the to what and of what of morality: would one mean the highest degree of happiness that individual men could gradually attain to? Or a—necessarily incalculable—average-happiness which could finally be attained by all? And why should the way to that have to be morality? Has morality not, broadly speaking, opened up such an abundance of sources of displeasure that one could say, rather, that with every refinement of morals mankind has hitherto become more discontented with himself, his neighbour and the lot of his existence? Did the hitherto most moral man not entertain the belief that the only justified condition of mankind in the face of morality was the profoundest misery? (pp. 61–62)

Like so many evo-ethicists Nietzsche has an axe to grind with religion, but perhaps he is here referring to Kant and may be recognizing the dangers of pure moral rationalism in the context of evolution. We might want to thank Nietzsche if only he were to not offer an even more evolutionarily self-destructive moral epistemology than Kant. Human rationality is like a genie out of its bottle that simply cannot be put back into its original place, under the control of instinct. That would seem like an even surer recipe for anguish than either pretending that our capacity for rational free will and morality is an illusion, or trying to completely ignore the instincts in favor of rational abstractions (and it is flourishing that we are aiming for in ethics, after all).

Huxley (1943/1969) writes,

> If desirable direction of evolution provides the most comprehensive (though also the least specific) external standard for our ethics, then one very important corollary at once follows: namely that social organization should be planned, not to prevent change, nor merely to permit it, but to encourage it. (p. 126)

If "life" is the measure of the good, and "life" is Darwinian, and ethics is a matter of cultural competition, then pragmatic naturalism amounts to believing that evolution should be allowed to proceed unhindered, according to Darwinian metaphysical principles (hence we should adhere to our "progressive desires" rather than rational self-discipline). Huxley (1943/1969) writes,

> It is clear that social ethics manifests evolution. Human codes of morality change, adapt, become diversified, exhibit long-term trends, whether of specialization, regression, or true progress. The function of social ethics is, in biological terminology, phylogenetic, helping society to persist, to reproduce itself, and in some cases to change and to advance. (p. 199)

This is tribal-scale survival of the fittest, or "cultural success" as Kitcher (2011) puts it (p. 131). The group selection myth not merely supports tribalism; it is tribalism, in the form of academic scholarship, and although it claims empiricism as its basis, that is mistaken. There is no empirical evidence of evolved tribal instinct, because there is no evidence for evolved group selection and group altruism. Believing in a biological basis for tribalism requires faith in the manner of believing in a myth or religion, and it does apparently have proselytizers at the heights of academia.

Spencer (1892) writes,

> At the very outset, life is maintained by persistence in acts which conduce to it, and desistence from acts which impede it; and whenever sentiency makes its appearance as an accompaniment, its forms must be such that in the one case the produced feeling is of a kind that will be sought—pleasure, and in the other case is of a kind that will be shunned—pain (p. 79); In two ways then, it is demonstrable that there exists a primordial connexion between pleasure-giving acts and continuance or increase of life, and, by implication, between pain-giving acts and decrease or loss of life (p. 82); If we call the enjoyable state itself, as a good laugh—if we call good the proximate cause of an enjoyable state, as good music—if we call good any agent which conduces immediately or remotely to an enjoyable state, as a good shop, a good teacher—if we call good considered intrinsically, each act so adjusted to its end as to further self-preservation and that surplus of enjoyment which makes self-preservation desirable—if we call good every kind of conduct which aids the lives of others, and do this under the belief that life brings more happiness than misery; then it becomes undeniable that, taking into account immediate and remote effects on all persons, the good is universally the pleasurable. (p. 30)

If the good is pleasure, and we ought follow our desires by disallowing the influence of rationality, then self-preservation follows but aiding nonkin cannot. For pleasures and pains reduce to heritable traits and are not possibly concerned with aiding the lives of others unless they are of close genetic relation. Kitcher (2011) writes, "The good is local . . . and it evolves" (p. 288); " . . . egalitarianism must be combined with secularism . . . " (p. 395); "Pragmatic naturalism does not suppose that the pacifist project of working to eliminate war is unrealistic . . . " (p. 395). However, like Spencer (1892), Kitcher (2011) would leave us impotent against tribalism, despite his efforts to suggest otherwise: the good is local in helping groups in their struggles to be naturally culturally selected; thus groups must compete; mutual engagement without rationally deliberated noninstinctive desires (reason) can be at best group restricted; but there was never any equality in hominid tribes, and so no habitual group justification by tribal leaders or anyone else, and so no instinctive internalization of rule giving, and so no inward fear amounting to "conscience"; as such human instincts including supposed progressive desires are not the slightest bit concerned with or related to or based in egalitarianism or altruistic inclusiveness but

strictly with individual survival and reproductive success. These are the obvious implications of evolutionary biology, which surely require our faculties of reason for moderation.

Kitcher (2011) writes,

> [Nietzsche] turns out to be an . . . ally of the pragmatic naturalist project. . . . Nietzsche wants to use history in the interests of reform. . . . That is entirely in accord with pragmatic naturalism . . . (p. 277, footnote 27); . . . a Nietzschean persona, the "free spirit" . . . . He asks why he should care about the specific recommendations emerging from those transitions pragmatic naturalism counts as progressive. His question is best met with another: what alternative does he have in mind? (p. 277); Until we are given some description of an alternative . . . our choices are confined to the human, the ethically guided, life. (p. 278)

While we might regard Nietzsche as a poet, and not take his arguments literally, his appreciation of nature warrants serious consideration: he does offer reform, and he does suggest an alternative, of sorts that Kitcher's (2011) arguments actually imply in contending that cultural Darwinism is good and that natural desires are right. Nietzsche (1887/1956) writes,

> The judgment good does not originate with those to whom the good has been done. Rather it was the "good" themselves, that is to say the noble, mighty, highly placed, and high-minded who decreed themselves and their actions to be good, i.e., belonging to the highest rank, in contradistinction to all that was base, low-minded and plebeian (p. 160); Such an origin would suggest that there is no *a priori* necessity for associating the word good with altruistic deeds, as those psychologists are fond of claiming. In fact, it is only after aristocratic values have begun to decline that the egotism-altruism dichotomy takes possession of the human conscience; to use my own terms, it is the herd instinct that now asserts itself. (p. 160)

Nietzsche's genealogy is more plausible than Kitcher's: the notion of early equality is fantastic, and the notion of group altruism is impossible. Kitcher's (2011) progressive desires nearly amount to natural virtues, for they are themselves not moral, as instincts, although they become moral in our deciding to obey them. This could not fairly be characterized as moral virtue, though, since the moral virtues have generally to do with the wielding of specific instincts in specific ways

in particular situations, not with such a general rule as, Obey your instincts! Nietzsche (1881/1982, 1887/2001) writes:

> The beginnings of justice, as of prudence, moderation, bravery—in short all we designate as the Socratic virtues, are animal: a consequence of that drive which teaches us to seek food and elude enemies. Now if we consider that even the highest human being has only become more elevated and subtle in the nature of his food and in his conception of what is inimical to him, it is not improper to describe the entire phenomenon of morality as animal (1881/1982, p. 21); Our visible moral qualities, and especially those that we believe to be visible, take their course; and the invisible ones, which have the same names but are neither ornaments nor weapons with regard to others, also take their course: probably a totally different one, with lines and subtleties and sculptures that might amuse a god with a divine microscope. For example, we have our diligence, our ambition, our acuteness—all the world knows about them—and in addition, we probably have our industry, our ambition, our acuteness; but for these reptile scales, no microscope has yet been invented! At this point the friends of instinctive morality will say: 'Bravo! At least he considers unconscious virtues to be possible – and that's enough for us'. Oh, how little you are satisfied with! (1887/2001, p. 35); If the preserving alliance of the instincts were not so much more powerful, if it did not serve on the whole as a regulator, humanity would have to perish with open eyes of its misjudging and its fantasizing, of its lack of thoroughness and its incredulity—in short, of its consciousness; or rather, without the instincts, humanity would long have ceased to exist! (1887/2001, p. 37)

It cannot be correct to regard moral virtues as unconscious, or instinctive, since morality requires choice, and choice of the fully aware and conscious kind (or else the term "choice" need not apply), so the concept of "unconscious virtues" is every bit as much an oxymoron as group selection (and another instance of the categorical error of casting unchosen instincts as morally right or good). Perhaps Nietzsche means to refer to our subconscious virtues only as natural virtues unto themselves, unless and until we have chosen to obey them, at which point they can be regarded as moral virtues, at least in the sense that at that point we can praise or blame acting on their basis. In any case, Nietzsche's moral epistemology, as prescriptive instinctivism, is clearly not Aristotelian virtue theory, in generally prescribing obeying our instincts as a rule rather than developing wisdom, expertise, and character in order to apply the instincts appropriately. Lennox (1999) writes,

> Clearly, for us, unqualified virtue of character requires some connection to human reason. And yet Aristotle regularly characterizes the

> animals with natural virtues as practically intelligent and skilled thinkers. . . . How, then, can he ascribe both natural virtue and practical intelligence to other animals and yet deny to them the unqualified virtue that comes to us when we have both? The answer, supported by Aristotle's account of animal character in *HA* VII-VIII, lies in the independence of the cognitive capacities and character traits in other animals, and this in the fact that animals act 'in character' without deliberative choice. The other animals do not need to integrate practical intelligence with natural virtues to achieve excellence of character—in humans, however, it is this very integration that is the essence of both practical intelligence and virtuous character. (pp. 12–13)

We surely can act on instinct if we want to, and sometimes we should; where would it lead if we were to adopt acting always on instinct as a principle of conduct, precisely for the sake of evolutionary success? Kitcher (2011) offers reassuring words about ending war and expanding circles and increasing equality, but in the absence of a better explanation of how instinctive desires obeyed on principle can possibly yield unselfish behavior, Nietzsche (1887/1956, 1887/2001) describes more realistic and empirically defensible ideas:

> The noble lives before his own conscience with confidence and frankness. . . . Among the noble, mental acuteness always tends slightly to suggest luxury and overrefinement. The fact is that with them it is much less important than is the perfect functioning of the ruling, unconscious instincts or even a certain temerity to follow sudden impulses, court danger, or indulge spurts of violent rage, love, worship, gratitude, or vengeance (1887/1956, pp. 172–173); Once abroad in the wilderness, they revel in the freedom from social constraint and compensate for their long confinement in the quietude of their own community. They revert to the innocence of wild animals: we can imagine them returning from an orgy of murder, arson, rape, and torture, jubilant and at peace with themselves as though they had committed a fraternity prank—convinced, moreover, that the poets for a long time to come will have something to sing about and to praise. Deep within these noble races there lurks the beast of prey, bent on spoil and conquest. This hidden urge has to be satisfied from time to time, the beast let loose in the wilderness (1887/1956, p. 174); If it were true, as passes current nowadays, that the real meaning of culture resides in its power to domesticate man's savage instincts, then we might be justified in viewing all those rancorous machinations by which the noble tribes, and their ideals, have been laid low as the true instruments of culture. But this would still not amount to saying that the organizers themselves represent culture. Rather, the exact opposite would be true, as is vividly shown by the current state of affairs.

