

EVOLUTION TO AUTONOMY

Horace L. Fairlamb

ABSTRACT: Evolutionary theory and much of modern moral theory grew up in the shadows of Newton and Hume. Unlike 20th century physics, which devised new metaphysical concepts to accommodate revolutionary ideas, many biologists' understanding of evolutionary causation and evolutionary ethics remains confounded by the earlier metaphysics. Recently, Humean skepticism and mechanistic selectionism have coincided in postmodern attacks on essentialism, on meta-narratives of progress, on models of human nature, and on collective morality. Against this new wave of foundational skepticism, contemporary complex systems science suggests useful alternatives for evolutionary causation, the biology of human nature, and their implications for ethics.

KEYWORDS: Evolution; Ethics; Freedom; Justice; Complex systems

A. IS EVOLUTIONARY ETHICS EVOLVING OR GOING EXTINCT?

Evolutionary theory has transformed not only biology, but much of modern science including anthropology, psychology, and economics. But while evolution has given natural science an impressive coherence, it seems to have raised more questions for metaphysics and ethics than it has solved. Turning from theory to practice, philosophers have scrutinized evolution for new answers to old questions about moral foundations. But it is not yet clear what evolution can tell us about how we should live.

Traditional societies typically turned to nature not only for knowledge of *what is*, but also for knowledge of *what ought to be*.¹ Western philosophers from the Stoics to the democratic revolutions appealed to natural law for ethical principles. But modern physics, architect of the modern view of nature, found its natural laws indifferent to morality. Since *The Origin of Species* scientists and philosophers have debated whether evolution would remoralize natural law or drain the last drop of blood from its corpse. Indeed, scientists and philosophers have not only offered diametrically opposed views of evolution's moral agenda, some have doubted whether evolution has any moral meaning at all. At one moral pole are the Social Darwinians who argue not only that the fittest survive at the expense of the weak, but that they *ought* to survive at the expense of the weak. At the other moral pole are the idealists who find cooperation and cosmic love at the end of evolution (e.g., C. S. Peirce, Lester Ward, John Fiske, Peter Kropotkin, John Dewey, Ju-

1. All traditional cultures, as David Bidney has noted, try to legitimate their moralities in terms of natural law. *Theoretical Anthropology*, New York: Columbia University Press, 1953.

lian Huxley, Teilhard de Chardin). Then there are post-supernaturalists like Sartre who find no guidance in nature absent God's commands: "Everything is indeed permitted if God does not exist" for if God does not exist we are not "provided with any values or commands that could legitimize our behavior."² For 150 years now evolutionary ethics has wavered between realism, idealism and nihilism.

Given the lack progress in evolutionary ethics, some have despaired of its prospects. Having chronicled a history of "the temptations of evolutionary ethics," Paul Lawrence Farber finds only frustration: "The fundamental problems dogging earlier attempts remain unresolved: the oversimplification of the conception of ethics; the lack of an independent justification for values; the lack of a rational justification of one's obligation to comply with those values; and the enormous gulf between actions that promote survival and actions that are deemed moral."³ Farber draws three lessons from this theoretical failure.

- First, evolution exerts a powerful attraction over ethical thought despite its critical problems; furthermore, evolutionary theory has shown a powerful ability to colonize new areas of thought. Given this influence, the attraction of drawing further implications is not likely to disappear.
- Second, reducing moral impulses to biological causes would not decide moral questions. Biology may explain the *origins* of acquisitive and religious impulses, but those origins do not decide how we ought to reconcile them.
- Third, even if we could glean the general direction of human evolution, it would be too vague to be useful: "Philosophers have repeatedly pointed out that as a guide, evolutionary considerations are too broad to be of value. Similarly, as a foundation, they either beg the question or are so general as to be meaningless."

These points appear to confirm two well-known objections to the derivation of ethics from science: the genetic fallacy and the fact/value distinction. The first says that the causal origins of something do not necessarily define its ideal end; the second says that the facts of human nature do not automatically decide the priorities of human nature for particular actions.

Farber's pessimism is not contradicted by a discernible consensus on the moral meaning of evolution. The fact/value gap first asserted by Hume is still widely accepted and none of the standard approaches to evolutionary ethics enjoys a consensus on how to bridge it. How permanent is this quandary? Quine has said that the Humean condition is the human condition. But Hume's skepticism about natural foundations for morality is only as authoritative as the metaphysics that gave rise to that skepticism in the first place, which happens to be Newton's metaphysics.⁴ To wake philosophy from

2. Sartre, Jean Paul, (1961), "Existentialism and Humanism," *French Philosophers from Descartes to Sartre*, ed. Leonard M. Marsak, New York: Meridian.

3. *The Temptations of Evolutionary Ethics*, Berkeley, California, 1998.

4. Hume urged "the application of experimental philosophy to moral subjects" (xvi), by which he meant applying the Newtonian conception of science to ethics (and everything else). The hand of Newton is clearly seen when Hume insists that "all causes are of the same kind," i.e., mechanistic causes (p. 171). *A Treatise of*

its dogmatic slumbers, Hume fashioned his philosophy according to Newtonian empiricism, a view of science which subsequent developments in physics and biology have shown to be inadequate. But where theories of relativity, quantum indeterminacy and complex systems have revolutionized basic physical concepts, evolutionary theory and its ethics have remained mired in Newton. Naturally, no progress could be expected for evolutionary ethics until evolutionary theory accommodates the new science of complexity. Given the entrenchment of the Newtonian-Humean assumptions, however, a critique of the received legacy is in order.

B. NEWTONIAN EVOLUTION: NECESSITY AND CHANCE

From the 18th century to the middle of the 19th, science was Newtonian science, causation was mechanistic causation, and explanation was analysis into particles and their forces. Kant believed that the Newtonian concepts of space and time were apriori true, the necessary conditions of empirical understanding. No wonder that Hume and Darwin began from Newtonian concepts. Although Darwin began to break from the atomistic version of mechanistic causation with his analysis of populations, the more reductive versions of Darwinism have remained loyal to the Newtonian ideal of analysis into the causal effects of lowest level parts.⁵ According to this view, causal (i.e., scientific) explanation only goes in one direction: from lower level parts to higher level wholes. Complex systems are nothing but aggregations of lower level physical effects.

For evolutionary theory, the Newtonian principle set some narrow conceptual limits:

1. *Evolution is explained by either necessity or chance.* Newtonian causal explanation involves subsuming individual events under mechanical laws of motion. Causal influences that are not law-like are credited to chance. The necessity-or-chance view of evolution was preferred for two reasons. First, the aspect of law-like necessity complied with the traditional understanding of causation as a necessary relation between cause and effect. And second, the mechanistic model brought the precision and clarity of the modern experimental method to evolutionary theory (e.g., yielding the achievements of genetics and molecular biology).⁶ As epitomized in Monod's *Chance and Necessity*, the statistical patterns that shape morphology are supposed to be reducible to invariances as the ultimate form of scientific explanation.⁷

Human Nature, Oxford, 1888.

5. Perhaps the most wide-ranging and explicit contemporary linkage between reductionism, science, and natural selection can be found in E. O. Wilson's *Consilience: The Unity of Knowledge*, New York, Random House, 1998: e.g., reductionism is "the primary and essential activity of science" (54).

6. Darwin began to move toward population thinking rather than strict reduction to parts, in which case many of the cumulative effects of mechanistic action in biology could only be formulated in statistical terms. But the underlying genetic causes of evolutionary change and the force of selection were assumed to be mechanistic. Cf. Mayr, Ernst, *Evolution and the Diversity of Life: Selected Essays*, Cambridge: Harvard University Press, 1976; p. 26 ff.

7. Monod, Jacques, *Chance and Necessity*, New York, Random House, 1972. Monod explicitly refers to invari-

2. *Mechanistic explanation renders final causal explanations superfluous or false.* The dichotomy of necessity and chance rules out final causal explanations insofar as final causation is not law-like but probabilistic. Moreover, teleological explanations suffered several other liabilities: they seemed redundant if mechanical causes were already accounted for; teleological explanations recalled the theological explanations of medievalism; teleological explanations did not allow for quantification. The triumph of the mechanistic model eventually rendered interpretations of teleology virtually non-sensical (e.g., “backward causation”).⁸
3. *Without natural ends, ethics is adrift.* Adopting Newton’s concepts, Hume correlated feelings and passion to physical forces rather than to final causes (reasons) as Aristotle had.⁹ This separation of reasons from desires rendered motivation as blind as physical forces. Not surprisingly, Hume found in the moral world the sort of accidental contingency that Newtonians find in his world of necessity and chance.

In the 19th and 20th centuries, Hume’s fact/value distinction was taken up by positivism’s ideal of a value-neutral science, widely discouraging evolutionary ethics. Moreover, to positivism’s value-neutral science neo-Darwinism added its many-trends argument against evolutionary progress. Seeing that evolutionary diversification constitutes no single trend, evolutionists concluded that evolution has no single *telos*, and therefore no single criterion of progress. Evolution, many concluded, is as indifferent to life’s ends as are the laws of Newton.

After the decline of positivism at mid-20th century, postmodern skepticism about meta-narratives of progress echoed biological anti-finalism at the level of cultural history.¹⁰ To the Darwinian arguments against evolutionary progress, postmoderns added the historical contingency of human moralities. Just as evolution spawns many trends and

ance as the foundation of scientific explanation.

8. Remarkably, Monod dogmatically adheres to the Newtonian causal priorities while recognizing the emergence of final causation in evolution. Thus he observes: “The cornerstone of the scientific method is the postulate that nature is objective. In other words, the *systematic* denial that true knowledge can be got at by interpreting phenomena in terms of final causes -- that is to say, of ‘purpose’... [T]he postulate of objectivity is consubstantial with science... Objectivity nevertheless obliges us to recognize the teleonomic character of living organisms, to admit that in their structure and performance they act projectively -- realize and pursue a purpose. Here therefore, at least in appearance, lies a profound epistemological contradiction” (*Ibid.*, 21, 22). The contradiction arises insofar as Monod’s model of causation and explanation insists both (a) on reducing nature to simple parts and (b) on recognizing the emergence of complex, systemic causes.

9. Having equated passions with forces, Hume could not allow that reason had “originary power” in the shaping of the mind. Reason could only guide the force of passion, not fundamentally transform it. Thus reason could not be a cause in the Newtonian sense of force.

10. The postmodern rejection of “metanarratives” of progress received considerable recognition through Jean-Francois Lyotard’s *The Postmodern Condition: A Report on Knowledge*, Minneapolis, Minnesota, 1984. Since then the work of Michel Foucault has garnered support for postmodern localism, the view that emancipatory politics should avoid general, and a fortiori universal, claims: Michel Foucault, *Power/Knowledge : Selected Interviews and Other Writings, 1972-1977*, New York, Pantheon, 1980.

therefore does not reveal a preferred outcome, cultures too differ so fundamentally that meta-ethics cannot discover a transcendent criterion of right action. In the absence of a *natural* standard by which to distinguish moral and immoral actions, the indeterminacies of evolution and the accidents of history render human nature morally indeterminate.

