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Evolution, Politics and Law

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Article

EVOLUTION, POLITICS AND LAW

Bailey Kuklin*

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I. INTRODUCTION

The law begins and ends with human behavior. The ends of the law focuses on human flourishing, and the means of the law is to channel human conduct. The needs and wants of humans ground the norms of the law, from the overarching to the secondary. Hence, for the law to be suitable and effective, it must be based on a clear vision of the human condition. Evolutionary psychology is a discipline that helps to meet this requisite, for it is a powerful, but controversial, vehicle for analyzing and understanding human behavior, and hence, legal and social doctrine. The aim of this article is to demonstrate the potential usefulness of evolutionary psychology. To achieve this, I discuss the

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controversy over the discipline and identify the political roots of the debate. In the end, I hope to show that evolutionary psychology provides a valuable tool for those involved in the ordering of society.

While the basic blueprint of the engine of evolution was sketched by Darwin well over a century ago,¹ in modern times it has been chiefly restricted to the traditional inquiries of “neutral” science, until the last few decades. After initial applications of the principles of evolution to normative questions beginning in Darwin’s lifetime,² including Social Darwinism,³ most biologists and commentators retreated from the realm of values in the face of withering, often fully justified, attacks by critics, particularly after the eugenically-justified atrocities of World War II.⁴ But then, in the late 1960’s, the spotlight of evolutionary principles, later under the label of sociobiology,⁵ was again turned to social issues. And

¹ See CHARLES DARWIN, *THE ORIGIN OF SPECIES* (1859). For a brief outline of evolutionary theory, see, for example, WILLIAM H. CALVIN, *THE CEREBRAL CODE* 21-25 (1996); RICHARD D. ALEXANDER, *DARWINISM AND HUMAN AFFAIRS* 15-18 (1979).

² See RICHARD HOFSTADTER, *SOCIAL DARWINISM IN AMERICAN THOUGHT* 4-11 (rev. ed. 1955). Dennett holds out Thomas Hobbes as the first sociobiologist, two centuries before Darwin. See DANIEL C. DENNETT, *DARWIN’S DANGEROUS IDEA* 453-55 (1995). Let us also not forget Hume. See, e.g., DAVID HUME, *ENQUIRIES CONCERNING HUMAN UNDERSTANDING AND CONCERNING THE PRINCIPLES OF MORALS* 83-86 (L.A. Selby-Bigge ed., 3d ed. 1975) (post. ed. 1777).

³ See, e.g., MICHAEL RUSE, *Evolutionary Biology and Cultural Values*, in *EVOLUTIONARY NATURALISM* 202, 208-09 (1995). See generally HOFSTADTER, *supra* note 2.

⁴ “[T]here have been few excesses of nineteenth-century capitalism or twentieth-century militarism and fascism that have not had their biology-oriented partisans. Choose your vileness, and there has been someone prepared to defend it in the name of evolution.” Michael Ruse, *Evolutionary Ethics in the Twentieth Century: Julian Sorell Huxley and George Gaylord Simpson*, in *BIOLOGY AND THE FOUNDATION OF ETHICS* 198, 198 (Jane Maienschein & Michael Ruse eds., 1999).

⁵ “Sociobiology is a school of thought which is centred [sic] on the idea that because the perpetuation of genetic material is the driving force of evolution, many of the properties of animals – indeed, the properties of all living things – including their social behaviour, must be understood in that light.” HENRY PLOTKIN, *EVOLUTION IN MIND* 62 (1997). For the three strands of sociobiology, see *id.* at 75-88. See also CHARLES J. LUMSDEN & EDWARD O. WILSON, *PROMETHEAN FIRE* 23 (1983) [hereinafter *PROMETHEAN FIRE*] (Sociobiology “is defined as the systematic study of the biological basis of all forms of social behavior (including sexual and parental behavior) in organisms, up to and including man.”); Paul Thompson, *Introduction to ISSUES IN EVOLUTIONARY ETHICS* 1, 3 (Paul Thompson ed., 1995) (“Sociobiology is, in essence, the application of modern evolutionary theory to the investigation and explanation of, as well as the integration of knowledge about, the social behavior of animals including humans.”); Edward O. Wilson, *The Morality of the Gene*, in *ISSUES IN EVOLUTIONARY ETHICS*, *supra*, at 153, 155 [hereinafter Wilson, *Morality of the Gene*] (“Sociobiology is defined as the systematic study of the biological basis of all social behavior.”). Sociobiology’s “major research strategy in human studies has been to work from the first principles of population genetics and reproductive biology to predict the

once again, because of several factious conclusions and speculations of some commentators, sociobiologists were attacked by an agitated rhetoric accusing the discipline of promoting unacceptable normative positions.⁶ Nevertheless, some reputable scientists were still not willing to hoist the white flag. Partially repackaged in subsequent years under such labels as evolutionary psychology, evolutionary biology, Darwinian anthropology, behavioral biology, human ethology, and behavioral ecology, among others,⁷ the engine of evolution continues to be invoked

forms of social behavior that confer the greatest Darwinian fitness." EDWARD O. WILSON, *CONSILIENCE* 168 (1998) [hereinafter WILSON, *CONSILIENCE*]. "The predictions are then tested with data taken from ethnographic archives and historical records, as well as from fresh field studies explicitly designed for the purpose." *Id.* Long before the term "sociobiology" was used by E.O. Wilson in 1975, Darwin himself attended to sociobiological problems. See ERNST MAYR, *ONE LONG ARGUMENT* 155 (1991).

⁶ For a detailed recounting of the modern battle over sociobiology, see ULLICA SEGERSTRÅLE, *DEFENDERS OF THE TRUTH: THE BATTLE FOR SCIENCE IN THE SOCIOBIOLOGY DEBATE AND BEYOND* (2000). One commentator characterizes the attack on sociobiology as one of "unparalleled vigor," see MICHAEL R. ROSE, *DARWIN'S SPECTRE* 168 (1998), while another describes "a ferocity that is unusual even by the standards of academic invective," see STEVEN PINKER, *HOW THE MIND WORKS* 45 (1997). For a recent sample of the fireworks, see Stephen Jay Gould, *Darwinian Fundamentalism*, N.Y. REV., June 12, 1997, at 34 [hereinafter Gould, *Fundamentalism*]; Stephen Jay Gould, *Evolution: The Pleasures of Pluralism*, N.Y. REV., June 26, 1997, at 47; "Darwinian Fundamentalism": *An Exchange*, N.Y. REV., Aug. 14, 1997, at 64 (letters from Daniel C. Dennett, Robert Wright, and Stephen Jay Gould).