> These carriers of the leveling and retributive instincts, these descendants of every European and extra-European slave-dom, and especially of the pre-Aryan populations, represent human retrogression most flagrantly (1887/1956, pp. 175–176); Where lie your greatest dangers?—In compassion. (1887/2001, p. 152)

These are more genuine implications of acting on instinct, in principle, than those offered by Kitcher (2011). Human instincts are savage, or else we would not be here to reflect upon them. It is difficult to surmise what motivates Nietzsche to argue as he does; but he (1881/1982) offers a clue: "'Contradiction moves the world, all things contradict themselves' . . . " (p. 4). In Kitcher's (2011) case, while he may put himself at ease with his arguments regarding progressive instinctive desires, that may not be realistic.

§ 3—Epistemology

Kitcher (2011) writes, "The ethical project is not simply the unfolding of previously existent altruistic tendencies. . . . Ethical practice involves . . . juxtaposing desires you recognize as part of you and other desires you would prefer to move you to action" (p. 10). However, nowhere does Kitcher (2011) offer an account for how or what exactly these supposedly progressive moral desires are other than instinct: they arise as behavioral traits for group altruism, morph into instinctive tribal conscience, are expressed in group social codes, and must persist or perish as conducive to reproductive success in Darwinian group and cultural selection. If he has in mind some sort of ontologically distinct (from biological evolution) evolving "desire" akin to Singer's (1981/2011) evolving "reason" he does not make that clear. On the contrary, Kitcher (2011) writes, "[Altruists] modify their desires . . . " (p. 31); "The acquisition of a capacity for normative guidance . . . does not mark the transition to the 'ethical point of view'" (p. 80); "To insist on an 'ethical point of view' liberated from such emotions is to reserve that point of view for a very small number of cool secularists" (p. 80). Here again we encounter the toll of the group selection myth: Kitcher's (2011) entire argument depends on the existence of implausible, supposedly somewhat less selfish "desires" of group altruism, as if, even if that were successful, that would suffice for rendering a sociobiological derivation of human morality tenable, even though we would also require an explanation for how even these supposedly somewhat less selfish instincts can be

regarded as free willed, if the so-called morality to be derived is actually morality and not actually the denial of morality.

Kitcher (2003) remarks: "... it is surprising that so few instances of reciprocity (human excluded) have been satisfactorily documented. The most likely cases seem to be food sharing in vampire bats and coalition formation in baboons..." (p. 191, endnote 13). However, if by "reciprocity" Kitcher (2003) means reproductive selflessness, then it is not surprising that so few instances have been documented because reproductively selfless genetic behavioral traits are impossible, whereas if by "reciprocity" Kitcher (2003) means reproductively selfish cooperation then it is not unusual at all, and occurs both within and even between species. Kitcher's (2003) writes: "... we performed a number of computational simulations of populations of players who participate in the iterated Prisoner's Dilemma by following inherited strategies" (p. 202). Biologists generally formulate hypotheses on the basis of observations of actual living things, not computer simulations; Dennett (1995) writes, "This is a branch of sociobiology or evolutionary ethics that no one should deride" (p. 480), but adds, "... the results of such simulations can be misleading, and should often be taken with a grain of salt" (p. 480, footnote 9). In order to construct a biologically credible sociobiological derivation of ethics that we can believe to be "possible," as Kitcher (2011) repeatedly claims (pp. 11, 12, 90, 91, 100, 106, 128, 130, 137, 239, 389), much observational evidence would be required, which, at least to get started, should be of actual living species that unambiguously demonstrate at least the possibility of group selection, by manifesting altruistic behaviors that somehow translate into reduced reproductive success for the individuals performing them for the sake of the reproductive success of nonrelatives within their groups, or for the sake of the reproductive success of the groups themselves (whatever that might mean in the absence of some identifiable method for the group to reproduce—if the group could reproduce it would be an organism after all and not a group). Such evidence would at least justify the preoccupation that some sociobiologists demonstrate with establishing the possibility and existence of somewhat less individualistically selfish behavior, but such evidence is impossible, simply because cooperative behaviors either with kin or beyond kin must be reproductively advantageous for the individuals performing them or the behaviors cannot persist as heritable traits. Instinctive behavior must necessarily be selfish, or else not be instinctive. In order to prove

group selection exists we would need to record the required strategies occurring among populations featuring groups of unrelated individuals (that are somehow composed of multiple families and lineages, although how or whether such groups could persist long enough to function as units of selection would seem problematic) and in arational species such as insects, since if group selection is evolutionarily possible then instinctive behavior alone must suffice—if it depends on rationality there would be no basis for thinking it is an inherited trait but rather a by-product of high intelligence.

Kitcher does not offer such evidence (and nobody ever will because heritable genetic traits must be reproductively selfish) and therefore his moral theory seems based at least somewhat on faith not science (as do sociobiology and Darwinism in general). Kitcher's (2011) theory of ethics reduces to instinctive desires, but efforts to establish an evolutionary genealogy for group-oriented instincts are futile because reproductively selfless group instincts are impossible unless they increase individual success, in which case there is no point in referring to them as group instincts. Kitcher's (2011) theory reduces to prescribed instinctive selfishness, and the supposedly somewhat moderated selfishness due to the pressures of group selection is simply fantastic. At least, if we were to indulge the fantasy of slightly moderated instinctive selfishness that Kitcher (2011) offers, since he apparently has us acting on instinct prescriptively, not descriptively, we are not necessarily acting selfishly and so are presumably free willed, and so Kitcher's (2011) theory is not a denial of the existence of morality (as with Ruse and the sentimentalists) but rather a denial that morality is functional in the context of Darwinian group selection (since if morality were functional we could engage in making rational choices subject to praise and blame routinely, rather than merely making one rational choice to not act on the basis of rational self-discipline). So, like Nietzsche, the general idea at bottom is apparently that, though we could, we ought not, be moral.

Kitcher (2011) allows that we can engage in rational deliberation, strategizing, and reflection (pp. 136, 332), rule following (pp. 222, 247), diagnosing, deliberation, judgments, and principles (pp. 259, 332), maxims situationally applied (p. 331), and that his pragmatic naturalism is compatible with reflective equilibrium (p. 257), stating that, "...we should anticipate that a global exploration would yield improved functioning—and hence view the method of reflective equilibrium as reliable..." (p. 335)). Kitcher (2011) argues against ethical expertise in the form of theories (p. 8) or a special point of view (p. 207),

yet acknowledges the practicality of "realms" of expertise (p. 378, and, "... the totality of what we know is so hard to survey ... and may well require ... scholars attuned to different realms of expertise" (p. 410). But Kitcher (2011) seems willing to offer suggestions that are persuasive and appealing regardless of whether they render his theory confusing: if reason is less reliable than instinct in the process of Darwinian natural and cultural selection, should reflective equilibrium reduce to instinctive equilibrium? Scholars—their expertise should amount to what—emotional attunement to the demands of cultural competition? Kitcher (1985) writes,

> The evolution of enhanced cognitive capacities would seem to call for an ability ... to interfere with mechanisms of behavior already favored by selection and thus to use the increased cognitive abilities in helping us to cope better with our environments (p. 207); ... in the course of the evolution of the human brain, tasks once performed by other mechanisms may be taken over by the cognitive system, leaving the older mechanisms to wither and disappear. (p. 207)

These seem like arguments for the possibility of rational self-discipline of the instincts. Since Kitcher (2011) invokes Dewey, might we find some clarification there? Dewey (1939) writes, "As Plato and Aristotle said over two thousand years ago, the aim of moral education is to develop a character which finds pleasure in right objects and pain in wrong ends" (p. 771). Surely, this must be part of an admission of the human potential for rational control of the instincts.

Dewey (1939) writes,

> Habits as organized activities are secondary and acquired, not native and original. They are outgrowths of unlearned activities which are part of man's endowment at birth (p. 736); Instinctive reactions are sometimes too intense to be woven into a smooth pattern of habits. Under ordinary circumstances they appear to be tamed to obey their master, custom. But extraordinary crises release them and they show by wild violent energy how superficial is the control of routine. The saying that civilization is only skin deep, that a savage beast persists beneath the clothes of a civilized man, is the common acknowledgment of this fact (p. 741); Instead of constantly utilizing unused impulse to effect continuous reconstruction, we have waited till an accumulation of stresses suddenly breaks through the dikes of custom (p. 742); Suppression is not annihilation. "Pyschic" energy is no more capable of being abolished than the forms we recognize as physical. If it is neither exploded nor converted it is turned inwards, to lead a surreptitious, subterranean life (p. 748); The

> wholesome and saving force of intellectual freedom, open confrontation, publicity, now has the stamp of scientific sanction. The evil of checking impulses is not that they are checked. Without inhibition there is no instigation of imagination, no redirection into more discriminated and comprehensive activities. The evil resides in a refusal of direct attention which forces the impulse into disguise and concealment, until it enacts its own unavowed uneasy private life subject to no inspection and no control. (pp. 749–750)

These are all notions that might be construed as compatible with Plato and Aristotle and a rational principle of self-control. However, Dewey (1939) also writes:

> But reasonableness is in fact a quality of an effective relationship among desires rather than a thing opposed to desire. It signifies the order, perspective, proportion which is achieved, during deliberation, out of a diversity of earlier incompatible preferences. Choice is reasonable when it induces us to act reasonably; that is, with regard to the claims of each of the competing habits and impulses (p. 758); More "passions," not fewer, is the answer (p. 759); "Reason" as a noun signifies the happy cooperation of a multitude of dispositions, such as sympathy, curiosity, exploration, experimentation, frankness, pursuit (to follow things through), circumspection (to look about at the context) (p. 759); Impulse is primary and intelligence is secondary and in some sense derivative. There should be no blinking of this fact. But recognition of it as a fact exalts intelligence. For thought is not the slave of impulse to do its bidding (p. 760); What intelligence has to do in the service of impulse is to act not as its obedient servant but as its clarifier and liberator. (p. 760)

Nietzsche (1887/1956, 1887/2001) aptly characterizes the full implications of such principled instinctivism; Dewey's (1939) invocation of Plato and Aristotle seems disingenuous given these remarks; like pure moral rationalism this is a simply impractical moral epistemology. Certainly we need our instincts, but of course we need to employ them rationally, or else we ought not behave differently than the other animals, which cannot plausibly be conducive to human flourishing. While the contrast between descriptive instinctivism and descriptive rationalism is of depravity versus fantasy, the contrast between prescriptive instinctivism and prescriptive rationalism is of debauchery versus sobriety. It seems fair to wonder how any reflective thinker on these matters could take seriously the idea that unbridled instinct is a practical method of moral epistemology. Can anyone honestly believe that

undisciplined instinct is more reliable (in the context of evolution) than rational self-discipline? Is it even possible for us to only employ our rationality as a mere "liberator" of instinct? Is it not absurd to suggest that a regression to a more primitive state of nature could possibly be better for humanity?