The influence of Newton in biology has never gone uncontested. For several generations, for instance, Ernst Mayr has warned against importing reductive and physicalistic assumptions into biology. In fact, his work on final causation is an effective cure for Newtonian inertia.

C. FINALITY IN EVOLUTIONARY DEVELOPMENT

The inadequacy of Newtonian metaphysics is nowhere clearer than in the necessity-or-chance model of causal explanation. The goods of human nature (e.g., sociability, learning) were not brought about by necessity (since evolution might have gone differently) nor by mere chance (since antecedent events predetermined that sociability and learning would be adaptive). In general, adaptiveness can only be accounted for in *probabilistic* terms. Evolution is opportunistically attracted to more adaptive structures, functions, and behaviors, which is to say that changes along adaptive lines are more likely to survive and flourish than changes in non-adaptive directions. To say that adaptive traits are *attractors* for evolutionary change is to say that they describe the likely directions of evolutionary change.

This simple idea contradicts not only the necessity/chance dichotomy, but also the mechanist's blind-or-intentional view of final causation. Laws of force are necessary but morally blind. Human actions show foresight, but nothing else in nature enjoys that teleological look-ahead. Organic functions, therefore, seemed to occupy a no-man's-land between blind force and conscious purpose. Even more perplexing is how something in the future—an adaptive attractor—could influence something in the present (a feat which seems to require “backwards causation”). What that view failed to see was that systemic attractors, in incipient forms, are *already* shaping organic development through the organism's current self-organizing powers. Evolutionary attractors are not reaching back from the future to the present; rather, they point to where the organism's current self-adaptive capabilities will likely develop according to what circumstances are *likely* to permit.

The operation of organic functions and evolutionary attractors involves a finality that lies between mechanistic necessity and teleological design. Following Colin Pittendrigh's notion of teleonomic functions, Ernst Mayr has usefully distinguished three levels of final causation: blind physical forces (teleomaty), functional self-organization (teleonomy), and conscious purposes (teleology).¹¹ In the inanimate realm, Mayr noted, natural laws describe changes or movements directed toward some “end state,” whether that be a rock falling to the bottom of a well or a hot poker cooling to room temperature. “They are ‘end-directed’ only in a passive, automatic way, regulated by external forces

11. Mayr, *Ibid.*, 383 ff.

or conditions,” i.e., rather than by internal mechanisms, and they cease to change when their physical potential is used up.¹² He called such changes *teleomatic*.

As used in its Aristotelian-medieval heritage, the term *teleology* covered all forms of goal-directed change from the natural to the supernatural. But modern biology requires that organic and intentional forms of goal-direction be distinguished. Mayr assigns *teleonomic* and *teleological* functions respectively to the terms of that distinction.¹³

Teleonomic processes are everywhere in biology: “for instance, most activity connected with migration, food getting, courtship, ontogeny, and all phases of reproduction is characterized by such goal orientation. The occurrence of goal-directed processes is perhaps the most characteristic feature of the world of living organisms.”¹⁴ Where does the control of this goal-directed process come from? Mayr attributes it to a “program,” which he defines as “coded or prearranged information that controls a process (or behavior) leading it toward a given end.”¹⁵

Significantly for ethics, the teleonomic/teleological distinction largely coincides with the criterion by which we determine whether or not actors are responsible. As the law tells us, without awareness of the consequences of one’s choices, moral responsibility is impossible. A body’s metabolic efficiency may be a good thing (healthy) and its metabolic participation in the production of cancer cells may be a bad thing (unhealthy), but neither is a matter of moral responsibility. Similarly, the instinctive behavior of animals does not (in most cases at least) rise to the level of moral choice. Thus we acknowledge a difference in kind between actions that are automatic and those that are (or should be) the result of intentional choice.

Due to the anti-teleological thrust of early modern physics, biologists have struggled with the dilemma that the language of ends and purposes seems appropriate for biological functionality though final causation was not supposed to exist. But if one subtracts the element of intentionality from ends, it is safe to say that species evolved with organs and instincts suited to specific ends. In that case, the *telos* of each species (in the teleonomic, not teleological sense) is the realization of whatever suite of adaptive capacities it has inherited.

This evolution from blind responsiveness to ends-orientation is not a threshold but a scale (albeit with large punctuations) that ranges from a wholly retrospective determinacy (mechanistic causation) to prospective determinacy (conscious orientation toward future interests). Regarding adaptation, the more adequately an organism can achieve look-ahead, the more it can control its fate. Even critics of evolutionary teleology such

12. *Ibid.*, 389.

13. “We can summarize this discussion by stating that there is not conflict between causality and teleonomy, but that scientific biology has not found any evidence that would support teleology in the sense of various vitalistic or finalistic theories...” *Ibid.*, 366.

14. *Ibid.*, 389.

15. *Ibid.*, 393-4. Unfortunately, the notion of such a program leads to issues about the location of the information that gets carried out by ontogenic development (Is it in the genotype, the phenotype, or the ecosystem?). For our purposes, however, we need only acknowledge that organisms have evolved spontaneous functions that can be distinguished from blind forces and conscious purposes.

as Monod have observed this: “Obviously, the part played by teleonomic performances in the orientation of selection becomes greater and greater, the higher the level of organization and hence, *autonomy* of the organism with respect to its environment—to the point where teleonomic performance may indeed be considered decisive in the higher organisms, whose survival and reproduction depend above all on their behavior” (Ibid., 126). As evolution develops away from external mechanistic determinacy to increasingly prospective goal-oriented responses, so organic functionality becomes capable of autonomously increasing its adaptiveness. Likewise, the more prospective organic functions become, the more their causal explanations must accommodate prospective benefits.

This trend constitutes *the evolution of autonomy*, the emergence of adaptive freedom. The more alternative responses are available to an actor, the more free the choice of action, the wider the range of adaptive possibilities. In that case, freedom is not an all or nothing affair, but something that can be more or less optimized. To acknowledge the evolution of autonomy within the diverse trends of evolution is to acknowledge that physical determinacy and teleology are not mutually exclusive ways of interpreting nature but are instead two ends of a scale of natural causes that reaches from the blind mechanisms of physics, through the self-preserving behaviors of organisms, to the prospective intentionality of human choices.

By the standard of adaptability-as-freedom, human thought is the most adaptive development in natural history. Conversely, insofar as rational, strategic, autonomous, and inventive action has “attracted” our evolution, this sort of resourcefulness is the *telos* of our nature from the evolutionary point of view. To say what Rousseau should have said, we could say that humans were born to be free (i.e., to become rationally autonomous). In that case, the extremes of biological determinacy and radical ethical relativism both mislead regarding our evolutionary legacy.

- *Against ultra-relativism*: If autonomy explains the adaptiveness of human nature, then it is the natural and universal ideal of human development notwithstanding the diversity of personalities. However different more personal ends ought to be, the ability of individuals to choose the best means to their personal ends depends in each case on the capacity for autonomy. Neither the moral blindness of physics nor the diversity of evolutionary trends blunts the moral thrust of this ideal: whatever interferes with individual development toward autonomy blocks the evolutionary trajectory of human nature.
- *Against strong determinism*: Determinists typically identify some behavioral or dispositional features of human nature as determined by natural selection. The identification of particular types, however, is rendered specious insofar as human personalities are individualized by quite different needs and strengths. By contrast, the ideal of autonomy does not specify particular traits; it is about the ability to cultivate one’s own traits. It is the capacity that allows one to find his or her optimized adaptation.

Thus human nature’s *telos* of autonomy does not resemble the more specialized adaptations of other species. Ours requires that we reconcile our special determinacy

and our enabling indeterminacy. This *via media* cuts a path between the two extremes bequeathed by the Newtonian-Humean legacy: determinism (found in sociobiological particularism) and radical moral relativism (found in postmodern localism). Recognizing freedom as the natural goal of humanity requires that we account both for the determinacy of its enabling conditions and the flexibility required to allow individuals to become autonomous.

In retrospect, various evolutionary debates were misled by the urge to decide whether evolution is either directed or blind, and human nature either predetermined toward a single form or indifferent to diverse behaviors. But the unique telos of human nature not only reconciles determinacy and freedom, it requires both in equal measure.

Looking backwards—the paradox of the biological determinacy of freedom: Human freedom hides a determinacy that was long in the making. Ethical autonomy only became possible due to a host of biological determinations that coincided in human nature.

On the one hand, human anatomy and development must take specific forms in order to yield freedom of thought and action. Jos Verhulst has charted the range of distinct physiological features that support the unique, high level cerebral functions of the human mind. Let us assume that language and tool-use are the two dominant behavioral features of human autonomy. Working backwards toward the body, these depend on a laterally oriented arm with a long reach, the prehensile hand, a broad sacrum and sacral angle, upright walking, liberated breathing, and a longer learning period. Even more specifically, these features depend on a host of others: fetalized pattern of arterial ramification, broad thorax, retention of the five-rayed hand, retention of thick-vertebrae, long lower limbs, no infracardiac lobe, retention of cranial flexure and central position of the foramen magnum, retention of the fetal foot form, large forebrain, protracted childhood, retention of a longer neck, deep location of the larynx, retention of the flat facial skull, retention of dimensions of first dentition, etc. Human freedom is enabled by having all these physical determinations rather than others.

On the other hand, the freedom made possible by these determinations brings with it the unique degree of behavioral *indeterminacy* and cognitive *plasticity* that allow self-determination to arise gradually. The frequency of the word “retention” here indicates that these features depend on human ontogenesis *not* specializing in the way that other higher mammals specialize. True, contrary to the blank slate idea the human mind must contain instincts for extensive language learning as well as for survival. But though not a wholly blank slate, the human mind needs at least some blank spaces to write on. Human ontogenesis, in other words, must retain a developmental flexibility that is characteristic of an earlier stage of ontogenesis, though this retained flexibility still requires the physical resources of a highly evolved mammal.

In short, we must be specifically determined to be free: determinacy and indeterminacy must coincide in the just the right way to allow for human freedom. Individual autonomy depends on both the biological determinacy of human nature and on the cognitive indeterminacy that allows individuals to learn an enormous variety of responses and begin to invent themselves in order to realize their own best interests.

Looking forwards -- the attractor of autonomy: Human nature's paradoxical blend of determinacy and indeterminacy finds its evolutionary counterpart in the paradox that freedom is a quasi-specific attractor of human development, and therefore a curious sort of cause. Biologists acknowledge a more general version of this principle by saying that sometimes adaptiveness is better served by remaining generally adaptive rather than specifically adaptive. Whereas specialization may confer short term advantages in competition with those less evolved for specific functions, environmental pressures may shift in ways that the more specialized actors cannot adapt to. By withholding specialized forms of adaptation, human evolution is simply the farthest evolutionary advance along that line of generalized adaptiveness.