⁷ See, e.g., JOHN CARTWRIGHT, *EVOLUTION AND HUMAN BEHAVIOR* 48-50 (2000) (distinguishing Darwinian anthropology and other studies from evolutionary psychology); FRANS DE WAAL, *GOOD NATURED* 12 (1996) [hereinafter DE WAAL, *GOOD NATURED*] ("behavioral ecology"); WILSON, *CONSILIENCE*, *supra* note 5, at 168 ("Sociobiology (or Darwinian anthropology, or evolutionary psychology, or whatever more politically acceptable term one chooses to call it) . . ."); N.A. Chagnon & W. Irons, *Preface to EVOLUTIONARY BIOLOGY AND HUMAN SOCIAL BEHAVIOR*, at xii (Napoleon A. Chagnon & William Irons eds., 1979) [hereinafter *EVOLUTIONARY BIOLOGY*] ("Sociobiology, or as it is sometimes labeled behavioral biology . . ."); Owen D. Jones, *Law and Evolutionary Biology: Obstacles and Opportunities*, 10 J. CONTEMP. HEALTH L. & POL'Y 265, 270 n.13 (1994) (The term "sociobiology" has been eschewed because of its associations. "While other terms have been considered, such as human ethology, behavioral socio-ecology, evolutionary psychology, or biocultural anthropology, no general agreement has emerged."); Mary Maxwell, *Introduction to THE SOCIOBIOLOGICAL IMAGINATION* 1, 22 (Mary Maxwell ed., 1991) ("human ethology," "behavioral socioecology," and "biosocial anthropology"); Donald Symons, *On the Use and Misuse of Darwinism in the Study of Human Behavior*, in *THE ADAPTED MIND* 137, 146 (Jerome H. Barkow et al. eds., 1992) ("human sociobiology, human behavioral ecology, evolutionary biological anthropology, and . . . Darwinian anthropology"); Edward O. Wilson, *Forward to THE SOCIOBIOLOGY DEBATE*, at xi (Arthur L. Caplan ed., 1978) ("biosociobiology" and "social biology"). One commentator believes the label "evolutionary psychology" is winning out over the others. See WILLIAM WRIGHT, *BORN THAT WAY* 190 (1998). Irrespective of name changes, there have not been "corresponding changes in outlook or research agenda." FRANS DE WAAL, *THE APE AND*

in discussions of social questions.⁸ Legal scholars have also begun to use Darwinism as an analytical mechanism.⁹ Though the conclusions are usually toned down, they still draw much fire from critics. While some insist that the principles of sociobiology are inapplicable to the human condition,¹⁰ the louder, sometimes strident, critics contend that the analysis is improperly reductionist and deterministic,¹¹ and serves to

THE SUSHI MASTER 84 (2001) [hereinafter DE WAAL, SUSHI MASTER]. See generally SEGERSTRÅLE, *supra* note 6, at 316-20.

The study of evolutionary principles from a legal viewpoint has similarly suffered a title problem. One of the founders of the discipline, E. Donald Elliott, advances the label "law and biology," though he believes "law and ethology" is more descriptive, but also more confusing and unfamiliar. See E. Donald Elliott, *Law and Biology: The New Synthesis?*, 41 ST. LOUIS U. L.J. 595, 596-97 (1997). Elliott rejects "sociobiology" since law and biology "is not the application of speculative evolutionary explanations to try to account for specific behaviors (which is what I take sociobiology to be)." *Id.* at 597. I have a less jaundiced view of the mission of sociobiology. Nevertheless, to avoid some of the problematic karma of "sociobiology" I will use the term "evolutionary psychology" when referring to the modern discipline alone.

⁸ For some of the leading recent evolutionary psychology tracts, see THE ADAPTED MIND: EVOLUTIONARY PSYCHOLOGY AND THE GENERATION OF CULTURE (Jerome H. Barkow et al. eds., 1992); DAVID M. BUSS, THE EVOLUTION OF DESIRE (1994) [hereinafter BUSS, DESIRE]; MATT RIDLEY, THE ORIGINS OF VIRTUE (1996) [hereinafter RIDLEY, VIRTUE]; MATT RIDLEY, THE RED QUEEN (1993) [hereinafter RIDLEY, RED QUEEN]; ROBERT WRIGHT, THE MORAL ANIMAL (1994). For a recent taxonomy, and brief introduction to the controversies, see Erica Goode, *Human Nature: Born or Unmade?*, N.Y. TIMES, Mar. 14, 2000, at F1 (Science Times). For more detail, see DAVID M. BUSS, EVOLUTIONARY PSYCHOLOGY 3-32 (1999) [hereinafter BUSS, PSYCHOLOGY]. Ruse asserts that evolutionary psychology has become downright fashionable among young scholars. See MICHAEL RUSE, MYSTERY OF MYSTERIES 123 (1999) ("What was for many years a quagmire to be avoided by all right-thinking evolutionists has now become the area most attractive to bright students and others determined to make their mark.").

⁹ "Law and biology scholars are beginning to incorporate and apply behavioral biology principles to a wide variety of topics relevant to law. These include, for example, aggression, cooperation, competition, risk assessment, relations between the sexes, emotions, and deceptions and self-deceptions." Owen D. Jones, *Law, Emotions, and Behavioral Biology*, 39 JURIMETRICS 283, 289 (1999) (footnote omitted). The Gruter Institute for Law and Behavioral Research promotes the application of evolutionary principles to legal questions. Its website is <http://www.gruterinstitute.org>. The Society for Evolutionary Analysis in Law ("SEAL") was recently founded to facilitate discussions among legal scholars with evolutionary interests. For an extensive, current list of publications related to this subject, see the SEAL website, <http://www.sealsite.org>.

¹⁰ That the critics also objected to sociobiology on scientific grounds, see SEGERSTRÅLE, *supra* note 6, at 17, 49.

¹¹ One of the major attacks emphasizes reductionism and biological determinism, "the twin philosophical stances with which this book is concerned, and to which, in the pages that follow, we will return again and again." R.C. LEWONTIN ET AL., NOT IN OUR GENES 5 (1984) [hereinafter LEWONTIN, GENES]; see NILES ELDREDGE, THE PATTERN OF EVOLUTION 28-29 (1999) (accusing the "ultra-Darwinians" of misguided reductionism); STEVEN ROSE, LIFELINES: BIOLOGY BEYOND DETERMINISM (1997) (attacking sociobiology for determinism

justify politically unacceptable, even outrageous, viewpoints, including sexism, racism, and elitism.¹²

The attacks on the use of Darwinian tenets to analyze social questions are, in my opinion, mainly misguided.¹³ While it is not the purpose of this article to counter the argument that evolutionary principles are inapplicable to human behavior, nor is it within my competence, it does strike me as *prima facie* implausible that the principles would admittedly apply to the behavior of every organism on earth except humans,¹⁴ and indeed, the reputable critics acknowledge,

and, especially, reductionism). Lewontin is himself a scientific reductionist, *see* RUSE, *supra* note 8, at 169-70, and believes that, "[w]hatever the faults of reductionism, we have accomplished a great deal by employing reduction as a methodological strategy," RICHARD LEWONTIN, *THE TRIPLE HELIX* 110 (2000) [hereinafter LEWONTIN, *TRIPLE HELIX*]. Lumsden and Wilson briefly respond to the criticism of reductionism by way of confession and avoidance: Along with being reductionist by "breaking down complicated systems into manageable components," sociobiology also, pursuant to the standard scientific method, engages in "synthesis, in which the relation of the parts is also laid bare and the whole system then reassembled either by direct experimentation or by theoretical simulation with mathematical models." PROMETHEAN FIRE, *supra* note 5, at 172. For brief discussions of types of reductionism, good and bad, *see* DENNETT, *supra* note 2, at 80-83; STEVEN PINKER, *THE BLANK SLATE* 69-70 (2002), and for brief defenses of it, *see* Roger D. Masters, *Is Sociobiology Reactionary? The Political Implications of Inclusive-Fitness Theory*, 57 Q. REV. BIOLOGY 275, 276-77, 281-82 (1982); John Maynard Smith, *Introduction to CURRENT PROBLEMS IN SOCIOBIOLOGY* 1, 2-3 (King's College Sociobiology Group eds., 1982); Pierre L. van den Berghe, *Sociology, in THE SOCIOBIOLOGICAL IMAGINATION, supra* note 7, at 269, 276-78. *See generally* SAHOTRA SARKAR, *GENETICS AND REDUCTIONISM* (1998); SEGERSTRÅLE, *supra* note 6, at 284-89 (reductionism in sociobiology).