Spencer (1892) writes,

> From the earliest times groups of men whose feelings and conceptions were congruous with the conditions they lived under, must, other things equal, have spread and replaced those whose feelings and conceptions were incongruous with their conditions. Recognizing a few exceptions, which special circumstances have made possible, it holds, both of rude tribes and of civilized societies, that they have had continually to carry on external self-defense and internal cooperation—external antagonism and internal friendship. Hence their members have required two different sets of sentiments and ideas, adjusted to these two kinds of activity. (pp. 322–323)

These notions seem quite consistent with Kitcher (2011); the tradition and regularity of these arguments, with such a determined effort to incorporate the biological sciences into an empirically empty ideology, is rather suggestive of a cult (and perhaps a very ancient, even paleolithic one—the cult of the tribe). Nietzsche (1886/1955) writes, "... reading between the lines of the philosophers for a long time, I find that I must tell myself the following: the largest part of conscious thinking must be considered an instinctual activity, even in the case of philosophical thinking" (p. 3). Might we have encountered here, in the offerings of sociobiologists, evidence for taking this seriously (these would be kin-selective instincts, culturally exploited, perhaps both consciously and even unconsciously, if we were to indulge Nietzsche's suggestion)?

Nietzsche (1887/2001) remarks:

> Consciousness gives rise to countless mistakes that lead an animal or human being to perish sooner than necessary... (p. 37); ... a person's virtues are called good with respect to their presumed effects not on him but on us and society—the praise of virtues has always been far from 'selfless', far from 'unegoistic'! For otherwise one would have had to recognize that the virtues (such as diligence, obedience, chastity, piety, justice) are mostly harmful to their possessors, being drives which dominate them all too violently and covetously and in no way let reason keep them in balance with the other drives. When you have a virtue—a real, complete virtue (and not just a small drive toward some virtue)—you are

> its victim! (p. 43); Those moralists who command man first and above all to gain control of himself thereby afflict him with a peculiar disease, namely, a constant irritability at all natural stirrings and inclinations and as it were a kind of itch. (p. 173)

These are not practical suggestions, unless we are to believe that we humans have nothing on the beasts, which is of course absurd. Nietzsche (1887/1956) remarks:

> This fully emancipated man, master of his will, who dares make promises—how should he not be aware of his superiority over those who are unable to stand security for themselves? (p. 191); What shall he call that dominant instinct, provided he ever feels impelled to give it a name? Surely he will call it his conscience. (pp. 191–192)

Human beings who allow themselves to be dominated by their instincts as a normative principle can generally expect to call themselves dead, since it seems quite unlikely that such a behavioral strategy can be successful, or be tolerated, while coexisting among a species with a capacity for rational conduct.

Nietzsche (1881/1982):

> While 'we' believe we are complaining about the vehemence of a drive, at bottom it is one drive which is complaining about another; that is to say: for us to become aware that we are suffering from the vehemence of a drive presupposes the existence of another equally vehement or even more vehement drive, and that a struggle is in prospect in which our intellect is going to have to take sides. (pp. 64–65)

These remarks suggest that, at bottom, prescriptive instinctivism may reduce to descriptive, in the sense that it is neither practical nor even plausible that we actually could simply choose to ignore reason as a rule in order to always act on instinct. Although prescriptive instinctivists argue that we ought to obey our instincts as rule, perhaps that just amounts to insincere window dressing on the sentimentalist point of view. For, if at least some people have a capacity for rational self-discipline, which certainly seems to be the case, the only plausible scenario and perhaps the only excuse they could have for failing to employ it would be if they were struck though with a debilitating fear (perhaps of nature itself) or with some other instinct, such that their instinctive actions were not actually chosen but rather compelled (and thereby

immoral, since not freely chosen). Sentimentalists (descriptive instinctivists) contend that we are always, necessarily so compelled, while the prescriptive instinctivists suggest that we are not: if we are not compelled to act on instinct, we need a much more compelling case for why rationality either can or ought to be ignored.

CHAPTER 6

Prescriptive Rationalism

There are only the four epistemological combinations of reason and instinct to assess, and since descriptive instinctivism (sentimentalism), descriptive (pure moral) rationalism, and prescriptive (principled) instinctivism are each implausible in the context of evolution, we are left with prescriptive rationalism (virtue). Evolution implies that we must be adaptive regarding new information and changing conditions, if we wish to persist as a kind. Even that amounts to an ethically significant inference (an ought from an is), but one that seems well warranted by the natural sciences. Since (barring self-destructiveness) the primary challenges to our ongoing existence as individuals and as a species are generally without, not within, our mode of cognition, we are warranted in adopting a commonsense moral epistemology. That is, rather than try to define morality by equating it with either instinct or reason, or adhere to metaphysical theories asserting that we are not free willed, why not simply accept the commonalities and necessities of human experience as they are as a source of objectivity? In that sense we might gain by incorporating an element of empirical method (as well as empirical findings) into ethics. That would mean accepting the instincts as powerful sources of information about our needs and scenarios as well as accepting reason as a powerful capacity for processing information (including from our own bodies). We might agree that being concerned with what is good for us is in itself objective, in that being concerned with flourishing would seem a necessary principle of ethics. But the specific ends which we pursue in our own best interests are not objective, since the conditions of our existence are in flux, so we must be prepared to incorporate information as we gather it, modify our opinions, and adjust our behavior accordingly.

Given an intent to flourish, and given what we know from biology, rational character is not the most practical but the only practical moral epistemology. The moral virtues only make sense conceptually when regarded as character traits, developed through practice with exercising rational control of innate predispositions, to the point that appropriate actions are habitual and even intuitively arational or automatic. As such, the virtues are behavioral ideals for cognitively sophisticated creatures only, and cannot be even possible in creatures that are incapable of rationally referring to instinctive information as they would to sensory information, in making decisions about what to do. As far as we know, on this planet only humans can do that. There are several sociobiologists who argue that a moral epistemology of virtue is implied by evolution, but in their formulations instinctive behavior is declared morally virtuous, such that Aristotle's virtue theory is referred to as a source and inspiration even though Humean sentimentalism is what they actually defend. This kind of sociobiology can be characterized as Darwinian virtue theory, and it also presents all the confusion that must necessarily be involved in any attempt to reconcile the materialist-determinist theory of evolution with the existence of morality. A contemporary interpretation of virtue theory that merely prescribes and develops the implications of being biologically informed, including with regard to evolution and the nature of our own instincts, rather than casting moral virtues as instinctive biological traits produced by evolution, meets with no objection in common sense (since we generally find ourselves quite capable of understanding and being able to control our instincts with rational self-discipline, and so require a biologically informed interpretation of virtue theory that prescribes the development of good character). Unfortunately, the Darwinian virtue theories do conflict with common sense, most basically because instinctive traits are not unto themselves free willed, and so are not possibly moral unless intentionally rather than impulsively acted upon, and so cannot be regarded simply as moral virtues.

Boehm (2012) writes,

> Having a conscience is all about personally identifying with community values. . . . You must . . . connect with these rules emotionally. You must do this in a positive way that makes you . . . moralistically proud when you live up to them. This last can be considered a modern definition of virtue. (pp. 113–114)

However, for Boehm (2012) the "community values" are products of Darwinian group selection, so in feeling proud of adhering to such

group rules becoming virtuous is reduced to instinctive emotional assimilation and stripped of rational deliberation. Clearly, we are quite capable of being in a state of disagreement with our own group's values, but on this definition moral virtue involves ignoring reason and/or being incapable of rational self-discipline, in fitting in and belonging among our groups. In this case, actually being moral may well require rationally discerned right actions that are wrong actions with regard to the pursuit of (mythological) group selection (as appears to be the case with Kitcher's pragmatic naturalism). Boehm (2012) is Darwinian: "... the idea of natural environments favoring some variants and selecting against others works just as well in the early twenty-first century as it did in the mid-nineteenth.... The simplicity and explanatory power of the theory are awesome" (p. 3). Darwin's theory has never worked very well empirically, and if awesome, only for the passion and number of adherents. Darwinism involves metaphysical commitments that are inherently incompatible with the existence of ethics: simply working into an already misguided characterization of supposedly innate morality the concept of virtue cannot yield anything meaningfully virtuous, since innate (or natural) "virtues" do not involve free will and rational decisions subject to praise and blame (whereas moral virtues do). Boehm (2012) writes, "... he [Darwin] clearly thought that our conscience and moral sense were as "naturally selected" as our large brains, our upright posture, and our general capacity for culture" (p. 6), but Boehm (2012) offers no mention of Darwin's (1874/1936) definition of morality as a product of rational control (see chapter 3, section 3).