Given these considerations, it is easy to misconceive what the human *telos* must be like. Underestimating the open-endedness of human nature leads to over-particularizing the goal of human evolution as a particular end state or personality profile. Underestimating the determinacy of human nature leads to the opposite error of positing a blank slate view of the mind or of denying of human nature at all. The former error is typified by Darwinians who identify human adaptiveness with competitive instincts, either because they conflate social and natural evolution (Social Darwinism) or because they take "arms races" to be the epitome of evolutionary progress. The latter error is typified by those who assume that human diversity and freedom are incompatible with having a biologically determined nature. But both errors are simply versions of the old necessity/chance dichotomy that is as inappropriate on the issue of human nature as it is in matters of evolutionary causation.

For evolutionary ethics, there are two keys to the complex systems view of human nature:

1. Species are shaped primarily by their phenotype's self-organizing powers for adaptive change. Their natural "end" in any given generation is (a) to *realize the adaptive powers they have inherited* from their ancestors and (b) to improve upon those inherited capabilities if possible.
2. *Rational self-determination is the current end of human nature.* Put in more standard biological terms, this means that the adaptive value of rational self-determination (both individual and collective) explains both the evolved form of human nature (e.g., the large brain) and human nature's remarkable success at accommodating the environment to its needs (e.g., strategic thinking).

As familiar as these points may seem, their implications for evolutionary causation and human nature have not been realized as they do not fit the false dichotomy of overdetermined vs. underdetermined models of human nature. To move forward in evolutionary ethics we must show how the *telos* individual autonomy defines an ideal more general than a particularized personality type though more substantial than ethical relativism.

D. FREEDOM AS AN EVOLUTIONARY ATTRACTOR

Echoing the metaphysics of necessity-or-chance, post-Newtonian concepts of human nature have tended toward determinacy or freedom, but not their proper balance. Both extremes are off target: morality lies in the gray area in between, i.e., in the landscape of possibilities and probabilities. The moral world begins with the imagination of those possibilities and probabilities.

Though other animals may have incipient intelligence and culture, human culture's difference of degree becomes a difference of kind with the emergence of teleology (deliberate intention) from teleonomy (instinct). In human culture becomes fully *intentional* in both senses: words are symbols *of* something else (they refer semantically), but culture both requires and fosters deliberation over alternative possible actions. The two forms of intentionality coincide in the development of interior "lifeworlds," mental landscapes in which persons imagine possible futures. This ability is a precondition of our adaptive resourcefulness. Where instincts are useful for specialized, predictable responses, deliberation and imagination allow for ad hoc adaptation. Where other animals are predetermined for specialized behaviors, persons may choose to seek or invent alternative ends, use this or that tool, follow or not follow their instincts, follow or not follow the group. True, the potential for autonomy is not equally realized in all individuals. Yet the potential for responsibility is built into our social instincts; it is presupposed by all social systems of reward and punishment. A sense of responsibility is a species-wide trait, which is what we would expect given its adaptive value.¹⁶

Thus biology and ethics meet in the imagination of intentional action. These evolutionary developments imply a metaphysics of possible well-being that disarms numerous old antagonists.

1. *Determinism vs. Free Will*

Though the ancients recognized a problem of free will, the problem of free will has proven especially confounding for modern mechanistic philosophy's scheme of necessity and chance. Traditional philosophers such as Plato and Aristotle took free will to mean an action whose causes were deliberately chosen by the actor. Our wills are free to the extent that our choices are not blocked by circumstance. Freedom is a matter of degree: our range of freedom is measured by our range of choices.

In the modern period mechanists from Hobbes to Skinner found free will incompatible with the clockwork world, and therefore challenged free choice in principle. They reasoned:

To be determined is to be caused. To be caused to do something is not to be free to do otherwise. If all events are caused, no events are free. If choices are events, no choice is free. Whenever I choose to do something, I am caused to do it by having a greater desire to do that rather than doing something else or doing nothing. I may think I have free will, but that is only because I have not yet recognized that

16. Sociopaths are the exceptions that prove the rule.

my act is caused (as Hobbes put it) by the strongest desire just before acting.

In the Hobbesean-Humean vein, B. F. Skinner's critique of freedom observes: "Two features of autonomous man are particularly troublesome. In the traditional view, a person is free. He is autonomous in the sense that his behavior is uncaused."¹⁷ But Skinner misunderstood the classical notion of free will. On the classical view, a free will does not mean an uncaused will, but *a will that chooses its causes* in light of best consequences and reasons. A free will, in other words, is just the product of self-conscious, strategic deliberations in which impulses are prudently subordinated to knowledge of our best interests.¹⁸ In the classical view, a choice can be both caused and free. For mechanistic metaphysics, necessity and freedom are mutually exclusive properties.

Yet despite the strictest physical determinacy, the future is open to choice. Future causes are what we choose (or at least try to choose). Until a choice is made, the outcome of deliberation is open to further deliberation. At the point of choice deliberation becomes self-determined. Until then, however, the future is open. Parents may discover this openness to choice when they attempt to deter a willful child from incorrect behavior—say, cursing—through threats of punishment. If the child is willful enough, he may respond by cursing just to assert his freedom, just to prove his will is indomitable. The action may seem irrational and the child may seem to be "determined" by his willfulness. He may even be cutting off his nose to spite his face. But since determinacy underlies even free choices, the determinacy of his willfulness is beside the point of the openness of the future to choice. The willful act shows that the child knows he can exercise his freedom to choose his actions, even at his own expense. He is simply willing to pay a high price for the freedom to resist. He may not be "free" in the ideally ethical sense, but his action is nothing if not intentionally calculated to be *his* choice. In that sense, the parent is reminded to her dismay that the future is open to choice despite her rational regime of incentives.

Evolution supports the classic view by showing how, far from being the enemy of freedom, the determinacy of human evolution provides its foundation. The possibility of autonomy had to be predetermined by evolution: (1) the origins of life as organic systems evolved mechanisms for self-maintenance against the variety of environmental pressures; (2) evolution from rudimentary sensitivity to animal perception introduced more information about the environment into organisms; (3) as internalized information became a more detailed representation of the environment, animals could do more to control their environments; (4) ultimately, as the human imagination became able to consider alternative futures, thought could choose between possible courses of action, increasing control over both the environment and oneself. As self-control became imaginative creativity, possible adaptations were multiplied, and adaptation could be optimized.

17. *Beyond Freedom and Dignity*, New York, Random House, 1971, 17.

18. This would apply as well to non-consequentialist theories of right action. Whether the reasons are consequences or something else (e.g., categorical duties), the point of freedom is that reasons are consciously chosen. Thus Kant defines autonomy in terms of the choice of action as determined by the right principle.

The evolution of autonomy is not the abrogation of determinacy, but its transformation into the possibility of being caused by reasons *as well as* by forces. Determinacy becomes prospective. By enabling the imagination of different possible consequences of action, the evolution of autonomy allows human minds to participate consciously and intentionally in their determinacy. Then determinacy becomes self-determination. The possibility of self-determination is why, although we may excuse people for being temporarily deprived of their wits (e.g., intoxicated), we hold them responsible in the long run for avoiding situations where they are deprived of their wits. Those parts of ourselves that we could control in the past we may control in the future because our choices determine who we become—wittingly or not. Rather than denying determinacy, freedom exploits it.¹⁹

2. *Individualism vs. Collectivism*

Presuming determinacy, most evolutionists have left the problem of free will to metaphysicians. More troubling has been the primary locus of evolutionary causation. The standard alternatives are: the individual organism, the group (deme or species), and most recently, the gene. These debates about levels and units of selection are a version of the old metaphysical debate about the priority of parts and wholes in scientific explanation. In early modern science, Newtonian physics and atomism in chemistry combined to form a mechanistic ideal of selection in which composites are explained as aggregations of lower level particles. Working out of the age of Newton before the discovery of genes, it is not surprising that Darwin inclined toward organic individualism. Yet he also considered group selection as an explanation of altruism. Some later Darwinians, however, have been more programmatically reductive, sometimes resisting appeals to group selection, and even pushing the unit of evolution down to the gene.

These concerns about levels of selection echo comparable issues in meta-ethics about the relationship between individuals and their societies. The ancients generally oriented ethics toward the common good while modern rights theories are more careful to protect individuals from excessive subordination to group interests. Does evolution speak to this issue? If human nature has an end, does it shed light the proper relationship between individual and group? Are people merely organs for the social whole (organicism)? Or is society just a platform for people to realize themselves (individualism)? If autonomy is an evolutionary *telos*, is autonomy more fully achieved by persons or societies?

For the purpose of properly situating individuals and groups in the evolutionary scheme, distinctions between force, agency, and autonomy are needed. Let us assume that agency is the state of having the power to bring something about. In that case, force and autonomy are kinds of agency, force being the most blind, and autonomy being the most foresighted. Likewise, our distinctions between teleomaty (forces), teleonomy

19. As Hume noted, strategic choices—including the management of our own passions—would not be possible if we could not predict the effects of determinacy.

(functions), and teleology (intentionality) show that an adequate account of the evolution of autonomy and agency requires three degrees of causal self-direction:

AGENCY		
<i>Force</i> <i>(teleomaty)</i>	<i>Self-maintenance</i> <i>(teleonomy)</i>	<i>Deliberation</i> <i>(teleology)</i>

These distinctions explain key inadequacies in the Newtonian-Humean legacy: its mono-causal model of explanation tends to confuse force and agency where they need to be distinguished.

For instance, some versions of genic selectionism have ascribed the agency of evolution to gene-maximizing, as if genes were involved in some self-interested competition for the most offspring.²⁰ But self-interested agency assumes a goal, and molecules do not have goals. Goals only arise when dynamic systems are sufficiently organized to orient themselves teleonomically. On the other hand, self-interest actually is a motive of individual organisms. That goal may require a certain set of genes, and it may depend on the adaptive advantages of cooperation with a group, but it is a real orientation of the organism as an integral system.

This distinction can also be made in terms of direction of causation. According to the Newtonian *force-only* model of causation, causes (forces and their effects) only aggregate upwards to collective wholes. But where teleonomy is found in complex systems, new causal properties emerge: systems direct lower-level events from a higher level of coordination. Teleomatic *forces* aggregate upwards; teleonomic *agency* directs downwards. But then agendas can only be imposed from above: something at a lower level can be used for higher level functions; but higher level functions cannot be *for* the functionless parts. So we should say, not that organisms serve the (non-existent) agendas of genes, but that genes come to serve the evolutionary agendas of organisms.

It is this deference to higher level, holistic agendas that gave rise to the organicist view of society: just as genes serve organisms, so persons serve societies. Could it be that while persons are not robots for gene maximization, they really are supposed to be cogs in the machinery of society, and that complex societies are the real goal of evolution? Some have thought so. If—from the teleonomic perspective—it is evident that genes do not have agendas, it is not so obvious that societies do not have agendas through which nature's goals might be most fulfilled. Societies certainly do have functions that people can serve. Perhaps individual autonomy is merely a requisite element in the evolution of the society that perfects itself. It is not impossible to interpret some of the biological evidence for human autonomy in favor of the social subordination of the individual.

20. Proponents of these locutions admit that they are heuristic, *as-if* expressions that are only literally true in the results they predict. But if they mislead as to where the agency lies, the cost may be more than the benefit.