¹² *See infra* discussion accompanying notes 241-54.

¹³ For general, sustained criticisms of sociobiology, *see* ALAS, POOR DARWIN (Hilary Rose & Steven Rose eds., 2000); *THE DIALECTICS OF BIOLOGY GROUP, AGAINST BIOLOGICAL DETERMINISM* (Steven Rose ed., 1982); PHILIP KITCHER, *VAULTING AMBITION: SOCIOBIOLOGY AND THE QUEST FOR HUMAN NATURE* (1985); LEWONTIN, *GENES, supra* note 11 (the gist of the critique appearing at 243-64); ROGER TRIGG, *THE SHAPING OF MAN* (1983). Midgley, who identifies herself with the political left wing, notices the "extraordinary lengths" taken by critics of sociobiology to "misrepresent[] one's opponent's statements in order to prove that he does indeed belong to the dreaded opposition." MARY MIDGLEY, *BEAST AND MAN*, at xx (1978). One sociobiologist declares that the debate with the critics is over, with the sociobiologists having essentially won. *See* JOHN ALCOCK, *THE TRIUMPH OF SOCIOBIOLOGY* 4 (2001).

¹⁴ *See id.* at 223. Of course, there is the matter of the human brain, which makes us "animals with a difference. And that difference arises, in part, as a result of enormous flexibility based on the complexity of an oversized brain and the potentially cultural and nongenetic basis of adaptive behaviors . . ." STEPHEN JAY GOULD, *Our Natural Place, in HEN'S TEETH AND HORSE'S TOES* 241, 243 (1983). Perhaps quantitative changes become qualitative. *See* ROSE, *supra* note 6, at 151-66; Richard C. Lewontin, *The Adaptation of Populations to Varying Environments*, 22 SPRING HARBOR SYMPOSIA ON QUANTITATIVE BIOLOGY 395, 407 (1957), *quoted in* RUSE, *supra* note 8, at 155. "The strongest opponents to

though typically downplay, a role for nature in informing human behavior. Rather, after rehearsing the controversy, I here concentrate on the reasons why the harshest critics tend to be from the political left, and contend that Darwinism need not lead to the provocative political and legal judgments assailed by critics. When properly understood and situated in normative theory, the tools of sociobiology or evolutionary psychology help to clarify the consequences and difficulties of certain political and legal choices without insisting on any particular one.¹⁵

I begin with a brief introduction to the Darwinian theory of evolution. Then I turn to the normative implications, if any, of the existence of natural human behavioral dispositions.¹⁶ Does the finding of natural dispositions lead sociobiologists to claims violative of Hume's gap between fact and value? Are they biological determinists unwilling to provide adequate room for the plasticity of human behavior? Do observations on what had fitness value during the prehistoric evolution of humans commit commentators to positions about what will or should be fit in the future? Are cultural norms subject to evolutionary constraints similar to those on biological transformations and, if so, what is the normative significance of this? Next, I address the politics of sociobiology. Here, I first examine the basic tenets of the leading political orientations and compare them to Darwinian tenets, discussing affinities and contrasts. I then consider the tactics of supporters of the various political orientations that have been, and might be, embraced in light of the lessons from Darwin. I conclude that in the political, moral, social, and legal realms, an evolutionary analysis is here to stay, for it provides an instructive, if not exhaustive, vision of the human condition.

II. EVOLUTIONARY THEORY

In the evolutionary game,¹⁷ only those organisms that leave descendants remain to play another round. The framework of the game

human sociobiology maintained the separateness of humans from other animals because of language and culture." SEGERSTRÅLE, *supra* note 6, at 141-42.

¹⁵ "The critics of sociobiology employed a particular style of textual exegesis which I call 'moral reading', aimed at revealing the true meaning of sociobiology." *Id.* at 2. To critics, that meaning was rooted in right-wing political ideology, protestations by sociobiologists notwithstanding. *Id.* at 2-3.

¹⁶ For example, one might ground normative and legal arguments on the contention that there are differences in the biological predispositions of men and women.

¹⁷ For the "game" perspective of evolution, see Owen D. Jones, *Evolutionary Analysis in Law: An Introduction and Application to Child Abuse*, 75 N.C. L. REV. 1117, 1129-55 (1997).

is built on three pillars: variation, heritability, and differential fitness.¹⁸ There must be variation among the traits on which the pressures of evolutionary competition may operate. The variations must produce differential fitness, allowing the forces of selection to favor those that are better able to leave descendants. Finally, the selected traits must be heritable to allow the descendants to share their strengths.¹⁹ The instrument of heritability is the individual gene.²⁰ Each gene “seeks” to persist into future generations through the organism it inhabits. In a common metaphor, “[a]n organism is in essence a gene’s way of making another gene.”²¹ An individual gene cannot do this alone, of course, since it takes many genes to produce an organism, perhaps 30,000 to 40,000 for a human. Therefore the fitness of a gene is determined, at least partially, by its ability to coordinate well with the other genes it finds itself with in its particular genome. Like humans themselves, a gene, irrespective of its individual virtue, is less likely to thrive if it does not work well with the others it finds itself with in the struggle for survival and reproduction.²² The phenotype, the particular form and behavior of

¹⁸ See, e.g., DANIEL C. DENNETT, *CONSCIOUSNESS EXPLAINED* 200 (1991); STEPHEN JAY GOULD, *BULLY FOR BRONTOSAURUS* 11-13 (1991); MELVIN KONNER, *THE TANGLED WING* 17 (1982); FLORIAN VON SCHILCHER & NEIL TENNANT, *PHILOSOPHY, EVOLUTION, AND HUMAN NATURE* 4-5 (1984); Richard C. Lewontin, *Adaptation*, *SCI. AM.*, Sept. 1978, at 213, 220. The elements may be variously characterized. See, e.g., WILLIAM H. DURHAM, *COEVOLUTION: GENES, CULTURE, AND HUMAN DIVERSITY* 21-22 (1991); ROSE, *supra* note 11, at 181.

¹⁹ See, e.g., ROBERT TRIVERS, *SOCIAL EVOLUTION* 12 (1985). There are other tabulations of the elemental processes of Darwinian evolution. See, e.g., William Irons, *Natural Selection, Adaptation, and Human Social Behavior*, in *EVOLUTIONARY BIOLOGY*, *supra* note 7, at 4, 4-5 (“inheritance, mutation, drift, gene flow (including isolation), and natural selection”).

²⁰ For introductions to modern evolutionary theory, see TIMOTHY H. GOLDSMITH, *THE BIOLOGICAL ROOTS OF HUMAN NATURE* 23-45 (1991) [hereinafter GOLDSMITH, *ROOTS*]; MAYR, *supra* note 5; HENRY PLOTKIN, *DARWIN MACHINES AND THE NATURE OF KNOWLEDGE* 22-58 (1993); Timothy Goldsmith & Owen Jones, *Evolutionary Biology and Behavior: A Brief Overview and Some Important Concepts*, 39 *JURIMETRICS J.* 131 (1999). For an interesting framework with detail, see DENNETT, *supra* note 2, at 17-331. The primary target of selection may be other than the gene. See *infra* note 233 (group selection); MAYR, *supra* note 5, at 117-18, 146-47, 152 (gene versus individual).