Boehm (2012) writes,

> In biological terms... when we speak of altruism, we're speaking of biological tendencies that dispose people to give more than they receive in terms of acts that reduce relative fitness. Even if all of the underlying genetic selection explanations are not yet fully developed, the tangible behaviors are obvious enough. People predictably open their veins to anonymously give blood or open their wallets to help starving children in developing countries. (pp. 9–10)

In biological terms, biological altruism refers to heritable behavioral traits that cannot reduce but must increase fitness (genetic propagation); moral altruism refers to human free-willed self-sacrifice that cannot involve genetically determined behavior because genetically sacrificial behavior cannot persist in the process of evolution. Therefore, moral altruism must be a product of rational self-control, and innate morality

must be an oxymoron. Boehm (2012) also offers a highly speculative natural history:

> Free riders were designed (by evolutionary processes) to exploit altruists and thereby disadvantage their genes. . . . When we bring in the conscience as a highly sophisticated means of channeling behavioral tendencies . . . this scenario changes radically (p. 310); Genes that made for bullying free riding could have been useful because they were providing a useful competitive drive, whereas genes that made for altruism could have been useful because altruism was being compensated by reputational benefits and by other compensatory mechanisms . . . (p. 310); From within the human psyche an evolutionary conscience provided the needed self-restraint, while externally it was group sanctioning that largely took care of the dominators and cheaters. (p. 311)

Boehm (2012) contends that the supposedly somewhat less selfish, somewhat more cooperative genes responsible for early ethics involve the manifestation of an evolved conscience that yields self-control of individuals within groups, and that group selection dynamics eliminates individuals without a conscience. But this is not morally relevant altruism but just genetic traits that are reproductively advantageous group behavior facilitators, or genes for social behavior in other words, which in order to have arisen must ultimately be even more reproductively selfish than the less social innate behavioral traits they replaced. They are prevalent among organic species, and have nothing to do with morality and do not require a morally relevant conscience. Would we characterize ants as having a "conscience"?

Boehm (2012) writes,

> Socially, it was this charitable "inner voice" that kept us from getting in trouble with our fellows, Darwin told us, and he wanted badly to explain its evolutionary origin. But all he could tell his readers was that gaining a conscience and hence a sense of morality was, in effect, an inevitable outcome if a species became sufficiently smart and socially sympathetic to reach the human level. Unfortunately, this gave our uniquely human conscience the evolutionary appearance of being a mere byproduct, a side effect of intelligence and sympathy. This is a position I think we can vastly improve upon with present knowledge. (p. 7)

However, any attempt to explain moral conscience as a product of group selection and as a heritable trait offers not an improvement but a naive

contradiction, in suggesting that a necessarily selfish (even in the context of group selection) heritable trait can possibly amount to an ability to freely deliberate and choose our own actions (which is what a morally relevant conscience entails). It also amounts to another confusing attempt to redefine ethics as a wholly empirical rather than normative subject, in implying that genuine morality does not exist while nevertheless employing the standard terminology of ethics. Boehm's (2012) examples of genuine human generosity cannot possibly be based on heritable genetic traits; an evolved conscience, as a heritable trait, cannot be moral; if Darwinism dictates how we necessarily behave then ethics does not exist; sociobiological attempts to redefine the terms of ethical discourse contradict the autonomy of ethics as a subject.

Boehm (2012) writes,

> We must look to natural selection processes that came to favor individuals who had the advantage . . . of controlling their own aggressions, for that is the one very basic job that an evolutionary conscience does (p. 130); . . . a flexible conscience allowed people to adjust their adherence to moral rules to the situations they faced . . . (p. 277); Our "parliament" of competing instincts was being mediated by an evolutionary conscience . . . (p. 291); We had both a sense of virtue and a sense of shameful culpitude. . . . We were a people who in important ways had conquered our own abundant selfishness. (p. 314)

But moderated aggression is prerequisite for any social interaction and does not amount to a morally relevant conscience. Clay and de Waal (2013), for example, describe how bonobos demonstrate emotional self-regulation at levels of competence similar to human children; those who are reared by their own mothers turn out more socially competent than orphans. However, it would be misleading to characterize even this capacity as an "evolved conscience," since the mere ability to regulate one's own emotional turmoil and thereby more successfully navigate social interaction does not amount to rational reflection and free-willed moral decision making, which is what the term "conscience" is normally meant to include in ethical discourse (so long as morality is held to exist). While sentimentalists suggest that, since reason supposedly serves passion necessarily, adult human behavior cannot be much different than that of bonobos or children, it would be less confusing if they were to simply avoid referring to instinct as conscience. For flexibility among selfish instinctive options cannot yield moral rules in the

absence of rational control, and any heritable "sense of virtue" could not amount to moral virtue if heritable and therefore necessarily self-serving and not based on free will.

Boehm (2012) writes,

> Culturally based purposeful inputs are both part of natural selection and a product thereof. Thus, their effects have gone beyond shaping everyday group life prosocially, for they have helped to shape our gene pools in prosocial directions that are similar. I believe that these powerful brains of ours have been making all of this possible for thousands of generations, and one major and totally unintentional side effect has been the conscience that originally made us a moral species. (p. 333)

Does Boehm (2012) give up on genetic determinism after all, allowing for a cultural take-over of natural selection which might somehow allow for a rise of rational and therefore genuine morality? No:

> In situations of serious scarcity tendencies to extrafamilial generosity will begin to lose out and . . . nepotistic helpfulness can be set aside (p. 334); In still harsher situations . . . a similar argument can even be made with respect to individuals acting just on the basis of egoism. (p. 335)

In this case, Boehm's evolved conscience is strictly instinctive, serves individual survival necessarily, and is not ethically relevant. Boehm (2012) writes, " . . . the first fully 'modern' humans, as of 45,000 years ago . . . are basically the end point for moral evolution in the biological sense. . . . Today . . . our actual morals are little more than a continuation of theirs" (p. 17). On this (actually sentimentalist) view all human behavior must be innate and produced by natural selected instincts; hence, Boehm's (2012) account of "morals" is confusing (in that morality presumes free will which an instinctive conscience cannot possibly yield). Furthermore, to suggest that our morals have not much changed for 45,000 years, and to suggest that we humans cannot behave on the basis of reason, are flatly unempirical claims after all. Boehm's (2012) title is, "Moral Origins: The Evolution of Virtue, Altruism, and Shame," but since his characterization of virtue is instinctive, and thereby necessarily selfish, he does not offer a description of the origins of morality or of virtue but merely of social behavior, that is as applicable to social insects as it to us.

Ridley (1997) offers arguments similar to Boehm (2012) in his "The Origins of Virtue": " . . . our cultures are not random collections of arbitrary habits. They are canalized expressions of our instincts"

(p. 6); "... society was not invented by reasoning men. It evolved as part of our nature. It is as much a product of our genes as our bodies are" (p. 6). But instincts alone cannot be morally virtuous, because we cannot choose them and we cannot control them with anything else than what we typically refer to as rationality. Hence, Ridley (1997) is also not a work on ethics, but on animal behavior. Keltner et al. (2010) state in their "The Compassionate Instinct": "Empathy, gratitude, compassion, altruism, fairness, trust, and cooperation ... are now being revealed as core features of primate evolution" (p. 6). That can only be true if we take those terms and concepts as referring strictly to necessarily selfish behavioral traits that are not morally relevant. A compassionate instinct must involve a selfish kind of compassion or else not be instinctive; it can only amount to biological altruism, and in employing the terms "compassion" and "instinct" in such ways these authors reveal either a fundamental unfamiliarity with the problems of ethics, and/or a determined effort to eliminate ethics as an autonomous subject of inquiry in favor of animal behavior. As an essential element of objective human experience, the category of problems associated with freely deciding what to do is on as solid an empirical foundation as any of the problems of the sciences. But that is not to say that ethics can be reduced to a science, because deciding what to do will never be reducible to observational evidence. No matter how much information we gather, even if we include instinctive information along with sensory as observational evidence, we remain with the problem of inferring appropriate action, which must be an exercise of rationality if it is to be considered moral, free, and therefore subject to praise and blame.

Though on the one hand we must eventually infer our oughts from the ises, on the other the inferring of the oughts cannot be reduced to empirical method, since our lives, values, scenarios, aims, and so on will be always unique enough that morality cannot be subject to the sorts of generalizations that are the aim of the empirical sciences. The purpose of ethics is to help facilitate inferences of particular right actions, perhaps even with the help of general rules as premises, whereas the purpose of science is to facilitate inferences of general rules (theories, hypotheses) from the particulars of reproducible observation. James (2011) writes, "The science of virtue and vice has barely moved beyond its infancy. What we do know about how humans come to have the moral beliefs and emotions they have is overshadowed by what we do not know" (p. 112). But there will never be an empirical science of vice and virtue, unless there can be an empirical science of rational decision making, of free will, and of all the uniqueness of our particular

scenarios and identities, and of how all this is brought to bear in deciding what to do. Hence in moral epistemology the aim is to offer a very general theory of how best to decide what to do, in order to flourish as a human being; the aim is not to try to produce anything like a scientific theory of morality.

Krebs (2011) writes, "... virtues are ... relevant ... to the question of how moral people are by nature because virtues ... constitute general, stable, person-defining, and species-defining traits" (p. 249). Krebs (2011) commits the category mistake, of not merely deducing ought from is but equating ought with is. Whether the equivocation is between instincts and the good, or between natural virtues as heritable traits and the good, the error is categorical in that for any characteristic to be considered morally relevant it must be a product of choice and not merely a fixed attribute acquired without any intent and necessarily employed. We might say that an elephant has the virtue of having a trunk, or a good memory, or sociable dispositions, but these are qualities that all elephants necessarily possess simply because they are elephants. Elephants cannot be morally praised or blamed for these qualities and the elephant has no choice but to possess and employ these attributes. Likewise regarding whatever innate predispositions for social behavior possessed by human beings: they are instinctive not chosen, necessary not optional, natural not moral virtues. We can no more praise the human tendency for biological altruism toward kin as a moral virtue than we can our ability to walk on two legs, or to comprehend arithmetic. Moral virtues must be pursued, engendered, developed, as a matter of conscious rational choice, in order to qualify for moral praise and blame. If the element of choice is removed, the concept of morality is rendered meaningless, and we are left with purely descriptive inquiry. Krebs (2011) writes, "When we ask how moral humans are by nature, we are asking about the kinds of stable, internal qualities that give rise to good intentions ..." (p. 249); but on his usages of the terms 'moral' and 'good' we can ask how moral and good beetles or tuna fish are, on the basis of their stable internal qualities to behave in the normal social ways that beetles and tuna fish do. Since beetles and tuna fish do not rationally choose how they behave but function solely on instinct, attributing morality or goodness to their behavior is a category mistake, just as it is to attribute morality or goodness to human instincts or any other heritable trait.