The long learning period of human development is an index of individuals' dependence on the collective wisdom of the group. The degree to which mob psychology and authoritarian propaganda can dominate an individual's sense of self-interest suggests that people often do act like cogs in a social machine. Perhaps the ultimate goal of human development is to blend seamlessly into the ultimate group.²¹

To the contrary, however, neither human physiology nor human psychology fits the model of total subordination to society. True, human psychology sufficiently lacks instincts to require socialization. But the comparison with insects shows why humans cannot be assimilated to that more instinctive model. What insect societies show is that strict subordination of individuals to society is not best accomplished by individuals learning social norms, but by inheritance of specialized instincts. The social liabilities of learning are obvious: individuals may learn to obey society's rules, but they may refuse to learn, or unlearn later what they learned before. Unlike instinctive socialization, learned socialization includes the freedom to not learn or to unlearn society's rules. Instead of elaborate instincts, we have elaborate culture. But intellectual freedom is a precondition of cultural evolution. Where genetic change happens spontaneously, cultural evolution requires choosing to innovate. If all human behavior were instinctual, culture would be unnecessary, and human nature would be as fixed as insect nature. So while social organizations depend on at least a minimal degree of obedience, freedom to disobey is part of the precondition of human creativity and progress. Cultural progress is not instinctively determined, but evolves through a negotiation between past and present generations.

The maturing individual's ultimate transcendence of mere obedience is confirmed by the findings of developmental psychologists. Kohlberg, Loevinger, Maslow and others generally agree that the conventional stage of human socialization—in which the young are socialized to identify with social ideals—can and ought finally to be surpassed by a stage where individuals are able to judge for themselves whether or not their society is living up to its own moral principles, confirming the evolutionary trajectory from mere obedience to moral autonomy.

On the other hand, if humans are not born to be cogs in the social machine, perhaps they are born to become indifferent to their social origins. The developmental trajectory from obedience to autonomy might suggest that maturity abandons the tutelage of collectivism for a radical individualism where persons are "laws unto themselves" (as the term "autonomy" might suggest). In that spirit, some radical individualists have claimed

21. Earlier generations of anthropologists—including Emile Durkheim and Lucien Levy-Bruhl—found in "primitive" societies a powerful collective consciousness of which today's critics of mass consciousness still find residues. Likewise, developmental psychologists such as Lawrence Kohlberg have found evidence to suggest that the socialization of individuals typically domesticates instinctive self-interest (the "preconventional" level of moralization) through identification with society and its values (the "conventional" level of moralization). In that case the trajectory of human development might finally be total integration of the individual ego into the social group-ego just as insects are both physiologically and instinctively adapted for total integration into their societies.

that individuals are born free of any obligations except those they agree to as autonomous individuals. But the no-debts view overlooks the biological and social reality upon which the emergence of autonomy depends. The social preconditions of autonomy require a balance of group obligations and individual liberties that do not suggest radical individualism or radical collectivism. Against radical collectivism, our freedom of thought unfits human nature for the blindly cooperative altruism of ant colonies. On the other hand, individual excellence depends on the collective resources of society, a point often overlooked by radical individualists. As Alasdair MacIntyre has argued, even if we assume the ideal of individual autonomy as our end point, getting there requires a collective effort for which the aggregation of voluntary contracts is inadequate.²² It is neither factually nor ideally true that individuals are indebted only to those with whom they agreed to have dealings.

The hope that evolution will decide whether the individual or society is the *telos* of human nature assumes a false choice. The evolution of autonomy denies both that individuals are born only to serve society and that individuals inherit no debts to society. To overemphasize either collectivity or individuality obscures how the preconditions of human nature render human society and individual freedom interdependent.

3. *Competition vs. Cooperation in Human Nature*

In the history of Darwinism, the evolutionary roles individuals and societies have often been debated in terms of the adaptive value of competition and cooperation. After Darwin credited natural selection for adaptive change, some Darwinians concluded that competition is responsible for whatever evolutionary progress there is.²³ Yet the evidence of human history—as bloody as it is—does not suggest that human cooperation is secondary to our competitive natures. Early critics of Social Darwinism such as Lester Ward and Thorstein Veblen showed that cooperation and collective institutions are more important for enabling human progress than struggles between individuals.²⁴

Competitive individualism is part of the baggage of Newtonian metaphysics, skewing causal explanation toward forceful interactions between lowest level units. But what of advantages of cooperation for groups acting as groups? Group selection theories attribute some forms of adaptive progress to the advantages of cooperation, i.e., of collective behavior. Those theories claim that adaptiveness is an emergent property of groups, so that when groups support each other cooperatively they benefit *as a group* against competing species. Darwinians, to the contrary, have typically explained group traits as nothing but aggregations of lower level effects of individuals struggling to survive. Even

22. *Dependent Rational Animals*, Notre Dame, 2001.

23. E.g., Richard Dawkins on arms races: “it is largely arms races that have injected such ‘progressiveness’ as there is in evolution...the arms-race idea remains by far the most satisfactory explanation for the existence of the advanced and complex machinery that animals and plants possess” (*The Blind Watchmaker*, 1988; 178).

24. Lester Frank Ward. “Mind as a Social Factor,” *Mind* 4 (October 1884): 563-73; Thorstein Veblen, *The Theory of the Leisure Class*, New York: Macmillan, 1899.

when cooperating, individual organisms are the target of selection. According to Darwinian individualism, a fleet herd of gazelles is a herd of fleet gazelles: it is not the fleet group that selection favors, but fleet individuals that out-compete the less fleet.

Darwin himself did not rule out group selection. He recognized the difficulty the individualistic model had explaining altruistic individuals who sacrifice themselves “for the sake of the group.” After all, how could individualistic selection select for self-sacrificial altruists when they don’t survive to reproduce? If selection favored self-interested individuals only, so group-selectionists protested, there would be no altruistic instincts, whereas there are many examples of individual self-sacrifice for the group (e.g., maternal care, warrior castes, service castes, etc.). Thus altruism became the immovable object of group selection theories.

So it’s no wonder that reductive individualists hailed the discovery of kin selection by Williams and Hamilton in the late 1950s. According to their work, altruistic behavior is not accounted for by the adaptiveness of groups, but rather by selective pressure to protect the shared genes of one’s kin. (Here altruism means self-sacrificial behavior, not self-sacrificial intentions for moral purposes.) As Williams and Hamilton showed, instances of prehuman altruism covary with the percentage of shared genes. Altruistic behavior is more likely to occur the more genes the beneficiary of altruism shares with the altruist. In that case, despite appearances to the contrary, altruism should be understood as just another way of passing on *one’s own genes* even though the altruist does not reproduce. Thus genic selectionists accommodated behavioral altruism to their theory that evolution is driven by gene maximization, a contest (at the lowest possible level) in which the winners are the genes that proliferate most. Cooperation, though apparently non-competitive, is just a disguised form of genetic self-interest. So genic individualism need not surrender to group selectionism, and gene competition is not contradicted by cooperation at higher levels.

At best, however, even if instinctual altruism is underlain by shared genes, the gene-maximizing explanation of altruism only softens the problem of self-sacrifice for the group rather than dissolving it entirely. If group selection were true, one would still expect that pre-human altruism depends on a shared genetic interest rather than on a wholly disinterested self-sacrifice. After all, *the kin are the group*. Who would expect that ants would sacrifice themselves to save grasshoppers? And how would altruists know who to save if not by instinctively preferring kin? The sharing of genes does not make the case for genetic individualism *rather than* group selection. Group-selectionists can simply maintain that kin selection explains the mechanism of group selection at a lower level.

If multiple levels of interaction are at work here (genes, organisms, groups), how does one assign agency? For advocates of higher level causes (such as cooperation) causal agency may be discerned through the concept of motivation. Is the motive of altruism really better explained by genes or by group interests? From the group selectionist perspective, it is question-begging to focus on kin selection’s effects of gene-maximization rather than on the cooperative behavior that brings it about because *the property of adap-*

tiveness adheres to the cooperative behavior, not to the genes themselves. If organisms are trying to adapt, and if cooperative behavior is more adaptive than non-cooperative behavior, it is the cooperation that should get the credit for adaptation, not some fictional attribution of self-interest to a gene. Assuming the Darwinian end of survival, cooperation is the means to that end, and cooperative genes are the means to cooperation. The genes for altruism are not the *motive* of cooperation; they are its *means*. By contrast, cooperation really is a motive of organisms. It is the adaptive advantage of cooperation that explains why that behavior occurs, whereas the kin-selection account of genes only explains the resulting distribution of genes.²⁵

Of course, the sad truth is that life often feels like a competitive struggle to survive, which partly explains the perennial appeal of the competitive view of life to the tough-minded philosophers of whom William James spoke. Nonetheless, it is a conceptual error to think that natural history shows competition to be more fundamental to evolution than cooperation. That should be obvious for all sexually reproducing species: no matter how tense the war between the sexes, their very existence depends on cooperation. What could be more fundamental than that?

More theoretically, it is hard to imagine how the essentially cooperative features of human nature such as language and culture could have evolved in a landscape of individuals not already disposed to cooperate. Cultural evolution presupposes mutual identification and a shared moral sensibility as well as imagination of the future. True, it is the aim of socialization to create such mutual identification and shared sensibility, in which case cooperation can be credited to nurture as well as to nature. But nurture itself would never have arisen if cooperation were not already instinctive. Theories that try to derive cooperation from competition founder on this point. Hobbes' social contract theory famously drew the evolution of cooperation out of a society of self-centered individuals, a state of nature with its brutish and short-lived war of all against all. The hardships of Hobbes' state of nature are supposed to have motivated our ancestors to accept tyrannical rule in the interests of peace. But the possibility of a social contract presupposes the very capability for cooperation that a primarily competitive model of evolution rules out. If Hobbes were right that instinctively selfish lives in the State of Nature were nasty, brutish, and short, no one would have had either the time or the imagination to negotiate a social contract. The possibility of negotiating presupposes the

25. Heuristic counterfactuals are not a monopoly of competitive individualists. When Dewey makes his case for the adaptive advantage of cooperation, he hypothesizes some ancestor going through the costs and benefits of aiding the weak: "in looking after these helpless we shall develop habits of foresight and forethought, power of looking before and after, tendencies to husband our means, which shall ultimately make the most skilled in warfare. We shall foster habits of group loyalty, feelings of solidarity, which shall bind us together by such close ties that no social group which has not cultivated like feelings through caring for all its members, will be able to withstand us." Dewey himself concludes: "In a word, such conduct would pay in the struggle for existence as well as be morally commendable" ("Evolution and Ethics", *The Monist*, Vol. VIII, April 1909, No. 3, pp. 321-41; reprinted in Nitecki and Nitecke (eds.) *Evolutionary Ethics*, Albany, NY: SUNY Press, 1993.) Dewey's scenario is historical fiction (albeit more realistic than selfish genes), although that fiction explains the evolutionary advantage of cooperation. That is, his argument does not explain altruistic behavior by showing its motives, but rather by showing its advantageous effects.

very ability to cooperate that Hobbes is supposed to be explaining.