²¹ MELVIN KONNER, *WHY THE RECKLESS SURVIVE* 5 (1990); see PLOTKIN, *supra* note 5, at 93-94.

²² Dawkins compares a gene to a rower in a boat. For the boat to win races, irrespective of the rower’s individual strengths, she must be able to cooperate with the other rowers on board. See RICHARD DAWKINS, *THE SELFISH GENE* 38-39 (new ed. 1989) [hereinafter DAWKINS, *SELFISH GENE*]. “To survive in the long run, a gene must be a good companion.” RICHARD DAWKINS, *RIVER OUT OF EDEN* 5 (1995) [hereinafter DAWKINS, *RIVER*]; see JOHN C. AVISE, *THE GENETIC GODS* 107-11 (1998) (genes as “members of intraorganismal social groups”).

an organism, develops from its genotype responding to environmental factors.²³

Not only must genes collaborate with the others it finds in its genome, it must also compete with genes elsewhere. It must compete with the other genes that may be substituted for it in its genome (say, the allele(s) for blond hair versus brown hair), and with the other collections of genes appearing in competing organisms (say, a cardinal versus a blue jay). The competition is judged only by reproductive success, not simply by survival or any other measure of achievement.²⁴ Only those genes that succeed in leaving descendants continue in play, the more of its clones that appear in the gene pool, the better it has done in this game. This is natural selection. Its relentless pressure informs both body and mind.²⁵ The two main parameters of success are the environment in which the organism finds itself, and luck. For example, the human genes

²³ Wilson defines the term "phenotype": "The observable properties of an organism as they have developed under the combined influences of the genetic constitution of the individual and the effects of environmental factors. (Contrast with genotype.)" EDWARD O. WILSON, *SOCIOBIOLOGY* 591 (1975). He defines "genotype": "The genetic constitution of an individual organism, designated with reference either to a single trait or to a set of traits. (Contrast with phenotype.)" *Id.* at 585.

²⁴ On the basis of this ultimate test of evolutionary success, reproduction, Alexander posits that law "is to render finite the reproductive strivings of individuals and subgroups within societies." ALEXANDER, *supra* note 1, at 240 (emphasis omitted). From this he predicts that "laws should be seen as constructed so as to regulate competitive striving, and the severity of punishment is expected to reflect the severity of deleterious effects on the reproduction of others." *Id.* at 240-41 (pointing to murder, treason, and rape as the most severely punished crimes). He also predicts that, sexual competition for mates being more intense among men than women, "lawbreaking will occur more frequently among males, which of course is already well known." *Id.* at 241. "Lawbreaking is also expected to be concentrated at those periods in life, or those ages, when competitive striving is most intense or most crucial." *Id.* at 242 (citing the concentration of lawbreaking in the age range of seventeen to twenty-two, prime marriage years). Furthermore, among males "[l]awbreaking is expected to be higher in individuals or groups most inhibited from climbing the ladder of affluence or using the system legally to accumulate resources," to thereby make themselves more reproductively attractive. *Id.* at 243 (citing confirmatory evidence). He also predicts "macho" behavior as more common within these inhibited groups as an alternative strategy to making oneself sexually attractive. *Id.* at 244 (discussing supporting evidence); see also BUSS, *DESIRE*, *supra* note 8, at 209-10 (discussing that "the greater risk taking . . . should occur among men who are at the bottom of the mating pool"); BUSS, *PSYCHOLOGY*, *supra* note 8, at 291-93 ("The 'Young Male Syndrome'").

²⁵ "The mind is a system of organs of computation, designed by natural selection to solve the kinds of problems our ancestors faced in their foraging way of life, in particular, understanding and outmaneuvering objects, animals, plants, and other people." PINKER, *supra* note 6, at 21. For a general discussion of adaptations, see Lewontin, *supra* note 18, at 219.

for higher mathematical ability, if there are such, are not likely to increase reproductive success in a stone age,²⁶ nor will they help the modern toddler who is struck down by a runaway truck.

Under a current, powerful metaphor, each gene in each organism is selfish,²⁷ interested only in itself. "Itself" includes its identical twins—exact clones. If the clones survive in another organism, or genetic vehicle, it survives. The critical fitness, then, is "inclusive." Because close relatives of an organism share a high number of genes, inclusive fitness favors the process known as "kin selection."²⁸ A gene, generally, is fifty percent likely to have one of its clones in the children of its vehicle, and similarly for its siblings. For grandparents, aunts, uncles, and grandchildren, the likelihood is twenty-five percent. The more distant the relationship, the fewer are the genes shared in common. Under kin selection, then, it is worthwhile to the genes of an organism to protect the vehicle's relatives, the value of the investment turning on the closeness of the relation and the likely reduction in the organism's own reproductive success.²⁹ Thus, a person gains the same genetic advantage from a specific sacrifice for the benefit of one of her children or two of her nephews and nieces. This bolsters nepotism.³⁰ Also illuminated is

²⁶ Owen Jones pointed out to me that basic mathematical skills may well have been subject to selection pressures. He posits these vital calculations, among others: "How much food will it take to satisfy my needs, and those of my relatives? Is my colleague providing me a fair quantum of food, given my contribution?"

²⁷ The term "selfish gene" was made famous by Dawkins. See DAWKINS, *SELFISH GENE*, *supra* note 22.

²⁸ Wilson defines "kin selection": "The selection of genes due to one or more individuals favoring or disfavoring the survival and reproduction of relatives (other than offspring) who possess the same genes by common descent." WILSON, *supra* note 23, at 587. See generally DAVID P. BARASH, *SOCIOBIOLOGY AND BEHAVIOR* 79-93 (1977); BUSS, *PSYCHOLOGY*, *supra* note 8, at 222-49; HELENA CRONIN, *THE ANT AND THE PEACOCK* 293-310 (1991); TRIVERS, *supra* note 19, at 45-47, 169-202. That this is the principle theory that grounds sociobiology, see Maxwell, *supra* note 7, at 5.

²⁹ One sympathetic evolutionary psychologist concedes that "the selfish gene side of sociobiology is proving difficult to demonstrate in humans." PLOTKIN, *supra* note 5, at 110. This is due to the substantial effect of nurture and culture on human behavior. See *id.* at 110-11. Consequently, he concludes, "there may be few, if any, aspects of human psychology and behaviour that can be understood without reference to the causal forces of human intelligence and culture." *Id.* at 119.

³⁰ "According to inclusive-fitness theory, then, we should have evolved to be exceedingly effective nepotists, and we should have evolved to be nothing else at all." ALEXANDER, *supra* note 1, at 46; see GOLDSMITH, *ROOTS*, *supra* note 20, at 40 (indicating that "[t]he nepotistic interests of humans decrease with distance of relatedness and are conveniently calibrated by the Arab adage 'Myself against my brother; my brother and myself against my cousin; myself, my brother, and my cousin against an outsider.'");

the warning cry of an animal, which is more likely to perish by drawing the attention of the predator, but which protects its kin.³¹ In this attenuated sense, then, the organism is induced to act altruistically.³²

A gene may even increase its reproductive success by favoring unrelated organisms. Through what is known as "reciprocal altruism," a somewhat misleading label, if an animal gives resources to another one in need in the justified expectation that the recipient will reciprocate when the giver is the needy one, both animals, depending on the circumstances, are more likely to survive.³³ For example, if one year a

William Irons, *Anthropology*, in *THE SOCIOBIOLOGICAL IMAGINATION*, *supra* note 7, at 71, 82-86 (reporting that anthropologists have "extensively confirmed" that humans are nepotistic). Hume also perceived the sentiments favoring kin selection. See MICHAEL RUSE, *TAKING DARWIN SERIOUSLY* 268-69 (2d ed. 1998) (citing DAVID HUME, *A TREATISE OF HUMAN NATURE* 483-84 (L.A. Selby-Bigge ed., 2d ed. 1978)).