Krebs (2011) writes,

> My answer to the the question, "What is morality?" is "a set of ideas about how people who live in groups should behave in order to meet their needs

> and advance their interests in cooperative ways" (p. 27); Conceptions of morality prescribe that people should obey the rules that uphold their groups. . . . The function of . . . morality is to induce individuals to uphold the social orders of their groups. (p. 27)

Here Krebs (2011) reveals his dependency on the group selection myth, in defining morality as group oriented rather than simply as deciding what to do. Since we do not necessarily belong to groups or have to agree with whatever social customs our groups manifest, defining morality in terms of group expectations can only be a derivative of faith in group selection. Krebs (2011) writes,

> The function of morality is to induce people to strive to increase their inclusive fitness in certain (moral) ways, and not in other (immoral) ways. . . . Moral sense evolved to help . . . resist the temptation to foster . . . immediate adaptive interests at the expense of other people's adaptive interests and to induce them to foster their long-term interests in ways that foster the interests of . . . their groups . . . (p. 258); Defined functionally, moral people possess the qualities that induce them to go about the long-term business of surviving, reproducing, propagating their genes in fair and altruistic ways. These qualities include . . . prosocial behavioral dispositions, self-control, a strong will, moral virtues, moral knowledge, moral principles, integrity, and so on. On this line of thought, the reason that people consider moral exemplars so moral is because moral exemplars are exceptional in the extent to which they achieve the functions that morality evolved to serve. (p. 258)

The virtues here described cannot be moral because they are inherited traits which humans have no say in whether or not they inherit; the innate reproductive tools of humans can no more be regarded as morally virtuous than those of any other organisms. Are flowers the moral virtues of angiosperms?

Krebs (2011) writes, " . . . people's "ought" judgments stem from the evolved mental mechanisms in their brains—their psychology" (p. 257); this amounts to the view that we manifest belief in morality in order to improve our fitness, which reduces to morality being an illusion. Krebs (2011) writes,

> In most of the situations people encounter in their lives, they can behave morally by behaving virtuously without really thinking much about it. . . . However, in some situations, such as when one virtue conflicts with another virtue . . . more is needed. And this . . . is where moral wisdom and overriding principles of morality enter the picture . . . . Which brings us to the role of moral reasoning in defining a moral person (p. 251); To

> qualify as moral, a morally wise person must use his or her moral wisdom in moral ways to derive moral decisions that guide his or her behavior; and the evidence suggests that other, more emotional and heuristic mechanisms usually structure moral judgments and dispose people to behave in moral ways. (p. 255)

Since "emotional mechanisms" are innate, if they "structure" moral judgments then such judgments are not actually moral at all (and reason is the slave of passion, which is Humean sentimentalism, not virtue theory). Therefore, Krebs's (2011) notion of virtue has nothing to do with morality, since it has nothing to do with choice but only with the necessary pursuit of Darwinian instincts, supposedly but implausibly moderated by group selection.

Krebs (2011) repeatedly refers to and generally agrees with Miller (2007), who writes,

> Sexual selection shaped some of our distinctively human moral virtues as reliable fitness indicators. Precursors of many human virtues, such as empathy, fairness, and peacemaking, have been discovered in other great apes. My claim is not that sexual selection created our moral virtues . . . rather, sexual selection amplified our standard social-primate virtues. (p. 98)

Once again we encounter the category mistake, in Miller's (2007) suggestion that inherited innate behavioral dispositions can be thought of as morally virtuous, as if we had any choice in whether or not we can be human, or as if any organism can decide which heritable traits it can possibly manifest. Moral virtues cannot be products of sexual selection; sexually selected traits are heritable traits that are not expressed upon the basis of decisions by their holders to manifest them (as are moral traits). To insist on calling natural virtues moral is to deny that morality exists, which flatly contradicts experience and common sense. Miller (2007) writes,

> I do not assume that the "virtues" historically identified by philosophers will equal the moral adaptations. . . . Nor do I assume that the idealistic reasons for advocating certain virtues in normative ethics will have anything to do with the selection pressures that may have actually shaped those virtues phylogenetically. So why mention virtue ethics at all? First, virtue ethics offers a useful counterbalance to the traditional consequentialist (utilitarian, payoff-based) ethics that have influenced previous evolutionary theories of altruism. Also . . . virtue ethics shifts

> the level of analysis usefully from isolated altruistic acts to stable personality traits. Third, many virtue ethicists write carefully and insightfully about our emotional and cognitive responses to other people's virtues and vices. . . . Finally, virtue ethics offers a new route whereby evolutionary theory can influence the contemporary humanities and social sciences. (p. 99)

Moral virtues are moral because of the process by which they are gained—character development—whereas adaptations cannot be moral also because of the process by which they are gained—genetic ancestry. Consequently, moral virtues cannot possibly be analyzed or understood in terms of evolutionary selection pressures or adaptationism; whatever innate emotional or cognitive traits we are born into the world with as heritable traits, they cannot in themselves amount to moral virtues. The concept of a moral virtue depends on the state of character that allows them, which is a product of experience and education, yielding an ability to wield instinct and rationality appropriately in specific scenarios. To suggest that moral virtues are genetic traits shaped by natural selection is the same as claiming that for calculus or music composition. Our traits only provide the raw potential for moral virtues, math, or for music, and to argue otherwise demonstrates confusion and/or naivete.

Miller (2007) writes,

> My allusions to virtue ethics are intended in the spirit of maximizing the interdisciplinary relevance of adaptationist research (p. 99); . . . moral philosophers may balk at such flagrantly irrational conflations of moral goodness. . . . But moral philosophers did not drive the genetic evolution of human virtues; ordinary people did. If we are seeking a descriptive explanation for human morality, we should attend to the person-perception judgments that may have causally driven moral evolution in our species. Ultimately, it is an empirical question whether ordinary people judge these traits to have a moral or quasi-moral status . . . (p. 109); Normative ethics is supposed to help us distinguish right from wrong and good from evil. It tries to achieve a "reflective equilibrium". . . . However, if moral virtues arose through sexual selection, this reflective-equilibrium approach to normative ethics will probably continue to fail, as it has for 2,500 years. (pp. 115–116)

It is no wonder, with remarks like these, that academia is so terribly canalized, since dismissing those who are experts in the field one is trying to engage while demonstrating one's ignorance about it cannot be very conducive to interdisciplinary collaboration. Moral virtues cannot have

evolved biologically any more than math or music; therefore, ordinary people cannot have driven the "genetic evolution" of them other than by sexually selecting for the general cognitive potential for such abilities; the aim of providing a descriptive explanation of human morality is itself incoherent since morality essentially includes prescriptive inquiry (in seeking to justify what ought to be done rather than what is done); Miller (2007) also reveals confusion in ridiculing an approach to normative ethics from a supposedly descriptive yet obviously metaphysical perspective.

Miller (2007) writes,

> In evolutionary terms, a moral person is simply one who pursues ultimate genetic self-interest . . . (p. 103); . . . moral philosophers are trying to do ethical alchemy: trying to refine . . . adaptations (the base metal) into . . . universal moral principles (the gold). . . . One problem is that . . . our "hot" moral intuitions usually precede "cool" moral reasoning . . . (p. 116); Rational decision making depends upon . . . gut instinct . . . or . . . social imitation . . . (p. 116); . . . there is no compelling reason to think that our moral intuitions have any true normative credibility as guides to genuinely moral behavior. (p. 117)

A moral person cannot be a necessarily selfish person, for if he/she is necessarily selfish the element of choice necessary for morality to exist is absent; unconscious adaptations cannot be the basis for moral principles unless we have willfully decided to intentionally adopt Nietzsche's (and Kitcher's) self-destructive moral epistemology (prescriptive instinctivism); moral intuitions are not logical or defensible until one has developed moral virtue, for the whole point of moral virtue is to manifest states of character in which intuitions about right action are indeed appropriate; while many believe that reason necessarily serves instinct, there is no evidence to confirm that; finally, if our "moral intuitions" are at bottom instinctive, and "moral persons pursue genetic self-interest," then to argue that those "moral intuitions" have no "normative credibility" seems contradictory. Of course, on Darwinism we can only ever act selfishly, morality is either an illusion or false, and Darwinism itself as a theory is not actually normative but necessary. Yet these arguments can be so confusing precisely because we actually can rationally assess and question Darwinian theory. To commit to Darwinism willingly, rather than necessarily, which is actually the commonsense reality for those who do it (since we do experience free will), is to make a moral decision that Darwinism is virtuous, even though as an apparently free-willed

choice having to make that choice itself contradicts the theory (since the theory is determinist), which in turn contradicts the wisdom of committing to Darwinism. But supposedly Darwinians do not actually believe in their own experience of free will and regard it as illusory and therefore presumably regard themselves to be behaving according to Darwinism necessarily, even though they have what they must regard as the illusion of choice whether or not to behave according to Darwinism, and even though they presumably have lapses in which they do not behave the way that they supposedly must, or at least should according to their own instincts and supposed lack of free will. It would seem to be a profoundly unempirical, and metaphysically faithful, and quite confusing behavioral strategy. Since committing to Darwinism requires dismissing one's experience of free will as an illusion, and one's rational decisions as errors that ought not be possible, it would seem to require living in a something of dream world, which in psychiatric terms might be referred to as psychotic. On the other hand, if Darwinians do not commit themselves to Darwinism, perhaps because we do after all have the experience of free will and of rationality, then supposedly they themselves would not think that their behavior can be reduced to heritable traits and natural selection, and so presumably they would have to admit that sociobiological derivations of morality are false, and perhaps also Darwinism in general.

Arnhart (1998) writes, "Darwinian explanations of the natural moral sense support an Aristotelian ethics of desire" (p. 21). That Darwin was a moral sense theorist, that Aristotle offered an ethics of desire, or that the two figures are theoretically compatible are each highly dubious claims. Arnhart (1998) writes,

> What we desire is a life planned to achieve the fullest satisfaction of our desires . . . which is what Aristotle calls . . . "flourishing" (p. 24); Looking at those animals closest to human beings in evolutionary history, we can see the desires . . . from which morality emerged. . . . Even apparently simple animals display the complex normative structure of animal movement in the interplay of knowing, desiring, and evaluating (p. 24); . . . hermit crabs are like human beings and other animals in that their behavior conforms to the same normative structure: they have natural desires . . . and they are naturally inclined to do whatever seems to satisfy their desires. (p. 25)

Again, here we encounter the categorical error in identifying instinctive behavioral traits with the normatively or morally good, as if hermit

crabs or humans have any choice in the behavioral instincts that they enter into the world with. Natural desires are not moral desires since they have not been chosen but are inherited, and the term "desire" in general must be employed carefully because while Arnhart (1998) uses the term to refer to instincts, the term is often employed to refer to ends which are decided upon as a result of conscious rational deliberation. In the context of Aristotelian moral theory especially, there are no natural moral desires, if "natural" is used to refer to instinctive while "moral" is used to refer to chosen. Natural desires are instinctive, while moral desires are rational; crabs have the former, we have both, but Arnhart (1998) claims that the former can amount to the latter, which is either the category mistake or simply irresponsible employment of the concept of morality.