Ironically, the articulate individualism celebrated by defenders of competition is only possible because people—unlike ants—are not wholly programmed to respond thoughtlessly to their behavioral cues. Any species in the thrall of its competitive instincts would never have developed the shared resources required for creative progress. But given the ambiguities of human history, evidence of human nature can be selected to favor deep assumptions like those of the Newtonian-Humean-Hobbesian legacy. Evolutionary metaphysics aside, the evidence of infancy and childhood suggests that humans have both self-centered and bonding instincts, that both kinds are adaptive, and that neither is more fundamental than the other.

4. *Past vs. Future*

In recent decades the problem of determinacy and freedom has re-emerged with debates over sociobiology (1970s) and evolutionary psychology (1990s). Where some scientists have emphasized humanity's graduation from biological evolution (mediated by genes and instincts) to cultural evolution (mediated by culture and reasoning), sociobiologists and evolutionary psychologists have emphasized the ways in which human nature is still biologically determined by its past. Two issues coincide here: what can these disciplines tell us about our past and what are the implications of our past for our future? Even with our potential for autonomy, how much are our ethical choices curtailed by the biological burdens we have not chosen?

In the 1970s sociobiology burst onto the scientific scene with some very strong claims for itself. In a notorious passage on the impossibility of transcending biological imperatives E. O. Wilson claimed:

The genes hold culture on a leash. The leash is very long, but inevitably values will be constrained in accordance with their effects on the human gene pool. The brain is the product of human evolution. Human behavior—like the deepest capacities for emotional response which drive and guide it—is the circuitous technique by which human genetic material has been and will be kept intact. Morality has no other demonstrable ultimate function. (1978, 176)

Speaking of constraints, what does this leash metaphor really say? The metaphor is too vague to be scientifically precise. Everything depends on just *how* long the leash is. It would be trivially long if it only meant (a) that if people do not reproduce they will die out. In that case, the leash only constrains us to reproduce. The leash is a bit shorter if it means (b) that instincts will take thousands of years to die out and we will have put up with them in the meantime. But even so, merely having instincts does not imply that we must be controlled by them. The leash would be shorter than some would allow if it means (c) that morality cannot transcend its biological origins to serve other, perhaps counter-instinctual motives. Critics would object that this identifies the aim of morality with survival.²⁶ How plausible are these leashes? If the genetic leash means only (a), it

²⁶ Even that aim is too imprecise. If morality is dedicated to the survival of the genome, does that prompt

is trivial, since only science fiction writers imagine worlds without reproduction. If the leash means (b), the durability of instincts remains to be seen, especially since it is not yet clear what they are. But if the leash means (c), it is clearly false. Morality and idealism take on lives of their own and need compromise with species-survival only to the trivial degree that (a) is true. But (a) hardly requires that morality have no other function than the reproduction of genes.

Wilson's last line reveals the metaphysical agenda of sociobiology as a worldview. To begin with, its subordination of human behavior and morality to the agenda of genetic reproduction reduces agency to force. Genes chemically enable organisms to develop themselves as they do. But however necessary to organisms, genes are not agenda-setters; they are agenda enablers. Lust is not part of a genetic agenda; nor is morality. Maximizing genes is no more the function of morality than electron transmission is the function of talking on the phone. People talk on the phone for reasons, and electronic transmissions are the means for doing so.²⁷ The primary function of morality is to coordinate society. But even the social perspective is too narrow. Moral idealism can evolve beyond its social function to be defined by personal life-projects.

Wilson's reference to ultimate functions (cf. Dawkins' reference to the cosmic utility function of gene maximization)²⁸ substitutes metaphysics for biology. Metaphysics decides ultimate functions, not biology. The fact that something has adaptive value does not mean that its adaptive value is its ultimate function unless one adopts a sociobiological metaphysics that stipulates that particular priority of functions. Without such an assumption Wilson's claim is contradicted by both Nietzsche and traditional religion (together for the first time): if nowhere else, Nietzsche agrees with traditional religion that morality can provide a meaning to life that is superior to survival (the fictions that enhance vitality). Who then is to say which function—gene maximization, social harmonization, or personal meaning—is ultimate and by what standard?

Lowering our sights to biology and its implications for ethics, critics of Social Darwinism have charged that the distinction between past and future selves gets lost when natural historians and sociobiologists reduce human nature to its past and its genetic leash. The crudest versions of this error are those that identify human nature with particular animal prototypes that humans (or some humans at some times) are supposed to resemble. Certain traits are singled out as adaptive, e.g., aggressiveness, nurturing, ability to deceive, bartering, sexual promiscuity, etc. The less morally edifying portraits of human nature have challenged traditional ethics in two ways.

- First, the assumption that we are biologically determined to sin denies the traditional view that we can choose right actions. Where traditional idealists enjoined us to follow our angelic nature rather than our animal nature, the

conservative behaviors that resist change or bold behaviors that maximize gene proliferation?

27. Not even evolution has the agenda of gene maximization; if evolution has a broadest agenda, it is diversification. Many species adopt survival strategies that have little to do with gene maximization but which add to the diversity of life. Cf. H. L. Fairlamb, "Nature's Two Ends: The Ambiguity of Progress in Evolution," *The Southern Journal of Philosophy*, 1997;35(1):35-55.

28. Richard Dawkins, *River Out of Eden*, 1996.

more reductive Social Darwinians and naked ape theorists argue that the human nature just *is* its animal nature.

- Second, by attributing human progress to our competitive, even predatory nature, Social Darwinians have implied that future progress depends on more of the same.

Sociobiology preserved some of the genetic determinism of Social Darwinism, but focused less on personality types and more on specific behaviors that might have had adaptive value. The further transformation of sociobiology into evolutionary psychology has mitigated some of sociobiology's genetic determinism by acknowledging the importance of interaction between genes and environment (thus fine-tuning the balance of nature and nurture). Moreover, the invention of the modularity model of instinctive behaviors allows a plurality of evolutionary behaviors to be inherited independently, however ethically inconsistent with each other. If certain competitive and cooperative reactions were adaptive, we might have evolved instincts for both types of behaviors despite the ethical tension between them. With this more fine-grained view of instincts, today's evolutionary psychologists are less likely to reduce human nature to a particular profile, or to suggest that human nature reduces to nothing but its instincts for survival. Any given "module" is just a fragment in a much larger suite of diverse behaviors. These theoretical innovations are consistent with the evolution of autonomy, whose combination of determinacy and plasticity they help to explain.

Regarding evolutionary ethics, sociobiologists and evolutionary psychologists have proven more accommodating to idealism than their Social Darwinian predecessors. But even if we should encourage our ethically ennobled side, they demure, realism requires that we recognize what is predetermined (sociably or unsociably) if only to better utilize our raw materials. Our genetic leash is a natural limit to moral idealism that we must take into account. A world of cooperation and civility is better than a world red in tooth and claw, and is therefore worth seeking, but our ideals should not blind us to the facts of the matter.²⁹

Scientists and philosophers should be reluctant to rationalize not looking facts in the face. But even granting the usefulness of facts about our instincts, there are still caveats regarding biological determinism.

First, there remain questions about how much our excavations of the past can demonstrate. Critics of sociobiological hypotheses have charged that speculation about what

29. Richard Alexander explains: "It follows that my use of the word biology in no way implies that moral systems have some kind of explicit genetic background, are genetically determined, or cannot be altered by adjusting the social environment. Nor am I about to espouse a Social Darwinist view of morality or claim that organic evolution offers a means of identifying proper modes of behavior. I mean simply to suggest that if we wish to understand those aspects of our behavior commonly regarded as involving morality or ethics, it will help to reconsider our behavior as a product of evolution by natural selection. The principal reason for this suggestion is that natural selection operates according to general principles which make its effects highly predictive, even with respect to traits and circumstances that have not yet been analyzed, or perhaps even encountered by scientists" (11-12). *The Biology of Moral Systems*, Hawthorne, NY, Aldine, 1987. Alexander is right to subsume morality into the realm of evolving systems. But to decide what is "natural" one must distinguish cultural teleology from biological teleonomy, which is not easily done.

our ancestors must have been like has too few controls, and that with the diversity of human behavior, one can find putative vestiges of almost any hypothetical ancestor one could imagine. Given the diversity of human behaviors, testing such speculation would require precise analysis of enough data to rule out circumstantial and cultural alternatives to instinctive causes.³⁰

Second, even if one can discover evidence of asocial behavior in the past, there is still the inherent danger that by “prudently” accommodating our inner apes we underestimate our potential for autonomy. The danger here is not pessimism about human nature, but *premature* pessimism. This danger lurks no matter what the facts of our past are. Insofar as our evolutionary attractor is for increasing self-determination, and insofar as human nature already has considerable adaptive plasticity, past behaviors may not predict what can be done under more ideal conditions, especially since conditions for self-determination have never been ideal. Our past behaviors might have been different had conditions been more edifying. In that case, our past is not a record of what human nature was capable of even then, but a record of what it was capable of *under less than optimal circumstances*. The risk is that a premature pessimism based on the past’s less than optimal circumstances becomes a self-fulfilling prophecy. By setting premature limits to sociability, pessimists may foreclose moral improvement before we know what our limits really are.

Given human nature’s tendency to become what it imagines, scientists may wonder whether it is better to err on the side of optimism or pessimism about human nature. History shows what comes from assuming the worst. Even putting aside genocides and ethnic cleansing of other cultures, it was anthropological pessimism that led Augustine to justify coercion in the name of the one true faith, that led Hobbes to justify tyranny in the name of peace, and that led Stalin to justify totalitarian rule in the interest of the working class. Even if human nature is burdened with inconvenient instincts, the degree to which autonomy can be achieved can only be discovered by preparing for the best, not by preparing for the worst.

Scientists and philosophers should not object to discovering unpleasant sociobiological truths. Nor can they object to publicizing them *if they are true*. There may be a problem, however, with the methodology of pan-adaptationism, the assumption by some determinists that all traits have been selected for their adaptiveness. In one sense, of course, all science assumes determinacy in order to discover it. But if sociobiology and evolutionary psychology begin by assuming strict adaptive determinacy, they rule out a priori human nature’s plasticity and autonomy.³¹

Evidence for human autonomy vitiates the pan-adaptationist assumption while

30. Such studies are not impossible. Cross-cultural studies have shown, for instance, that abuse of children by step-parents is 70 to 100 times more likely than with natural parents. This is what genetic theories of kin-selection would predict. Martin Daly and Margo Wilson, *Homicide*, Aldine de Gruyter, 1988.

31. While the possibility of adaptive determinacy may be a useful methodological starting point, pan-adaptationism would be intolerable as a conclusion if unchastened by the efforts at falsification that Popper recommended. The more circumspect evolutionists have warned against attributing adaptation as a cause without adequate demonstration. Cf. George Williams, *Adaptation and Natural Selection*, Princeton, 1966.

confirming the adaptive preconditions for autonomy. To the extent that plasticity itself becomes adaptive, one would expect for human nature at least a mix of instinctive adaptations and found adaptations perpetuated by culture. Whether certain behaviors are instinctive or not may be determinable by various experiments (e.g., the ease with which certain logical problems are solvable if associated with cheating).³² In such cases the adaptationist view might explain where instinctive biases might have come from (e.g., the adaptive value of cheater-detection). But human plasticity is itself an adaptation that resists hardening into a too particular regime of behaviors.