³¹ See, e.g., BARASH, *supra* note 28, at 81; KONNER, *supra* note 21, at 6; MAYR, *supra* note 5, at 156. But see STEPHEN JAY GOULD, *Caring Groups and Selfish Genes*, in *THE PANDA'S THUMB* 85, 88 (1980) (referring to "the debates [that] have brought forth at least a dozen alternatives that interpret [warning] crying as beneficial for the crier"); Carol K. Yoon, *Study Exposes Craven Motive of the Brave Meerkat Sentry*, N.Y. TIMES, June 8, 1999, at F3 (noting that meerkat sentry is not entirely altruistic since it is the first to see the predator and escape down a hole).

³² Wilson declares that "[f]rom this simple premise [of kin selection] and elaborations of it have come a wealth of predictions about patterns of altruism, patriotism, ethnicity, inheritance rules, adoption practices, and infanticide. Many are novel, and most have held up well under testing." WILSON, *CONSILIENCE*, *supra* note 5, at 169. For example, in one interesting study it was shown that it was reproductively beneficial to elite families in the European Middle Ages to cloister some women members in celibate religious institutions. See Erica Hill, *Lineage Interests and Nonreproductive Strategies*, 10 HUM. NATURE 109 (1999). For a sophisticated mathematical analysis of kin selection, see Jack Hirshleifer, *Evolutionary Models in Economics and Law: Cooperation Versus Conflict Strategies*, 4 RES. L. & ECON. 1, 26-30 (1982).

³³ Wilson defines "reciprocal altruism": "The trading of altruistic acts by individuals at different times. For example, one person saves a drowning person in exchange for the promise (or at least the expectation) that his altruistic act will be repaid if the circumstances are reversed at some time in the future." WILSON, *supra* note 23, at 593. The characteristics of reciprocal altruism are: "1. The exchanged acts, while beneficial to the recipient, are costly to the performer. 2. There is a time lag between giving and receiving. 3. Giving is contingent on receiving." DE WAAL, *GOOD NATURED*, *supra* note 7, at 24. See generally BARASH, *supra* note 28, at 94-96; BUSS, *PSYCHOLOGY*, *supra* note 8, at 253-77; CRONIN, *supra* note 28, at 253-65; TRIVERS, *supra* note 19, at 47-49; Robert L. Trivers, *The Evolution of Reciprocal Altruism*, in *THE SOCIOBIOLOGY DEBATE*, *supra* note 7, at 213. Matt Ridley advances the principle of reciprocal altruism as the main factor in the human quality of virtue. See RIDLEY, *VIRTUE*, *supra* note 8. Trivers believes it "likely that during our recent evolutionary history (at least the last 5 million years) there has been strong selection on our ancestors to develop a variety of reciprocal interactions." TRIVERS, *supra* note 19, at 386. For detail, see *id.* at 386-92. Other "evolutionary pathways to altruism" have also been proposed. See, e.g., *id.* at 49-52; John Tooby & Leda Cosmides, *Friendship and the Banker's*

farmer has a bumper crop, it would be to her long term, reproductive advantage to give some of her production to her less lucky neighbors to the extent that she can depend on their future aid when the tables are turned.³⁴

In general, as inclusive fitness and reciprocal altruism reveal, the interests of the selfish gene may be advanced not only by successful competition with other genes, but also, depending on the circumstances, by cooperation with other genes and organisms.³⁵ The genes giving rise to heritable traits that dispose an organism to behavior with reproductive benefits are likely to spread in the gene pool.³⁶ Moral

Paradox: Other Pathways to the Evolution of Adaptations for Altruism, in EVOLUTION OF SOCIAL BEHAVIOUR PATTERNS IN PRIMATES AND MAN 119 (W.G. Runciman et al. eds., 1996); Christopher Boehm, *The Natural Selection of Altruistic Traits*, 10 HUM. NATURE 205 (1999); David S. Wilson & Kevin M. Kniffin, *Multilevel Selection and the Social Transmission of Behavior*, 10 HUM. NATURE 291 (1999). For criticism of the circumscription of human autonomy that follows from the sociobiological view of altruism as grounded, mainly through inclusive fitness and reciprocal altruism, ultimately on selfishness, see KITCHER, *supra* note 13, at 388-406, and for a rejection of the naturalistic foundation of ethics, see F.J. Ayala, *The Biological Roots of Morality*, in ISSUES IN EVOLUTIONARY ETHICS, *supra* note 5, at 293, 312-14.

³⁴ For an excellent history of the theoretical problems and solutions to the question of altruism, see Alexander Rosenberg, *Altruism: Theoretical Contexts*, in THE PHILOSOPHY OF BIOLOGY 448 (David L. Hull & Michael Ruse eds., 1998). See generally *id.* at 445-87 (Altruism); Brian C.R. Bertram, *Problems with Altruism*, in CURRENT PROBLEMS IN SOCIOBIOLOGY, *supra* note 11, at 251. Frank interestingly suggests that genuine moral sentiments, costly to implement, have evolutionary survival value in providing individuals with dependable reputations that facilitate cooperation even when cheating is difficult to detect or prevent. See ROBERT H. FRANK, *PASSIONS WITHIN REASON* 90-95 (1988). Thus, one is more willing to provide a reputable person with benefits in the expectation that she will reciprocate, when necessary.

³⁵ For example, reproductively advantageous behavioral traits are evident in the interactions and relations between men and women, as well as among men and among women. But because males and females play different roles in reproduction, they are genetically predisposed to behave differently in some regards. See generally BUSS, *DESIRE*, *supra* note 8; HELEN FISHER, *THE FIRST SEX* (1999); GEOFFREY MILLER, *THE MATING MIND* (2000); RIDLEY, *RED QUEEN*, *supra* note 8.