Arnhart (1998) writes,

> Human beings must acquire and maintain those habits of good conduct that allow them to organize their often conflicting desires into some coherent pattern over a whole life (p. 35); Human beings generally desire to manage their appetites and passions by deliberation. Unlike other animals, human adults have the rational capacity to deliberate . . . and then to organize their actions. . . . Such deliberation requires prudence or practical wisdom in judging what is best for particular people in particular circumstances. (p. 35)

These remarks are offered under the headings "Practical habituation" and "Practical reasoning," which are among Arnhart's (1998) "Twenty Natural Desires": "I call these desires natural because they are so deeply rooted in human nature that they will manifest themselves in some manner across history in every human society" (p. 29). They also include parental care, sex, war, friends, justice, beauty, speech, religion; a mix of what might typically be regarded as instinctive and rational desires. Arnhart (1998) argues, " . . . these twenty natural desires . . . have evolved by natural selection . . . to become components of the species-specific nature of human beings . . . based in the physiological mechanisms of the brain . . . " (p. 36). Arnhart's (1998) intention to expand what we might normally regard as the instincts to include even practical reasoning (p. 35) and intellectual understanding (p. 36) brings to mind Singer's (1981/2011) contention that pure practical reason is naturally rooted in tribal instincts and somehow innately predisposed in struggling to expand our circles of inclusiveness. Perhaps we have instincts for reasoning or understanding, but for practical reasoning

or habituation to be rational (and thereby practical and moral) they cannot be concerned merely with satisfying instinctive desires or be themselves instinctive desires; that would not be rational deliberation but merely instinct-satisfaction calculating (sentimentalist "reason is the slave of passion").

Since it is not apparent that we are in any way incapable of freely deciding on our values and ends regardless of our instincts, there does not seem any point in trying to characterize practical reason as instinctive, anymore than there would be to characterizing arithmetic and music as instinctive. There are general underlying innate tendencies, but they ultimately do not determine our math, or are musical compositions, or our moral choices. Since Arnhart (1998) does not offer a characterization of prudence or wisdom to suggest otherwise, what he offers is a Humean survey of common desires, which supposedly are moral desires, but which are neither moral nor necessary. So what if humanity is innately predisposed to sex, or families, or friendship? None of us have to do these things if we do not want to, and to imply that innate predispositions are morally good is the naturalistic fallacy (it does not follow), or the category mistake, or both. Arnhart (1998) writes, "... it is a mistake to assume that all instinctive behavior is completely fixed, and all learned behavior is completely flexible" (p. 41). It might be tempting to think that we might somehow extract moral choice from flexible instincts, but without a capacity to freely select our ends regardless of innate dispositions, to actually reject our innate traits, morality would be meaningless and ethics would be animal behavior. Arnhart (1998) writes, "To some extent, this satisfaction of natural desires is controlled by rigid instincts; but many animals ... satisfy their desires through social learning and flexible behavior.... Human beings differ in degree but not in kind from other animals" (p. 66). But this flatly contradicts our experience: our capacities for acting however we want, to control our emotions, to override our instincts, to freely decide upon ends and values, and to be moral in a word, differentiate us from all other animals.

Arnhart (1998) reveals that his is actually a Humean, not an Aristotelian, moral epistemology:

> Aristotle agrees with Hume about the primacy of desire or passion in motivating human action. "Thought by itself moves nothing," Aristotle believes, although reason can guide the desires that do move us. Desire always moves us, but thought never moves us without a desire. Deliberate choice (*proairesis*), therefore, requires a conjunction of desire and reason

> into "desiring thought" or "thinking desire." Aristotle's insistence that only desire can motivate moral action was often cited with approval by moral-sense philosophers. (pp. 71–72)

But Aristotle and Hume's moral epistemologies are very different, since Aristotle defended virtue and character as products of rational self-discipline, and regarded our sentiments or natural desires as part of the soul that ought not govern our actions. By "desire" Arnhart (1998) has in mind naturally selected innate predispositions, which surely belong among the innate appetites that Hume contends reason must serve, but which Aristotle contends reason can control. Desires produced by rational deliberation, which motivate the will to act, represent the moral epistemology that Arnhart argues against, but Aristotle argues for. It might seem that Arnhart's (1998) inclusion of "practical reason" and "practical habituation" among his "twenty natural desires," his allowance of "flexible behavior," and his appeal to Aristotle's characterization of a role for desire in deciding what to do could allow us to interpret his arguments as adhering to, rather that contradicting, Aristotelian moral epistemology. But Arnhart (1998) states: "... while I recognize the importance of human reason in judging how best to satisfy human desires, I believe that the motivational foundation of ethics is ... the satisfaction of natural desires" (p. 17–18); "... desires are primary because satisfying them is the ultimate motivation to which reason is subordinated" (p. 20). Given Arnhart's (1998) characterization of natural desires as products of natural selection, including practical reason and habituation, this is Humean sentimentalism, not virtue. For the desires that Aristotle has in mind are rationally deliberated desires based on good character, experience, and wisdom, not naturally selected desires, or else the whole of his moral epistemology would be contradictory. Arnhart (1998) claims that Hume and Aristotle agreed about the "the primacy of desire or passion in motivating human action," but for Hume all desires are passions and they necessarily motivate all human action, whereas for Aristotle desires can be rational or passionate, but in the case of virtuous actions if the desires are passionate they must be passions that have been wisely brought to bear in a state of good character. This is precisely the fundamental difference between Humean and Aristotelian moral epistemology, and why there is no point in suggesting that practical reason and habituation can amount to natural desires: rationally deliberated desires cannot be natural desires and still be rationally deliberated, and natural desires cannot be rationally deliberated desires and still be natural.

Arnhart (1998) writes, "...human beings are the only moral beings...insofar as morality requires deliberation of the sort that is uniquely human..." (p. 80); but the deliberation of the sort that Arnhart describes—reason as a pleasure calculator—is not uniquely human at all, for even simpler animals such as tropical fish can process information and draw inferences (see Grosenick et al. 2007). The determined persistence of descriptive instinctivist "moral" philosophers in denying the potential of human rationality for self-discipline is a wonder of modern literature, since it cannot be reconciled with objective experience or experimental evidence. Arnhart (1998) writes, "Pure reason alone cannot create values because it cannot create feelings. Reason can, however, elicit, direct, and organize feelings..." (p. 80). But surely we can create our values, control and summon our feelings, and decide the good regardless of our natural desires. For any naturalist moral theorist to claim otherwise is to abandon naturalism as a moral method, for rational self-control is as common as daylight. If it were impossible, monks and nuns would not exist, for example. Although part of the general argument defended here is that Kantian pure practical reason is impractical in the context of evolution, given that the practicality of instinctive information is similar to that of sensory, there is no basis in biology for rejecting the possibility of pure practical reason if we should decide that pure moral rationalism is most practical after all (perhaps in certain arenas like politics), and to pursue development in that direction.

Arnhart (1998) writes, "...ethical naturalists make no mistake in moving from is to ought..." (p. 81); "...this verbal distinction cannot be maintained in moral practice, because every normative judgment presupposes a factual judgment about the satisfaction of human desires as a reason for the normative judgment" (p. 82). This view only makes sense on the basis of Arnhart's (1998) view that reason alone cannot produce values or motivate action, which defies common sense. If their are only instinctive desires, then somehow "normative" actions must reduce to them (which again is Humean not Aristotelian epistemology), but if we admit rational motivation and self-discipline then we are faced with the general problem of inferring what ought to be done about the facts in a sophisticated way. We are helped by a decision to flourish, which may have both rational and instinctive justification; given that basic normative premise we can infer appropriate oughts about the ises but without it we are lost. Given a will to flourish, we ought to pursue rational character as our moral epistemology since it gives us our best chance of success at flourishing in whatever way we decide (above and

beyond mere survival); but as these pages hopefully demonstrate that inference is no simple ought from is.

Given Arnhart's (1998) assertion that we necessarily pursue naturally selected desires or instincts, rather than rationally determined desires of self-discipline, which restricts the notion of human flourishing to Darwinian ideals of reproductive fitness and contradicts commonsense experience of human potential, his claims of compatibility with Aristotle cannot be correct. Aristotle's moral theory, properly construed, does stand up well in the context of evolution. Arnhart (1998) writes, "... for Aristotle, being morally responsible is not being free of one's natural desires. Rather, to be responsible one must organize and manage one's desires through habituation and reflection..." (p. 84). This statement might seem accurate until discerning that by "managing" Arnhart (1998) means serving (or else there is no point in referring to the desires as natural, or in offering a sociobiological derivation of "morality," or in suggesting that Aristotle's moral philosophy is compatible with Hume and Darwin); it amounts to claiming that Aristotle argues that human potential amounts to appetites dominating rationality, which is false both as an interpretation and as a naturalist claim. Arnhart (1998) writes, "...Aristotle believed that... the final end of ethics is happiness understood as the fullest satisfaction of natural human desires..." (p. 78); "... natural ethics as founded on natural desires can be explained ultimately as a product of natural selection" (p. 21). Familiarity with the basics of Aristotle's ethics involves recognizing that Aristotle's theory of flourishing has nothing to do with the necessary pursuit of reproductive fitness, or even necessarily with selfishness more broadly considered, and most obviously not with necessarily instinctive behavior (which "satisfaction of natural human desires" implies, Arnhart's inclusion of practical reason and habituation as natural desires notwithstanding), and anyone familiar with commonsense human potential can notice that we are not all bound to Darwinian pursuits.