In sum, the emergence of autonomy predicts—along with sociobiology and evolutionary psychology and against the Blank Slate model—that there is some determinacy in human nature, at least enough to enable the skills of autonomy. But it denies pan-adaptationism for both theoretical and ethical reasons. Pan-adaptationism is theoretically inadequate insofar as it fails to see how indeterminacy can be adaptive. It is ethically pernicious insofar as it minimizes the human potential for autonomy in the name of instincts for survival.

5. *Beyond the False Dichotomies*

The influence of the Age of Newton on Darwinism—with its reductive conception of scientific explanation—bequeathed several metaphysical errors that have obscured the biological foundations of evolutionary ethics:

- If evolution has no *telos*, there is no final causation beyond human purposes
- Scientific explanation must reduce causal explanation to the lowest level
- The ultimate causes are the blind laws of force
- Competitive selection drives evolutionary progress
- Human nature is fixed by selection for adaptive behaviors

Newtonian atomism prompted a reaction by holistic theories of evolution resulting in a legacy of false explanatory dichotomies: simplicity vs. complexity, atomism vs. holism, individualism vs. society, competition vs. cooperation, and determinacy vs. freedom. The choices are false because in complex systems these terms are not alternatives but are parameters in evolution's opportunistic diversification into whatever forms can survive. Happily, the science of complexity yields an ontology of freedom that escapes such oversimplifications.³³

On the other hand, the burdens of the Newtonian-Humean legacy are not only ontological, but normative as well, including modern moral philosophy's "separation of fact and value" and its "naturalistic fallacy." Just as the teleonomic view of life must transform our concept of final causation, so the teleonomic view of evolution must change our view of how human interests and obligations are implied by evolutionary facts.

³² Barkow, Cosmides, and Tooby, *The Adapted Mind*, Oxford, 1992.

³³ See the work of Stanley Salthe on the basic ontology of complex systems as products of evolution; esp. *Development and Evolution: Complexity and Change in Biology*. Cambridge: MIT, 1993; and *Evolving Hierarchical Systems: Their Structure and Representation*. NY: Columbia, 1985.

E. THE EVOLUTION OF FREEDOM: FROM ETHICS TO POLITICS

When Darwinism put the theological interpretation of human nature in doubt, some philosophers and scientists sought to find ethical implications in (what then seemed to be) the progressive thrust of evolution. But such attempts to wrest values from facts ran up against a view—descending from Hume’s metaphysics (via positivism) and Moore’s ethics³⁴—that blocked direct implication from facts to values. The prestige of moral anti-naturalism led many 20th century philosophers to discount evolutionary ethics in principle. But these critiques do not touch an evolutionary ethics based on human nature’s most adaptive trait, autonomy.

1. *Facts vs. Values (Hume)*

Hume’s famous separation of *is* and *ought* was an assumption of many philosophers and scientists throughout the 20th century. Hume’s view followed from his Newtonian explanation of morality in terms of the force of passions. Faced with the diversity of moral cultures, it seems logical to acknowledge the extent to which socialization shapes morality according to the accidents of history. Likewise, if culture authorizes the social habits we call morality, morality is no longer natural but conventional. Hume’s emphasis on local norms dealt an epochal blow to the natural law view of morality and began the drift toward moral relativism that has recently found a home in postmodern political thought.

Hume’s challenge to ethical naturalism amounts to two claims: first, that morality is constituted by social conventions rather than by natural law; and second, that moral arguments cannot deduce moral implications from facts. As it turns out, these are quite different issues, and neither is as all-encompassing as is often supposed.

Hume’s critique of natural law moralities depends on a distinction between natural laws and human laws. As Hume rightly points out, natural laws are *physically* necessary, in which case they cannot be broken. By contrast, we need prisons precisely because civic laws can and will be broken. If natural laws describe events that are necessary, and if human laws aim to control events that are voluntary, then we misrepresent the authority of morality by referring to it as natural law. Instead, Hume argues, we should recognize that it is society that creates morality and that socializes its members into an acceptance of those standards.

Furthermore, Hume anticipates Moore by questioning moral predicates. When we call something right or wrong, do we refer our moral predicates to a property in the natural world? Hume says no; anticipating the moral emotivists, he says that moral predicates merely express our own (subjective) reaction to (objective) properties in the world. To make his point Hume contrasts our use of the terms “parricide” and “wrong.” The referent of parricide (parent killer) may be in the world, but the referent of the moral term (wrongness) is not. Note that the offspring of people and trees sometimes kill their parents. Both examples of parricide refer to events in the world. But we distinguish

34. *Principia Ethica*, Cambridge, 1903.

people and trees when we apply the predicate “wrong”: we only apply it to people. To Hume this shows that wrongness depends on our reaction to the deed, not to the nature of the deed, which is the same in both cases.

For Hume, there is a categorical gulf between facts and values, a gap that prevents moralists from deducing an *ought*-claim from an *is*-claim. In his short but influential remarks at the end of his *Treatise*, Hume notes that many people blithely pass from statements about facts to statements about values. But *is* does not imply *ought*. It may be a fact that sprouts are vitamin rich, but that does not imply that we should eat sprouts. We may get what sprouts have to offer from other vegetables. Rock-climbing may be dangerous, but that does not mean that we should not rock-climb. One may be a very safe and talented rock-climber who is uniquely fulfilled by rock-climbing, or one may have to climb rocks to save passengers of a crashed airline. In short, we cannot deduce that we ought to do or not do X from the truth that X is a good or bad.

Despite Hume’s enormous influence, when taken separately each point proves to be less radical than his descendants would have us believe. In particular, neither point denies the ethical implications (properly drawn) of autonomy as the *telos* of human evolution.

Hume’s reduction of morality to socialized feelings depends on his adoption of Newton’s anti-teleological premises. Given those assumptions, it is not surprising that Hume finds human desires to be as irrational as physical forces as both are the blind movers of the world machine. If one views passions in isolation, as if they were distinct forces, it may very well appear that they are as contingent and unnatural as social conventions.

But morality has a function—social harmonization—that even Hume understood is not entirely contingent. Indeed, Hume conceded that something like natural law actually does exist in the principles of justice. Though Hume denied that moralities are consistent across societies, he acknowledged that societies all seek to harmonize individual actions (thus granting a teleological dimension to morality) and that on the most general level, the foundational principles of justice (defense of property, prohibition of murder, prohibition of fraud) are have the same general aim, though not in detail. Thus the tendency of all societies to seek harmony by way of laws against theft and fraud resembles a natural law. But if this is the case, then the irrationalism that Hume imputes to the passions is denied to the extent that socialized passions aim at the most harmonious social order possible.

The covert teleology of Hume’s sociological model undercuts his denial that moral predicates pick out objective properties. If conventions of morality and justice are the natural means for achieving collective welfare, then moral attributions may refer to objective efficiencies and inefficiencies in the social system of harmonization. In that case, moral predicates do not just express feelings we have, but refer to objective properties of the social system (which is not to say the references are true). Regarding the social functional content of moral claims, the Newtonian view gets the direction of explanation backwards. Parricide is not wrong because we *feel* it is wrong; rather, we feel parricide is wrong (whether by nature or nurture) because it violates primal social bonds. In

evolutionary terms, antipathy to parricide reflects its unadaptive effects for the human community, one of our adaptive enablers.³⁵ When the *telos* of social harmony is taken into account, moral passions are not merely contingent, blind, irrational, and subjective but are more or less rational and objectively sociable according to their contribution to the health of society.

But just as Hume's metaphysics led him to underestimate the rationality and naturalness of passions, so Hume's descendants perpetuate subjectivist readings of evolutionary ethics. This is especially ironic insofar as adaptive explanations only make sense on the basis of objectively real social dynamics. As Michael Ruse explains, if altruistic behavior makes societies more adaptive, humans might "be programmed to think in certain broad patterns of cooperation, where this preprogramming would not be sufficiently stringent as to restrict their actions completely [as in insect altruism] in any particular situation... [Rather, evolution has] filled us full of thoughts about the need to cooperate... [i.e.,] beliefs about obligations to help" (1993, 147).³⁶ So what is the status of those beliefs? Rather than seeing that ethics, if it tracks adaptive conditions for well-being and survival, has a foundation in objective goods, skeptical materialists still cannot liberate morality from Hume's subjective prison of mere thoughts. Sociobiology does not tear down the walls of Hume's prison; it merely explains why we normally don't see the walls: "even though morality may not be objective, in the sense of referring to something 'out there,' it is an important part of the experience of morality that we think it is. Its phenomenology, if you like, is that we believe it to be objective."³⁷

Surely this sort of explanation tries too hard to preserve moral subjectivism in the face of contrary evidence. Families have interests as a group; cooperation serves those interests; animals evolved motivations to serve the interest of the group; morality is the human system of thoughts that enshrines our group interests. Moral expressions refer (truly or falsely) to real aspects of the social world, some of which is natural, some of which is constructed. Whether one chooses the group-selection model or the kin-selection model, the objectivity of group interests pertains: odds of survival, plentiful food supply, resistance to predators really determine chances of survival. As natural goods they are motives of behavioral altruism. By extension, they are objective grounds for human morality as well. Of course, there may be some moral motives that refer to purely subjective goods (the goods of pleasure, taste, imaginary adventures, etc.) or to illusory obligations (duties to slake Baal's thirst for blood, to obey the king, to believe all religious authorities, etc.). But the fact that some of morality's foundations are specious or subjective does not mean that all are. Indeed, that is just what the kin selection theory of behavioral altruism denies.

Where Newtonian explanation sought causal forces, evolutionary theory explains in terms of final effects: if passions are structured to reconcile social harmony and indi-

35. Morality's implicit reference to social harmony vitiates Hume's analogy to trees parricide. Since trees have neither social harmony nor choice, there are no social bonds to be violated.

36. "The New Evolutionary Ethics," in Nitecki and Nitecki.

37. *Op. cit.*, 153.

vidual autonomy, they are rational, natural, and objective whether those passions are effects of instinct or social arrangements. We may allow Hume that differences between moralities must be explained by historical contingencies rather than by nature and that some moral claims refer to illusions. But the ideal of harmonized autonomy is natural and objective, which allows philosophy some critical leverage on the historical contingencies of morality and justice.

Once the prospective nature of evolutionary ethics is recognized, Hume's concerns about not deducing duties from facts are beside that point. Indeed, it is less misleading to call Hume's view *anti-deductivism* than anti-naturalism. Hume's real target was not Aristotle's naturalism—which takes a prudential and probabilistic approach to practical reason -- but rather the quasi-scholastic practice in his time of *deducing* ethical injunctions from facts about what is good. Unlike scholastic arguments about morality, prudential theories of practical reason care less about rules and more about estimating probabilities of success and weights of competing goods and evils.