³⁶ Wilson reduces the primary evolutionary principles of sociobiology to these basic categories: kin selection, parental investment, mating strategy, status, territorial expansion and defenses, and contractual agreement. See WILSON, *CONSILIENCE*, *supra* note 5, at 168-72. But, Masters cautions, "an evolutionary approach to human behavior must integrate emotion and cognition, feeling and judgment." Roger D. Masters, *The Problem of Justice in Contemporary Legal Thought*, in THE SENSE OF JUSTICE 1, 13 (Roger D. Masters & Margaret Gruter eds., 1992).

sensibility may have thus originated from cooperative and other behavioral dispositions.³⁷

III. THE NORMATIVE IMPLICATIONS OF BIOLOGICAL DISPOSITIONS

Let us assume that indeed humans are biologically predisposed to behave in certain ways. What normative conclusion is to be drawn from this given fact? None. At least, none from this fact alone. In drawing this conclusion, there are four aspects of the underlying argument that need to be addressed. First, as David Hume posited, there is an unbridgeable chasm between the world of fact and the world of value. "Is" does not imply "ought." That humans have particular dispositions or qualities does not imply that these are normatively unimpeachable. Second, despite contrary assertions by critics, there is no supported principle of biological determinism in a strong, morally significant sense, among mainstream sociobiologists. Normatively significant behavior is not hard-wired. Behavior is a product of the interaction between genes and environment. Neither one acts alone. Third, biological dispositions evolved almost entirely during the prehistoric age when human ancestors were hunters and gatherers. The qualities that enhanced fitness during that period are unlikely to harmonize completely with those that enhance fitness during the modern age. Thus, even if normative conclusions could be drawn from the factual, evolved dispositions, they may well be ones that are counterproductive to human welfare under today's and tomorrow's circumstances. Fourth, evolution is driven by the individual gene in an organism, the "selfish gene," but

³⁷ For example, Wilson opines that empathy, certain attachments, cooperative behavior, among other traits, have survival value and genes disposing these feelings and behavior "inevitably gave birth to the moral sentiments." WILSON, *CONSCIENCE*, *supra* note 5, at 253. With rare exception, if any, "these instincts are vividly experienced by every person variously as conscience, self-respect, remorse, empathy, shame, humility, and moral outrage. They bias cultural evolution toward the conventions that express the universal moral codes of honor, patriotism, altruism, justice, compassion, mercy, and redemption." *Id.* Another leading biologist takes another view: "I account for morality as an accidental capability produced, in its boundless stupidity, by a biological process that is normally opposed to the expression of such a capability." George C. Williams, *Reply to Comments on "Huxley's Evolution and Ethics in Sociobiological Perspective,"* 23 *ZYGON* 437, 438 (1988), *quoted in* DE WAAL, *GOOD NATURED*, *supra* note 7, at 2. De Waal rejects Williams' pessimism, concluding that "[g]iven the universality of moral systems, the tendency to develop and enforce them must be an integral part of human nature." DE WAAL, *GOOD NATURED*, *supra* note 7, at 2. He asserts that the "conditions for the evolution of morality" are: (1) "Dependence on the group for finding food or defense against enemies and predators [group value]"; (2) "Cooperation and reciprocal exchange within the group [mutual aid]"; (3) "Individual members have disparate interests [internal conflict]." *Id.* at 34.

this mechanism may not always be beneficial for the survival of the group, community, or the species as a whole. While the “interests” of the genes may inform cultural norms to some extent, their selfishness is seemingly one reason that culture and institutions emerged with the principles and functions that they have. Among other roles, they provide structures and incentives to resist the socially injurious effects of some human dispositions. These institutions are fashioned, arguably, to promote group selection, not individual selection alone. To achieve this goal they must sometimes counter human nature. These four considerations are discussed in turn. In doing so, I demonstrate the acrimony that has permeated the debates by sometimes focusing on the give and take of particular antagonists.

A. Fact and Value

It is a basic tenet of modern moral reasoning, first argued by Hume, that “is” cannot be derived from “ought.”³⁸ A later variation by G.E. Moore characterizes this as the “naturalistic fallacy.”³⁹ In other words, from a factual observation alone, no value conclusion can be properly drawn.⁴⁰ Critics assert that sociobiologists inevitably commit this very error.⁴¹

Modern sociobiologists typically acknowledge the chasm between fact and value, and deny that they succumb to the naturalistic fallacy.⁴²

³⁸ See HUME, *supra* note 30, at 469-70.

³⁹ See G.E. MOORE, *PRINCIPIA ETHICA* 5-17 (1903).

⁴⁰ “Hume’s challenge can be summarized in the maxim that ‘ought’ claims cannot be derived solely from ‘is’ claims. Moore’s challenge can be summarized in the maxim that ‘good’ in the ethical sense is a nonnatural property.” Thompson, *supra* note 5, at 20. “The label *naturalistic fallacy* has come to be used quite loosely to describe either Hume’s or Moore’s challenge.” *Id.*

⁴¹ In order to marginalize the normative import of evolution, “[t]he most powerful tool in the arsenal of opponents [of evolutionary ethics] has been the logical principle that moral statements cannot be derived from factual statements alone (commonly referred to as the *naturalistic fallacy*.)” *Id.*

⁴² See, e.g., BARASH, *supra* note 28, at 278-79; Edward O. Wilson, *For Sociobiology, in THE SOCIOBIOLOGY DEBATE, supra* note 7, at 265, 267. Ayala finds that, though “sociobiologists reiterate their conviction that science and ethics belong to separate logical realms,” their statements are not always consistent with their espoused convictions. Francisco J. Ayala, *The Biological Roots of Morality*, 2 *BIOLOGY & PHIL.* 235, 246 (1987). But, like some others, Masters, a political scientist who espouses sociobiological “biopolitics,” unabashedly rejects the naturalistic fallacy and contends that “human moral and political values can be judged by objective criteria that are relative to time and place.” ROGER D. MASTERS, *THE NATURE OF POLITICS* 186 (1989) [hereinafter *MASTERS, POLITICS*]; see *id.* at 227, 239-43; Roger D. Masters, *Evolutionary Biology, Political Theory and the State, in LAW, BIOLOGY AND CULTURE*

But this does little to deter critics from contending otherwise,⁴³ occasionally for quite defensible reasons.⁴⁴ To examine this dispute and show the flavor of it,⁴⁵ I focus on Philip Kitcher's sustained attack on E.O. Wilson's version of sociobiology, in Kitcher's book *Vaulting Ambition: Sociobiology and the Quest for Human Nature*.⁴⁶ I also discuss later writings

171, 187-89 (Margaret Gruter & Paul Bohannon eds., 1983). Arnhart takes another tack against the standard interpretation of Hume's separation of fact and value. See LARRY ARNHART, *DARWINIAN NATURAL RIGHT* 69-83 (1998). "The textual context makes clear that Hume's claim is that moral distinctions are derived not from pure reason alone but from a moral sense." *Id.* at 70. "Far from denying that moral judgments are judgments of fact, Hume claims that moral judgments are accurate when they correctly report what our moral sentiments would be in a given set of circumstances." *Id.* For Arnhart's discussion of others who take on Hume's separation, see *id.* at 80-83.

⁴³ See, e.g., LEWONTIN, *GENES*, *supra* note 11, at 28. While Lewontin, Steven Rose, and Leon J. Kamin, severe critics of sociobiology, deny they will attempt to derive "is" from "ought," they accuse sociobiologists, as biological determinists, of doing so. See *id.* As their example, they condemn "E.O. Wilson's demand for a 'genetically accurate and hence completely fair code of ethics.'" *Id.* (citing WILSON, *supra* note 23, at 575). Taken at face value, one could suppose that these critics might then demand that, in the name of equality, women, in order to obtain athletic scholarships, must perform absolutely as well as male scholarship athletes.