Arnhart (1998) writes,

> Aristotle recognizes, but does not elaborate, the psychological basis of ethics in the moral passions that is elaborated by David Hume and other philosophers... who argued for the existence of a moral sense (p. 72); For human beings, Aristotle insisted, "although there is something that is just by nature, all is variable" (NE 1134b29–30). The natural desires of human beings constitute a universal norm for morality and politics, but there are no universal rules for what should be done in particular circumstances (p. 47); This view of ethics as arising from reason and

> desire—ethics as rooted in natural human desires, as requiring habits of right desire, and as guided by prudential reasoning in judging the contingencies of action—was originally developed by Aristotle. (p. 19)

These are not credible claims, either in terms of Aristotle scholarship or in terms of a method of ethical naturalism, for they simply contradict Aristotle's arguments and common sense. Humean moral sense theory (sentimentalism) is descriptive instinctivism in the context of evolution theory, which at bottom is the denial that morality exists (given the denial of free will and rational choices that can be praised and blamed). Aristotelian virtue theory is prescriptive rationalism in the context of evolution, which recommends a principle of rational self-discipline, of the instincts, and allows that we can form and act upon rationally deliberated desires, which are hopefully discerned and brought to bear wisely by individuals of experience and virtuous character. Ethics cannot be rooted in natural human desires, even though this is the basic argument of all sociobiologists, simply because ethics is the study of morality, which presumes free-willed rational decision making, and therefore ethics can only be rooted in the human capacity for rational self-discipline. We are not bound to any set of desires but are free to decide what to pursue; innate desires are relevant only in being worthy of investigating as part of our information gathering process, along with sensory data and the deliverances of reason and experience, all toward forming sound intuitive judgments about our moral scenarios as deliverances of the hopefully practical character traits that we have developed over our lives. That is the approach most obviously implied by the facts of evolution and human potential. So while Arnhart (1998) might seem to offer genuinely Aristotelian views in suggesting that there are "no universal rules for what should be done" and that ethics requires "habits of right desire," these statements are incompatible with his view that all human motivation reduces to the satisfaction of Darwinian natural desires. On Aristotle's theory of moral epistemology, right desires may or may not be natural desires, but on Hume's (and Arnhart's) the supposedly right desires are actually inherited instinctive traits.

Casebeer (2003) also offers a Darwinian virtue theory:

> I have in mind . . . an appropriately naturalized Aristotelian virtue theory and a contemporary biologically oriented notion of function (p. 37); Reducing moral terms to functional terms . . . we can establish a case for the objectivity of moral value . . . (p. 38); The emphasis on proper function is rooted in . . . the findings of the neo-Darwinian synthesis. (p. 7)

Like Arnhart (1998), Casebeer (2003) defines human potential in terms of Darwinian pursuits which are necessarily instinctive. Whereas Arnhart (1998) bases his account on the supposedly essential, naturally selected "desires" of humanity and rejects the possibility of rational motives and therefore moral freedom of choice in insisting upon the necessary pursuit of these instinctive desires, yielding a characterization of human ethics as Darwinian survival of the fittest, Casebeer (2003) bases his account on "functions," which are also naturally selected, and he also rejects the possibility of rational control, and so also equates ethics with the survival of the fittest. Both contend that their accounts cohere with Aristotle's moral theory but Aristotelian moral epistemology must reject a reduction of ethics to Darwinian survival of the fittest, simply because Aristotle delivers extensive argumentation regarding the human potential for rational self-discipline. To live a rational life, after all, is Aristotle's ideal human accomplishment, which is anathema to suggestions that we either must or should pursue the ends delivered by heritable instinctive traits.

Casebeer (2003) writes,

> "Healthy" is a property cluster. . . . It coheres well with the functional nature of virtues (p. 54); . . . the homeostatic property cluster "healthy" consists in organisms that implement manifold functions successfully (p. 54); Value properties. . . . Are scientifically tractable in the same way that biological notions of function are, and to gain moral knowledge we need posit no "special sense" above and beyond . . . scientific naturalism. (p. 55)

If we are to survey human behavior and identify the things that we most regularly desire in order to achieve biological health (defined as Darwinian fitness), we would end up with a list of commonalities as suggested by Hume, which we supposedly must adhere to if reason serves passion. While we might agree that biological health and Darwinian success are good things that we ought to pursue, in the absence of rational self-discipline we have no choice in the matter—natural virtues that all organisms have to allow them a chance of biological success are equated with moral virtues even though we can be neither praised nor blamed for acting upon them since we supposedly have no ability not to. Given the necessity of Darwinian virtue, it cannot amount to moral virtue at all, but just a description of the particular attributes that allow our or any other species to biologically succeed. Aristotle's sense of flourishing might include reproductive success but only as a desire

that has been deliberately chosen for pursuit, not as a necessary goal of instinct that we are incapable of overriding.

Casebeer (2003) writes,

> Creatures . . . can be called "minimal moral agents". . . . Creatures . . . can flourish (or not); moral terms have extensions for them. . . . Examples . . . include plants, viruses, bacteria, and some insects. These creatures can be objectively evaluated according to their flourishing, but they do not engage in moral judgment—remember that the requirement for a creature to be able to judge is that it be able to learn within its lifetime. (p. 92)

The category mistake again: moral terms must refer to free-willed choices or else the organisms have no option but to pursue them and cannot be praised or blamed. Organisms which do not even think because they have no nervous system at all cannot be moral agents; to use the term "moral" in reference to them is either a sign of confusion regarding what ethics concerns, or a misguided attempt to deny that ethics exists by reframing it as a matter of descriptive biology. Even abilities to think and learn will still not yield morality unless free-willed rational choice is possible; only humans are moral until we prove that other animals can incorporate instinctive data like sensory data, in rationally deciding what to do.

Casebeer (2003) writes,

> We may succeed . . . in producing a state of "ecological release" wherein there are only the weakest of selection pressures. . . . Beings in such an environment would cease to have functions. All that would be left . . . is an existential ethic. . . . Given the variability of our environments, I doubt that we could ever achieve such a total state of release in any case. (p. 64)

Casebeer (2003) offers what might seem like an Aristotelian argument, to the effect that if we can give to ourselves our functions (in the case that natural selection is not a factor), we might be able to really decide for ourselves what to do (which is actually our situation, after all). But without rational decision making this would still not amount to the possibility of moral self-discipline but just some sort of instinctively bound release from the normally prevailing Darwinian selection pressures:

> If we accept population thinking, we have reason to think there might be some variation in proper functioning across humans. But . . . such

> variability will not be so wide-spread as to preclude general law-like conclusions regarding what will enable functionality for human beings. (p. 153)

However, if there are any laws about human functioning, they are rationally given because humans are actually free to do whatever they want, and in employing their rationality they often recognize rational necessities for a happy existence. "Proper functioning"—why pretend that humanity is no different than the instinctive species of animals, when clearly we are? How can such metaphysical commitments be maintained when they contradict objective evidence?

Casebeer (2003) writes,

> The neo-Darwinian synthesis demonstrates that particular species simply have no essence. In addition to being contrary to outmoded Aristotelian assumptions about a species being characterized by a particular function, this also makes it difficult to formulate any useful general statements about moral functionality. (p. 150)

James (2011) writes,

> What makes a good (human) life good? (p. 194); The method Aristotle uses to identify our function involves searching for that capacity that distinguishes us from other creatures. In other words, our ability to reason and to follow reason. (p. 195)

Kitcher (1999) writes,

> Evolutionary biology . . . undercuts the idea of seeking for essences at all (p. 76); Hence the project becomes one of discovering how certain biological or psychological properties of human beings are specially privileged . . . and . . . this cannot be done without introducing . . . value considerations. (p. 80)

Defending genuine Aristotelian virtue theory in the context of evolution is not a functionalist argument that would cast rational self-discipline as an essential trait that humans must employ in order to fulfill their potential in terms of some sort of metaphysical "form." Aristotle did not have evolution to worry about; the argument here regards ecological practicality—given an intention to flourish in the context of evolution, rational character is the most practical means to that end, for that is what can allow us to make free-willed rational decisions on the

basis of all the information we can gather, including instinctive. There is no need to engage in an argument about essential human traits, or in a more exhaustive account of flourishing, since the mere will to flourish suffices for justification of a moral epistemology of virtue. More specific decisions regarding what is good in life and what ought to be pursued are beyond the scope here, but flourishing is taken for granted as being a prerequisite for morality. There can be no basis for assessing right and wrong without that fundamental desire as a premise; all action is end oriented so there must be an end in mind. Whichever details we wish regarding flourishing, since we have a capacity for rational self-discipline surely we must employ it, unless we insist on debauchery as a way of life, which would be to literally go through this human life behaving like a nonhuman animal, which could hardly amount to flourishing. In any case it seems contradictory for Casebeer (2003) to argue that species have no essence, while defending Darwinian functionality as the basis for the flourishing of all species, including our own supposedly moral actions.

Casebeer (2003) does not defend prescriptive rationalism, even though he invokes Aristotle: "... pleasure and pain, and higher-order emotions such as satisfaction, serve to highlight value, where value is cashed out in terms of functionality; they also serve to motivate organisms to act..." (p. 59). Hence Casebeer's (2003) version of Darwinian virtue also reduces to Humean moral epistemology (descriptive instinctivism) not Aristotelian (prescriptive rationalism), as must all theories that attempt to cast morality as a naturally selected cognitive trait. Casebeer (2003) works in arguments from cognitive science:

> The ability to engage in cognitive modeling is what separates standard and robust moral agents from minimal moral agents (p. 98); Teaching a neural network involves adjusting the weight or strength of the connections.... The appropriately trained network thus comes to instantiate know-how. In much the same way, a substantial portion of moral cognition is know-how: a morally competent actor has come to embody a set of traits and skills... (p. 104); Therefore... moral concepts... consist in the activation patterns of groups of neurons... (p. 106); When Golden Age neuroscience has arrived, we might... naturalize moral cognition... (p. 118); Morality... consists in large part not of mastery of a set propositions but of mastery of a set of skills. (p. 130)

These concepts cohere well enough with moral virtues conceived as character traits, and cognitive science and neurobiology in general are of greater relevance for ethics than the empirical claims of

anthropologists, psychologists, and sociobiologists. While of course we know that the brain is active in making decisions, we will be better informed as research advances regarding what exactly the brain does when we deliberate, and how we can develop the cognitive skills we would like, and what sort of obstacles we might be up against physiologically. But unless the research implies that we are restricted to emotional/instinctive motives, and cannot freely decide what to do, so that we are determined after all and that free will really is an illusion, such research will not help us to decide what to do any more than research regarding any of our other bodily organs. It is rationality which we must employ, and since the firing of synaptic networks does not enter our consciousness, they are not relevant in our deliberations. Whatever synaptic networks we do develop with experience, in addition to those that we are born with, they must be the product of top-down willful behavior and of circumstances of life beyond our control (such as exposure to the environment, or employment, or to social relations), akin to the development of muscularity through weight training (we might gain muscularity voluntarily with exercise, or involuntarily through work, or by some combination of the two). Perhaps the "golden age" neuroscientists will help us control the development of our own neural networks, given the various involuntary necessities of our life conditions. But any reduction of the right and the good to the mechanisms of the human brain is like arguing that a developed musculature can cause one to exercise, or that having musically or mathematically trained brains can cause those activities. It would be the category mistake again, the attempt to make ethics disappear again, and an invalid ought from is again. Even supposing that a moral expert intuitively recognizes which action some scenario calls for with the benefit of neural networks developed over time with experience, he/she can presumably still decide whether or not to act, just as a ballerina can decide whether or not she will perform.