2. *Good as a Natural Property (Moore)*

After Hume, G. E. Moore's critique of "the naturalistic fallacy" has been the greatest obstacle to an evolutionary ethics. Indeed, Moore's critique was partly inspired by Darwinian arguments that nature defined good as fitness. Beyond Social Darwinism, Moore generalized his critique to disallow the identification of goodness with any natural property. In the spirit of ordinary language philosophy, Moore noted that "good" is not like other predicates insofar as it cannot be reduced to natural properties.

Moore defended this view by his use of what has been called the Open Question Argument. He began with the observation that we often refer to certain natural properties as being good. This would seem to follow the traditional view that there are certain natural goods such as pleasure and health that might prompt us to say "The music was good because it was pleasurable" or "My holiday was good because I was able to get some rest." But Moore noted that as obvious as these explanations seem, it is always possible to ask: "But *was* it good that the music was pleasurable?" or "But *was* it good that you were able to get some rest?" With a little imagination, it is conceivable that we might answer these questions in the negative. For instance, it is possible that someone who is overworked might be better off completing what was started than stopping to rest. In that case, rest might be a short-sighted good. Or some disabilities might actually require exertion for recovery rather than rest. For Moore, however, the fact that the question is *always* open means that goodness cannot be identified with any particular natural properties. To do so commits "the naturalistic fallacy."

One can draw several conclusions from this unique feature of the predicate "good." Echoing Hume, moral emotivists concluded that moral predicates only expresses our feelings about whatever such predicates refer to. Moore took a more Platonic route, concluding that though people do have an idea of goodness, it is not a natural property of things. Rather, it is a pure intuition, which means that goodness is indefinable.

Moore's argument gets some traction against theories that would simply identify goodness to certain natural properties, but subtler moral naturalisms can avoid such oversimplifications. The naturalism of Aristotle, for instance, avoids the reduction in question by distinguishing *goods* as healthy end-states and *goodness* as a property of things. There are natural or intrinsic goods (health, learning, fellowship, etc.), which are the (teleonomic) goals of various natural urges or desires. This naturalism is consistent with Moore's use of the "method of isolation" to discover intrinsic goods: asking whether life would be worse off without some good. In general life would be worse off (less healthy) without natural goods. But the existence of natural goods does not imply that the predicate *goodness* can be identified with a natural property.

Like Hume's anti-naturalism, Moore's gets little traction against a prudential naturalism. The "all things being equal" character of natural goods does not imply that, while normally good, their achievement is good in every instance. To the contrary, Aristotelian prudence insists that realizing goods in practice is an art (of estimation) rather than a science (of necessity), involving complex relations between means and ends. We may have to choose which good to aim at, or between competing goods, or between competing means of achieving the aimed-at-good. Even if aimed-at-goods are good in principle, prudence distinguishes the right good for the moment and the right means according to circumstances. Though ethics *begins* with the facts of natural goods, ethical judgment goes beyond the science of goods to the art of prudently adjusting local means to ultimate ends.

To return to the linguistic idiom, it matters whether *good* is a noun or an adjective. If it refers to natural goods, then it behaves like all other facts: there are, in general, certain natural goods. The use of the adjective is where generalizations fail and where Moore's Open Question Argument shows its teeth: while there are natural goods, it is not always good to seek them and they may sometimes be mixed with prohibitive penalties and costs. Moore's Open Question Argument identifies a real fallacy that would occur if someone were to confuse the nominal and adjectival senses of goodness. As long as one is merely referring to the facts of natural goods, however, the fallacy does not arise.

While Moore's intention may have been to wrest goodness from the jaws of Social Darwinism, his insight clarifies the complexity of autonomy as a natural good, thereby restoring the prospects for an evolutionary ethics. Unlike personal traits such as cleverness, beauty, or wit, autonomy is a more generally adaptive trait that bears an open-ended relationship to our more particular traits. Like prudence, which presides over the other virtues, autonomy implies the ability to use other traits for ultimate ends. We are prudent to the degree to which can answer Moore's Open Question Argument with the best possible answer from imagined alternatives. We are autonomous to the extent that we can imagine preferable alternatives to the *prima facie* goods Moore would expose as superficial.

The *telos* of autonomy avoids the subjectivity of Moore's intuitionism while benefiting from his critique of reductive naturalism. The naturalistic fallacy can be set aside merely by allowing (a) that certain things are natural goods but also (b) that arranging them

properly requires prudent judgment. This at once allows that there are natural goods, that freedom is one of them, and that freedom complicates the problem of choosing the right means at the right time. The fact that ethical choices are not predetermined does not imply there is something transcendent about the good (one might as well call it immanent). Rather, it means that while typical states of satisfaction are natural goods, what is good at this point in time is so by virtue of its relationship to the best possible good. Moore was right that goodness is not a natural property. But that is because it is a *relationship* between natural properties. The property of goodness is not so much transcendent as complex.

3. *Principles vs. Ends (Kant)*

In responding to Hume, Kant answered one moral anti-naturalism with another. It was Hume's reduction of morality to social conventions that prompted Kant to formalize the logic of moral choice. His answer was twofold. First, he tried to restore the deductive necessity to morality that Hume properly laid to rest. Not content to live with probabilistic moral inferences, Kant sought categorical necessities, duties that would be exceptionless: required at all times, in all places, for everyone. Categorical obligation, Kant hoped, would eliminate problems of prudential judgment and specious rationalization (not only for the common folk, but for religious casuistry as well). Unfortunately, Kant's theories of Pure Reason and Pure Practical Reason depended on assumptions about the apriori intelligibility of nature that have been discredited by modern science and epistemology. But where Kant failed as a moralist he succeeded as a social theorist. His attempt to discover universal moral duties led him to anticipate what an ideal of autonomy would require of a legal system, thereby providing the prototype for how the ideal of autonomy should constrain democratic polities. This unwitting success is marked by two significant ironies.

First, the very weakness of Kant's conception of morality—its legalism—suits it for a political philosophy of autonomy. Kant hoped to discover the rule that would always determine whether an action is moral or not. But if ethics does not reduce to rules, the task of designing the most just society does reduce to rules. In fact, that is the point: to find the most basic laws of the just society.

The second irony of Kant's project is that, while trying to imagine a moral theory that was formal and categorical rather than teleological, he conceived of the conditions of the society whose *telos* is universal autonomy. Kant recognized that if individual autonomy were the ideal of a moral system, everyone would be (1) equally obligated as fully autonomous moral actors and equally free to exercise their moral judgment, and (2) that everyone would be obligated to respect in others the same basic rights they claim for themselves. Of course, people do not have an equal capacity for autonomy, but they need not for Kant's model to have traction. The point is not that everyone is already autonomous, but rather that—given our biological inheritance—*no one can be justly counted out from the start*. The only way to discover how autonomous people can be is to empower

them to be autonomous, or at least allow them to be.

Where some social theories begin with the pessimist assumption about human potential for morality, Kant reasoned that morality requires that we begin from the other end, the *telos* of the free society. For a society that presumes to be free, the premise of equal moral autonomy is a necessary presupposition given that we do not know in advance that anyone is incapable of moral autonomy (of course, proven criminals may have counted themselves out for having violated the rights of others). The fundamental rule of the ideally autonomous society is that everyone treats others as “ends-in-themselves” and not only as a means to her own ends. Translated into laws, that ideal becomes a prohibition against institutions that enable some to exploit others; such institutions would block the potential autonomy of the exploited citizens.

Though Kant understood the truth of his theory as a formal truth rather than an empirical truth, his model fits an evolutionary ethics of autonomy perfectly. If the end of human evolution is the moral autonomy of all, then that end cannot favor the freedom of some at the expense of others, and the just society must be founded on the prohibition against domination and exploitation. The consequence of such prohibitions would be (a) to allow freedom to develop one’s autonomy, and (b) to allow as much freedom for individuals as is consistent with the same freedom for others (free speech, freedom of religion, freedom of lifestyle, etc.). In short, the opportunity for universal autonomy is the first principle of the legal order and its preservation is the first responsibility of the state.

Despite his faulty theories of mind and morality, Kant solved the political problem of autonomy after Newton, not by discovering the form of the ideally moral individual, but by prohibiting the institutional obstacles to universal freedom. Some may object to the generality of his scheme and the vagueness of the prohibition against domination and exploitation, yet that is just why it suits the evolutionary ideal of universal autonomy. By providing the general or formal standard under which individual freedom can best flourish, it allows for the widest possible range of diversity and accommodation of circumstances. Yet it rules out the institutional injustices that have been legitimated by ideologies of class domination.

4. Postmodern Anti-Teleology

Despite their differences, Hume, Kant, and Moore contributed to a generalized discrediting of natural foundations for ethics and justice. In the 20th century, liberal political and legal theorists chose the Kantian alternative to natural foundations by seeking formal procedures for “fair” resolutions of conflicts of interest. But as Habermas’ and Rawls’ careers show, without the authority of natural grounds, such appeals to reasonable procedures may only pit their subjective preferences for fairness against subjective preferences for traditional authority, rights of contract, rights of labor, etc. In the face of alternative foundational principles—say, those of traditional religions—liberal appeals to fairness lack a non-question-begging argument for why fairness trumps all other prin-

principles. By contrast, appeals to human nature have at least an objective and species-wide foundation in shared interests and biological facts.³⁸

Though increasingly popular around the world, liberal political philosophy has suffered defections from within its Western ranks in the form of postmodern attacks on objectivity, universality, foundationalism, essentialism, and meta-narratives of progress. The postmodern attack on foundationalism resulted from the failure of positivism and other foundational projects to discover an ultimate form, method, or criterion of science. This failure led thinkers such as Richard Rorty to reject the ideal of objective foundations for philosophy and politics.³⁹ The attack on essentialism follows from the failure of foundational methodology: if there is no privileged method of discovering human nature, then one cannot objectively pick out an essence of human nature. Lacking an objective essence, human nature dissolves among differences in epistemic, metaphysical, and methodological assumptions (e.g., eternal souls vs. utility-maximizing consumers vs. existentialist self-inventors, etc.). Here human plasticity is turned against the naturalization of ethical goals. Insofar as human ends and priorities have proven historically relative, the human *telos* must be defined historically rather than naturally. Just as continuous evolutionary change rules out the essentialism of fixed species, so the historical character of human nature discredits moral teleology. The postmodern rejection of “meta-narratives” of progress echoes Darwinism’s subversion of cosmic teleology with multiple trends. Just as Nature is indifferent to its outcomes, so is History indifferent to its ultimate human forms. Against the Hegelian tendency to read history as reason’s progress, postmoderns conclude that the loss of essentialism (whether natural or rational) entails the loss of any ultimate criterion of historical progress, biological or rational.