⁴⁴ "[A]nyone knowledgeable in the history of evolutionary theorizing cannot be surprised that Moore's work has so little effect and that people have gone on connecting origins and ethics." Ruse, *supra* note 4, at 199. For example, Wynne-Edwards asserts that "[f]rom the biological point of view," an individual's "overriding duty should be to ensure the survival of the stock to which he belongs and whose torch he temporarily bears. This is the primary purpose towards which his moral or altruistic behaviour ought therefore to be directed." V.C. Wynne-Edwards, *Ecology and the Evolution of Social Ethics*, in *THE SOCIOBIOLOGY DEBATE*, *supra* note 7, at 100, 107 (emphasis added). Going on to stress the importance of maintaining loyalty within the social grouping, and observing that nation-states seem to do this best today, he concludes that, apparently, "on biological as well as traditional grounds, it is to his sovereign state that the individual's first loyalty should continue to be given." *Id.* at 108 (emphasis added). More directly, Richards, in making out his case for evolutionary ethics, argues "that there is no general fallacy in arguing from facts to values, from 'is's to 'ought's.'" Robert J. Richards, *Birth, Death, and Resurrection of Evolutionary Ethics*, in *EVOLUTIONARY ETHICS* 113, 116 (Matthew H. Nitecki & Doris V. Nitecki eds., 1993) [hereinafter Richards, *Resurrection*]. For Richards's revised version of evolutionary ethics, which he claims avoids the naturalistic fallacy, see Robert J. Richards, *A Defense of Evolutionary Ethics*, 1 *BIOLOGY & PHIL.* 265 (1986) [hereinafter Richards, *Defense*]; Robert J. Richards, *Dutch Objections to Evolutionary Ethics*, 4 *BIOLOGY & PHIL.* 331, 331-36 (1989).

⁴⁵ While I quote language from Kitcher that reveals some of the nastiness of the criticism of sociobiology, Dennett finds the response also to be barbed. See DENNETT, *supra* note 2, at 471 ("The typical inability of Wilson and other sociobiologists to see their critics as anything but religious fanatics or scientifically illiterate mystifiers is yet one more sad overswing of the pendulum.").

⁴⁶ KITCHER, *supra* note 13. Owen finds Kitcher's book "thought-provoking, insightful, and rigorous" in "eviscerat[ing] certain aspects of the field but in fact [it] devotes much of its effort to criticizing theories from the late 60's and 70's that were pre-formative, and in

of Wilson, showing that some of Kitcher's criticisms that I found to be unfair when first leveled have become more justified as Wilson has moved, occasionally, on to thinner ice.

Few critics deny that biology is relevant to ethics and the law. As H.L.A. Hart cogently notes, if humans were strongly protected by thick shells, normative principles would be transformed accordingly.⁴⁷ Arguably, morality must be based on human wants, whether natural or otherwise.⁴⁸ The question, then, is the extent of the reach of evolutionary biology across the chasm separating fact from value. Kitcher posits four possibilities:

(A) Evolutionary biology has the task of explaining how people come to acquire ethical concepts, to make ethical judgments about themselves and others, and to formulate systems of ethical principles.

(B) Evolutionary biology can teach us facts about human beings that, in conjunction with moral principles that we already accept, can be used to derive normative principles that we had not yet appreciated.

(C) Evolutionary biology can explain what ethics is all about and can settle traditional questions about the objectivity of ethics. In short, evolutionary theory is the key to meta-ethics.

(D) Evolutionary theory can lead us to revise our system of ethical principles, not simply by leading us to accept

some cases already abandoned." Jones, *supra* note 7, at 265, 271 n.14. As devil's advocate, I question the extent of the evisceration.

⁴⁷ See H.L.A. HART, *Positivism and the Separation of Law and Morals*, in *ESSAYS IN JURISPRUDENCE AND PHILOSOPHY* 49, 80 (1983) (If humans were invulnerable and could extract food from the air, "rules forbidding the free use of violence and rules constituting the minimum form of property . . . would not have the necessary non-arbitrary status which they have for us, constituted as we are in a world like ours."). For similar observations by Ruse and Wilson, perhaps pushed in the wrong direction, see *infra* note 62.

⁴⁸ Dennett finds the most compelling answer to the question of the derivation of "ought": "[E]thics must be somehow based on an appreciation of human nature—on a sense of what a human being is or might be, and on what a human being might want to have or want to be. If *that* is naturalism, then naturalism is no fallacy." DENNETT, *supra* note 2, at 468. The fallacy, if any, "is greedy reductionism of values to facts, rather than reductionism considered more circumspectly, as the attempt to unify our world-view so that our ethical principles don't clash irrationally with the way the world is." *Id.*

new derivative statements—as in (B)—but by teaching us new fundamental normative principles. In short, evolutionary biology is not just a source of facts but a source of norms.⁴⁹

Kitcher finds the first two possibilities as legitimate and even established.⁵⁰ But he finds that sociobiologists go beyond this, using Wilson as his exemplar. Specifically, he objects to Wilson's "most ambitious . . . pop sociobiological adventures in philosophy,"⁵¹ by means of his "thoroughly confused" assertion of the last two possibilities.⁵²

Certainly Wilson makes comments regarding the biologicization of ethics that are aptly questioned by Kitcher. Kitcher quotes from the first page of Wilson's key book, *Sociobiology: The New Synthesis*: "evolutionary biology must undertake 'to explain ethics and ethical philosophers, if not epistemology and epistemologists, at all depths.'"⁵³ The last phrase might well imply that Kitcher's last two possibilities above are within the reach of sociobiology. To further make out his case of Wilson's vaulting ambition, Kitcher goes on to quote from the last (among critics, infamous) chapter of Wilson's book in which readers are invited "to consider 'the possibility that the time has come for ethics to be removed temporarily from the hands of the philosophers and biologicized.'"⁵⁴ But the word "temporarily" suggests that Wilson does not believe that ethics is a subject for biologists alone. Instead he may be merely contending that biologists have some useful assistance to offer, and the ethicists may gain from standing back while the biologists work out the details of their

⁴⁹ KITCHER, *supra* note 13, at 417-18.

⁵⁰ Kitcher gives by way of example of the use of (A) and (B) the employment by utilitarians of evolutionary biology to "learn[] how the maximization of happiness can actually be achieved. Analogous points apply to rival systems of ethical principles." *Id.* at 420. For sustained use of evolutionary biology to explore these two possibilities, see, for example, FRANCIS FUKUYAMA, *THE GREAT DISRUPTION* (1999); LIONEL TIGER, *THE MANUFACTURE OF EVIL* (1987).

⁵¹ KITCHER, *supra* note 13, at 417.

⁵² See *id.* at 418 (referring to WILSON, *supra* note 23; EDWARD O. WILSON, *ON HUMAN NATURE* (1978) [hereinafter WILSON, *HUMAN NATURE*]; and PROMETHEAN FIRE, *supra* note 5). I include some of Kitcher's language in criticizing Wilson to reveal the tone of derision that often infects Kitcher's discussion of sociobiology, a tone not uncommon among critics that must certainly have hindered any scientific and philosophical dialogue.

⁵³ *Id.* at 417 (quoting WILSON, *supra* note 23, at 3) (emphasis added). De Waal makes a similar (overstated) claim: "We seem to be reaching a point at which science can wrest morality from the hands of philosophers." DE WAAL, *GOOD NATURED*, *supra* note 7, at 218.

⁵⁴ KITCHER, *supra* note 13, at 417 (quoting WILSON, *supra* note 23, at 562) (emphasis added).

sociobiological analysis.⁵⁵ This position is consistent with possibilities (A) and (B) above, quite within the competence of biologists according to Kitcher.⁵⁶

Kitcher's next target in Wilson's text follows hard on the last one: "In the first chapter of this book I argued that ethical philosophers intuit the deontological canons of morality by consulting the emotive centers of their own hypothalamic-limbic system."⁵⁷ Kitcher apparently finds this statement objectionable for falling within possibility (C) above: "Evolutionary biology ... can settle traditional questions about the objectivity of ethics."⁵⁸ Kitcher attacks Wilson's statement because, "[d]espite the frequency of assertion, there is no vestige of *argument* for any such conclusion."⁵⁹ Let us see if this is correct.