However, it is useful to regard the actual practice of moral conduct as involving the development of a skill that manifests itself neurologically. Rust and Schwitzgebel (2013) report that professional ethicists—teachers of moral philosophy—are no likelier to actually behave morally than anyone else; but this ought to be expected since moral conduct is not a matter of theoretical understanding but of experiential expertise with actual lived situations. So like a ballerina or mathematician, moral training and experience should result in measurable neurological development, which in turn facilitates the moral conduct, or the artistic dance, or the mathematical ability. Mere moral theory cannot yield

moral wisdom, or good character, anymore than the theory of dance or philosophy of mathematics can yield ability in those disciplines. Churchland (1998) writes,

> Being skills, such virtues are inevitably acquired rather slowly, as anyone who has raised children will be familiar. Nor need their continued development ever cease, at least in individuals with the continued opportunities and the intelligence necessary to refine them. The acquired structures within one's neuronal activation spaces—both perceptual and motor—can continue to be sculpted by ongoing experience . . . (p. 89); This view of the assembled moral virtues as a slowly-acquired network of skills also contains an implicit critique of a popular piece of romantic nonsense, namely, the idea of the "sudden convert" to morality, as typified by the "tearful face of the repentant sinner" and the post-baptismal "born-again" charismatic Christian. Moral character is not something—is not remotely something—that can be acquired in a day by an Act of Will or by a single Major Insight. (p. 89)

Cognitive science can be of moral relevance in helping to demonstrate the physical processes involved with developing habits of thought—perhaps we can learn how to learn better. Ultimately, though, the decision to form moral habits or character has nothing to do with such science, but must be made either ourselves or for us by our various teachers, just as decisions to become musicians or mathematicians need be. Cowell and Decety (2015) report that they identified neurological activity associated with instinctive reactions in very young children as first responses to moral scenarios, but when the children were encouraged to reflect on the scenarios the neurological activity changed and indicated "cognitive control," which was in turn predictive of actual moral conduct. So, like coaches teaching young athletes, we should be more effective given an understanding of the underlying physiology involved. Kim et al. (2013) report that childhood poverty and the chronic stress that it induces result in permanent developmental changes in the brain. Specifically, growing up poor enhanced activity in a region of the brain associated with producing negative emotions (the amygdala) while simultaneously reducing activity in a region of the brain associated with controlling negative emotions (the prefrontal cortex). For those who themselves grew up poor, or have family members or others in their lives who did, or who work with the poor, this is most useful information, for knowing that there may be a physiological basis for psychological predispositions might facilitate more enlightened approaches to learning and teaching how to be moral.

Casebeer (2003) is mistaken in believing that "... the teleological aspects of Aristotle are canalized and given limits by a biological analysis of function..." (p. 33). Moral teleology has to do with rationally deciding what ends to pursue, and/or with fulfilling our human potential, whatever we decide that it ought to be, and cannot be meaningfully canalized by biological function unless we mean by that the limitations of human potential. Would "a biological analysis of function" ever yield the notion that humans are capable of ballet? As rational, humans have no set functions, not even to flourish or reproduce or persist one day to the next. There is nothing in biology to direct anyone toward a mastery of musical composition, calculus, or morality. Only once such goals are decided upon (or imposed by someone else who has decided for us) do the basic biological limitations of our species amount to canals, but even they so far appear to be rather broad and open ended. Lennox (1999) writes,

> Natural capacities come to be prior to their active realization, whereas states come to be as a result of training. You can throw a rock up a thousand times... but you will never habituate an "upward" power to it. And because virtues dispose us to feel appropriately (e.g., to be angry to the appropriate extent, at the appropriate times, toward the appropriate people, etc.), they must underlie our feelings, just as they do our actions, and so must not be identified with them (pp. 13–14); Virtues... are states rather than natural capacities (p. 14); Virtue, or excellence, of character in the human realm is a state expressed in a reasoned choice, and Aristotle is as clear as he can be that other animals have no such state. Nor do they have, as children do, the natural capacity to acquire the ability to choose according to "right reason." And the intellectual virtues relevant to virtuous activity depend on a conception of the good life, which, again, Aristotle clearly thinks is lacking in these other animals. (p. 24)

Elementary reflection on the concept of morality should reveal that it presumes rational choice, of actions and of ends. If we have to do the things that we do then there is no role for the concepts of right and wrong, praise and blame, or good and evil. Only when we have to decide for ourselves what must be done can our actions be morally assessed. Since that must be the case according to the mere concept of morality, and since according to experience there is no reason to believe that we are not capable of moral decision making, and since decision making itself is no more amenable to the methods of empiricism than logic or mathematics or music, a thoroughly naturalist approach to

ethics is misguided. Biology can help to inform us what our instincts are like, along with the rest of our bodies, and what our scenarios are like, including immediate particularities and the broader backdrop of the human condition, as can physics, chemistry, astronomy, anthropology, and so on, but none of that information can force us into deciding what to do about any of it. All we can do is take it all into consideration and try to figure out an appropriate course of action, through the exercise of reason, by drawing inferences, and surely this can be regarded as an ability that can improve with character development.

Casebeer (2003) writes,

> We should hold our methodological naturalism close so as to see if normativity can be derived without postulating "spooky" non-natural entities (gods, a noumenal realm, and so on). Of course I will avail myself of the ontologies postulated by the natural sciences . . . with the fallibilistic view that the ontologies of our current sciences might be wrong. (p. 9)

Are these not contradictory remarks? The ontologies postulated by the sciences are speculative hypothetical generalizations, often no less spooky for being associated with science than the speculations of religion and philosophy. If naturalist ethics depends on metaphysical doctrines like Darwinism, then naturalist ethics is spooky. Casebeer (2003) writes, " . . . we can't infer from the fact that there is inequality that inequality is good. The question is: Will the norm that we use to criticize inequality originate in nature, or will it originate and be justified supernaturally" (p. 17)? On Darwinian virtue theory "norms" are justified supernaturally with faith in materialist determinism, natural selection, and in rejections of free will and common sense self-discipline, while on Aristotelian virtue theory "norms" are justified naturally but only insofar as the objective commonalities of human potential are regarded as natural. And so a supposedly naturalist moral theory—Darwinian virtue theory—based on a supposedly scientific ontology, turns out to be much more speculative and much less empirical and much more "spooky" than many supposedly supernatural moral theories. Casebeer (2003) argues, "Caution and fallibilism should be the evolutionary ethicist's watchwords" (p. 67). If sociobiologists generally were to take that advice seriously, they should be agreeable with the approach taken here in reassessing the demonstrable evidence regarding evolution, and restricting our ethical naturalism to a moral methodology of gathering information and employing our rationality as seems most practical.

Russell (1910) writes,

> Thus the fact that one man's desire may be another man's aversion proves that "good," in the sense relevant to ethics, does not mean the same as "desired," since everything is in itself either good or not good, and cannot be at once good for me and bad for you (p. 7); We cannot, then, infer any results as to what is good or bad from a study of the things that exist. This conclusion needs chiefly, at the present time, to be applied against evolutionary ethics. The phrase "survival of the fittest" seems to have given rise to the belief that those who survive are the fittest in some ethical sense, and that the course of evolution gives evidence that the later type is better than the earlier. On this basis, a worship of force is easily set up, and the mitigation of struggle by civilization comes to be worthless. Such a view is wholly destitute of logical foundation. The course of nature, as we have seen, is irrelevant in deciding as to what is good or bad (p. 14); It is doubtless foolish, in practice, to fret over the inevitable; but it is false, in theory, to let the actual world dictate our standard of good and evil. (p. 15)

These remarks are somewhat compatible with the arguments presented here, but not exactly. The desired might be the good, if we have deliberately discerned upon rational reflection that something indeed ought to be pursued, and that good might even be brought to our attention by our instinctive, unreflective desires, but we cannot regard the instinctively desired as good until we have rationally assented to the instinctive information. There is no reason to believe that things are in themselves either good or bad, since what might be good for you might indeed be bad for me, depending on our particular scenarios. Right and wrong actions are measured in terms of appropriate relations with one another and with nature; without human action in our natural settings there could be nothing to assess as right or wrong. Hence, the good must be at least partly inferred from a study of what exists, so long as we do not mean to suggest that what we mean by "inference" is anything less sophisticated than a complex philosophical argument and/or an experienced moral intuition. At some point we have to allow that we act on the basis of information about the world, after all, and that if there was no world to act in there would be no actions needing to be decided upon. Since there is a world, in which we must act, we have to infer what to do on the basis of factual information regarding what exists, assuming we intend to persist in this world. The will to flourish, to not merely carry on but to make the most of our lives, is a good example: we must decide to flourish based on information about the world, in

combination with all sorts of other considerations, such that though we could think of it as an ought from an is, it does not seem so amenable to such characterization, rather than to think of it as a value call. But without that fundamental decision in place ethics would seem a pointless affair, for without an embrace of life in this world how can acting well within it be of concern? Given a will to flourish, to direct our lives rather than be fatalistically directed, then we can begin to hopefully decide upon right actions, within tolerable limits. The argument here is that rational character is good, in being the only practical moral epistemology, largely on the basis of the facts of evolution and human potential. Thus, the course of nature is not irrelevant: evolution reveals much about our precarious status in the world, and biology about our physicality, such that we might actually choose our course carefully.

Appendix: Analytic Table of Contents

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