Unlike some Darwinian skeptics, postmodern anti-universalists generally presuppose human freedom at the expense of biological determinism. They take the plasticity and diversity of human nature as evidence that there is no human nature to explain or idealize. Moreover, past sexist, racist, and colonial uses of theories of human nature leads these skeptics to suspect utopian theories that would define human welfare for everyone rather than leaving it up to individuals to define in their own best interests. Ideologies of collective interests have too often, they charge, been rationalizations for domination by those ideologically privileged: the general good becomes an excuse for subordinating the many to the theories of the architects of justice. Thus in Athens (according to Aristotle) the general good needed the moral leadership of a class of aristocrats and a class of slaves upon which their leisure depended. In the 19th century (according to Social Darwinians) human progress required that the rich flourish unchecked and the poor be left to their just deserts. All such ideological fabrications, the postmoderns charge, betray the sort of radically individual freedom that would allow individuals to discover and

38. The teleology of autonomy cannot, of course, answer either radical skeptics or religious dogmatists. But then no one else can either. The ideal of autonomy has the strengths and limitation of natural facts.

39. *The Consequences of Pragmatism*, Minneapolis, Minnesota, 1982; *Contingency, Irony, and Solidarity*, Cambridge, 1989.

define their own ideal selves and forge their own moral and political alliances (hence, political localism).

Notwithstanding the disillusioned tone of postmodern politics, there is an irony in its claims to be pragmatic and realistic about ideological power: its fear of essentialism deprives its notion of freedom of any biological or political substance. Postmodern freedom lacks substance insofar as it brackets the social prerequisites of freedom for fear of collective impositions. But just as evolution must provide the biological preconditions of individual autonomy, so must society provide the enabling conditions of individual autonomy. Just as there is no meaningful notion of biological autonomy apart from a mind that can imagine alternative futures, so there is no meaningful freedom apart from the social conditions that prohibit domination and exploitation. Kant was right: Utopia may not have a blueprint, but it has universal, moral constraints against those who would sacrifice the self-development of others for their own. But to postmoderns, that sounds like collective impositions.

The short-sightedness of postmodern views of self-invention render them curiously coincident with the view of free market libertarians—the contemporary descendants of Social Darwinism—whose strong claims about property rights and free markets are deeply anti-egalitarian. Postmodern skeptics may doubt the universality of epistemic and normative foundations while libertarians speak confidently about the universality of property rights and market justice, but both positions reject the naturalization of individual goods by claiming that interpersonal comparisons of utility/goodness are impossible so that no one is in a position to represent the collective welfare of society as whole. Likewise, both postmoderns and libertarians dismiss the Marxian caveat about “false consciousness,” the postmoderns because that concept presumes an objective standard of truth and libertarians because it is the individual’s responsibility (not society’s) to have good information. Radical individualists—whether libertarian or postmodern—define freedom primarily in relation to *physical* constraints (i.e., natural selection, the state’s monopoly on the legitimate use of force, etc.) because these limitations on individual freedom are too obvious to be ignored and are always local in application. These coincidences have interesting political consequences.

Too focused on immediate physical constraints, and too wary of institutional authority, radical individualists too often ignore the systemic structures of power that control macro-evolutionary trends in biology and distributions of property in society. On the one hand, economic individualism collapses market behavior backwards into struggles for survival in nature, thereby naturalizing economic competition (oblivious to its institutional substance), thereby identifying economic success with justice. On the other hand, postmoderns abstract individual choice out of both nature *and* society, accepting the freedom of self-invention at face value. In both cases, the mere exercise of choice becomes a sufficient condition for freedom without attention to the systemic constraints on choice.⁴⁰ In both cases, the attempt to heighten the reality of individual action at the

40. As a number of critics have pointed out, Foucault was inconsistent on this point. In his early works Foucault proved remarkably sensitive to the ways in which social concepts and practices structure thinking

expense of collective constraints merely obscures the collective constraints that are as influential in economic life as they are in evolution. Indeed, individuals are far more subject to invisible hands in society than in nature. Thought the invisible hand in evolution determines that predator and prey depend on each other (to prevent overgrazing), the lion still does her own hunting. But the invisible hand of market dynamics makes and breaks fortunes with cavalier disregard for whether stock owners have earned their property or not.

Radical individualism—whether in biology, economics or politics—tends for ideological reasons to obscure or ignore institutional constraints and resources, the invisible hands that limit some actions while actively empowering others.⁴¹ This pragmatic convergence of economic individualism and postmodern individualism might be surprising given their different metaphysics: the former's reduction of human virtue to a competitive essence and the latter's denial of any human essence at all. But what explains their pragmatic convergence is the fact that both are forms of *selectionism* which, though different in form, are similar in their effects. Because both are willing for freedom to reduce to individual choices—regardless of their social conditions and collective effects—they both eschew the sort of systemic, collective constraints on individuals that preserve the widest possible opportunity for self-development and equality of opportunity. The result is that while libertarians and postmodern skeptics are suspicious of physical coercion, both are tolerant of vast inequalities of economic power, libertarians because they do not believe that free markets can be unjust, and postmoderns because they have no objective standard of justice by which to critique economic injustice. (Postmoderns do not usually admit to tolerating vast inequality but it follows from their ethical relativism.)

By contrast, a more adequate account of human nature gives collective interests and social dynamics their due, specifying both the psychological and the social preconditions that allow the emergence of autonomy. To the extent that the ideal of individual freedom is the attractor for human development, the free society is thereby naturalized, not as something already inherited from nature (as economic individualists argue) or as something that can be bracketed or conventionalized to make individual choice radically free (as postmodern localism implies). Against both of these truncated views of social systems, the evolutionary ideal of autonomy implies that if persons are supposed to be free, then society and its members are obliged to find the structures in which freedom is optimized for all. The *telos* of individual autonomy is already biologically visible: it is up to social theorists to determine the form that best realizes that ideal.

F. FREEDOM NATURALIZED

The definitive influence of physics on modern science and the peculiarities of the

below the level of conscious choice. But in his later work he appeared to reduce freedom to individual self-invention and resisted general theories of power and freedom. Rorty repeatedly rejected deep justifications of social ideals, appealing instead to an undertheorized ideal of consensus.

41. Many postmodern social theorists loudly protest oppressive social conditions. But without a theory of collective interests, they have no theoretical or normative leverage.

telos of freedom explain why problems of causality and the fact/value gap have confounded evolutionary ethics from the start. Partisans of determinism and freedom alike have tended to misunderstand how the evolution of autonomy exploits a unique history of biological innovations to yield the capacity for autonomy. Too focused on genetic determinacy, some arguments have promoted an ideal human type, which underestimates the significance of diversity. Others have underestimated determinism in an effort to make room for freedom. Others have denied any moral implications from evolution at all.

Against this vexed legacy, the science of complex systems discovers the significance of final causation for life in general and for human nature in particular. This restoration of finality clarifies the foundation of evolutionary ethics. Several key insights stand out:

- Teleology does not apply to evolution as a whole; rather, teleology emerges through increasing self-organization within organisms.
- Adaptive forms are attractors for evolutionary development; evolution is not wholly blind or random, but is constrained by the probabilities of the adaptive forms into which organisms may further develop themselves.
- The adaptive attractor of human nature has been the development of autonomy or self-determination, not a particular character type (whatever may have been adaptive in the past). Our end is the ability of diverse individuals to choose freely the ethically preferable course of action.
- Social progress does not result from encouraging competitive excellence (as in the ideal of a predatory species), but from the widest possible achievement of autonomy.

This reconstruction of final causation reconciles the subjective aspects of ethics with its collective and objective conditions. Though the subjectivity of ethics undoubtedly introduces conventional and personal contingencies, the adaptive values of autonomy and cooperation (esp. culture) are objectively grounded in the material conditions of human nature at the genetic, organic, and social levels of interaction.⁴²

Moral and political theorists of the 18th century saw in human nature a natural ideal of liberty. But the rise of mechanistic science rendered obscure how freedom could be the logical extension of biological determinacy. As our understanding of complex systems improves, however, we find that the coincidence of our biological inheritance and the future of self-invention are part of the same process of emergent autonomy.

Horace L. Fairlamb
University of Houston-Victoria
fairlambh@uhv.edu

42. This argument focuses on the political implications of evolution rather than the more specifically ethical question: is there a natural end toward which autonomous individuals should strive? That question is too complex to introduce here. However, the conclusion of this argument—the ideal of autonomy—presumes to be the context and starting point for that other issue.

BIBLIOGRAPHY

- Alexander, Richard, *The Biology of Moral Systems*, Hawthorne, NY, Aldine, 1987.
- Barkow, Jerome H., Leda Cosmides and John Tooby, eds., *The Adapted Mind*, Oxford, 1992.
- Bidney, David, *Theoretical Anthropology*, New York: Columbia, 1953.
- Daly, Martin and Margo Wilson, *Homicide*, Aldine, 1988.
- Dawkins, Richard, *The Blind Watchmaker*, 1988.
River Out of Eden. 1996.
- Dewey, John, "Evolution and Ethics", *The Monist*, Vol. VIII, April 1989, No. 3, pp. 321-41; reprinted in Nitecki, 1993.
- Fairlamb, H. L., "Nature's Two Ends: The Ambiguity of Progress in Evolution" *The Southern Journal of Philosophy*, 1997; 35(1): 35-55.
- Farber, Paul, *The Temptations of Evolutionary Ethics*, Berkeley, 1998.
- Foucault, Michel, *Power/Knowledge: Selected Interviews and Other Writings, 1972-1977*, New York, Pantheon, 1980.
- Hume, David, *A Treatise of Human Nature*, Oxford, 1888.
- Lyotard, Jean-Francois, *The Postmodern Condition: A Report on Knowledge*, Minneapolis, Minnesota, 1984.
- MacIntyre, Alasdair, *Dependent Rational Animals*, Notre Dame, 2001.
- Mayr, Ernst. *Evolution and the Diversity of Life: Selected Essays*. Cambridge: Harvard University Press, 1976.
- Monod, Jacques. *Chance and Necessity*. New York, Random House, 1972.
- Moore, G. E., *Principia Ethica*, Cambridge, 1903.
- Nitecki and Nitecki, eds. *Evolutionary Ethics*, Albany: SUNY Press.1993.
- Rorty, Richard, *The Consequences of Pragmatism*, Minneapolis: Minnesota, 1982
Contingency, Irony, and Solidarity, Cambridge, 1989.
- Ruse, Michael, "The New Evolutionary Ethics," in Nitecki.
- Salthe, Stanley, *Development and Evolution: Complexity and Change in Biology*. Cambridge: MIT, 1993.
Evolving Hierarchical Systems: Their Structure and Representation. NY: Columbia, 1985.
- Sartre, Jean Paul, (1961), "Existentialism and Humanism," *French Philosophers from Descartes to Sartre*, ed. Leonard M. Marsak (New York: Meridian).
- Skinner, B. F., *Beyond Freedom and Dignity*, New York, Random House, 1971.
- Veblen, Thorstein, *The Theory of the Leisure Class*, New York: Macmillan, 1899.
- Ward, Lester Frank Ward, "Mind as a Social Factor," *Mind* 4 (October 1884): 563-73.
- Williams, George, *Adaptation and Natural Selection*, Princeton, 1966.
- Wilson, E. O., *Consilience: The Unity of Knowledge*, New York: Random House, 1998.