By far the best known deontological system of ethics is, of course, that of Kant. Without rehearsing the means by which Kant, through "reason" alone, discerns the various forms of the categorical imperative and their upshot, we can zero in on his bottom line: a just ethical system must consist of a rational, coherent collection of universalized moral maxims respecting humans as ends in themselves.⁶⁰ One of the claimed weaknesses of Kant's derivation of ethical principles is that, in theory,

⁵⁵ For various interpretations of Wilson's controversial statement, see CAMILIO J. CELA-CONDE, ON GENES, GODS AND TYRANTS 10-11 (1987). One commentator, a gentle critic, urges sociobiologists to avoid the naturalistic fallacy and, instead, retreat to a weaker form of ethical naturalism that posits that biological facts are relevant to, not determinative of, the justification of moral claims. "Various facts about humans might serve to make some moral claims more appealing than others, and rule out some possible approaches to ethical problems; but the facts alone would not show what should be done." Ruth Mattern, *Altruism, Ethics, and Sociobiology*, in THE SOCIOBIOLOGY DEBATE, *supra* note 7, at 462, 471. But then, she contends, this weaker form, already "a familiar one in some traditions of philosophical ethics," "would not commit one to saying that ethics ought to be taken out of the hands of philosophers, even temporarily." *Id.* Meaning, the relevant biological facts are presently known well enough that moral philosophers in this tradition need not await further knowledge? In any case, insofar as Wilson merely "suggest[s] that we should utilize empirical facts in constructing an ethics for humans," Mattern states that Wilson's view is not a radical departure from existing moral theory and may offer important advances. *Id.* at 471-72.

⁵⁶ For doubt that sociobiologists can aid philosophers in pursuit of (B), at least regarding altruism, see John Chandler, *Ethical Philosophy*, in THE SOCIOBIOLOGICAL IMAGINATION, *supra* note 7, at 157, 161-64.

⁵⁷ KITCHER, *supra* note 13, at 417 (quoting WILSON, *supra* note 23, at 563).

⁵⁸ *Id.*

⁵⁹ *Id.*

⁶⁰ See, e.g., C.D. BROAD, FIVE TYPES OF ETHICAL THEORY 117-21 (1930). See generally H.J. PATON, THE CATEGORICAL IMPERATIVE (1947).

his formal framework can be satisfied by many possible collections of moral maxims.⁶¹ No one congeries emerges.⁶² Yet Kant himself has no problem "finding" particular moral maxims apparently required of this formal system. For example, promisekeeping and truth-telling, he asserts, must be embraced by all rational persons.⁶³ Other Kantian philosophers, such as Rawls and Nozick, also find unique systems of moral maxims by means of their own rational faculties.⁶⁴ Why are these moral philosophers so confident in their own derived systems when, in principle, there are an unlimited number of possible ones within their adopted Kantian formal framework? Perhaps, as Wilson declares, the "ethical philosophers intuit the deontological canons of morality by consulting the emotive centers of their own hypothalamic-limbic system."⁶⁵ Perhaps, the "leap of faith," the gap in reason that cannot be

⁶¹ See F.H. BRADLEY, *ETHICAL STUDIES* 142-59 (2d ed. 1927); BROAD, *supra* note 60, at 123 ("Kant would say, I think, that it is no more the business of ethics to provide rules of conduct than it is the business of logic to provide arguments. The business of ethics is to provide a test for rules of conduct, just as it is the business of logic to provide a test for arguments."); ONORA NELL, *ACTING ON PRINCIPLE: AN ESSAY ON KANTIAN ETHICS* 132-37 (1975). This observation originates with Hegel. See DAVID LUBAN, *LAWYERS AND JUSTICE: AN ETHICAL STUDY* 113-14 (1988) (citing G.W.F. HEGEL, *PHENOMENOLOGY OF SPIRIT* 252-62 (A.V. Miller trans., 1977)). But see CHRISTINE M. KORSGAARD, *Kant's Analysis of Obligation: The Argument of Groundwork I*, in *CREATING THE KINGDOM OF ENDS* 43, 64-65 (1996) (Kant's system is not simply "empty formalism").

⁶² In rebutting the argument that moral imperatives would stand, like mathematical truths, irrespective of the materialist, genetic source of the human sense of morality, Ruse and Wilson lose sight of the formal nature of deontological reasoning. To make the point, they observe that, owing to the opportunism of natural selection, if humans had the physical needs of termites, some of which we consider disgusting, "[o]ur minds would be strongly prone to extol such acts as beautiful and moral." Michael Ruse & Edward O. Wilson, *The Evolution of Ethics*, *NEW SCIENTIST*, Oct. 17, 1985, at 50, 52. Indeed, as H.L.A. Hart notes, human needs affect moral maxims, see *supra* note 47, but still the maxims must satisfy the Kantian formal mandates of universalizability and respect for others. Utilitarianism could also stand in place, though the preferences to be satisfied would change. However, if, say, humans needed to kill and cannibalize conspecifics to breed, Kant's categorical imperative would suffer.

⁶³ See, e.g., IMMANUEL KANT, *GROUNDWORK OF THE METAPHYSIC OF MORALS* 70-71 (H.J. Paton trans., 3d ed. 1956) (1785) [hereinafter KANT, *GROUNDWORK*] (promisekeeping); IMMANUEL KANT, *LECTURES ON ETHICS* 224-29 (Louis Infield trans., 1930) (truth-telling).

⁶⁴ See ROBERT NOZICK, *ANARCHY, STATE, AND UTOPIA* (1974); JOHN RAWLS, *A THEORY OF JUSTICE* (1971).

⁶⁵ WILSON, *supra* note 23, at 563. Churchland offers another biological explanation of moral perception and moral understanding based on "a hierarchy of learned prototypes . . . embodied in the well-tuned configuration of a neural network's synaptic weights. We may here find a more fruitful path to understanding the nature of moral learning, moral insight, moral disagreements, moral failings, moral pathologies, and moral growth at the level of entire societies." PAUL M. CHURCHLAND, *THE ENGINE OF REASON, THE SEAT OF THE SOUL* 144 (1995). For the explanation, see *id.* at 144-50, 292-94.

closed by logic alone, which arguably is a prerequisite to all normative inquiry,⁶⁶ is intuited as Wilson claims. After all, the essence of the postmodernist critique is that reason alone does not take us all the way down to foundations, if there be any at all.⁶⁷ If sociobiology can tell us how we nevertheless get to chosen foundations, it has something very telling to say about moral questions.⁶⁸

Wilson clearly does see sociobiology as helping to explain the "leap of faith." This position is evident in another of Wilson's works, *Promethean Fire*, which Kitcher also cites as evidence of the "monotonous regularity" with which sociobiology is claimed as a building block of normative inquiry.⁶⁹ Here Wilson quotes the basic propositions on which Rawls and Nozick build their renowned moral and political edifices,⁷⁰ noting that neither philosopher identifies the origins of their propositions but only develops the consequences.⁷¹ Starting with undefended origins, Rawls ends up with a defense of welfare-state

⁶⁶ Richards cites William James for the proposition that "first principles of an ethical system can be justified only by appeal to another kind of discourse, an appeal in which factual evidence about common sentiments and beliefs is adduced." Richards, *Defense*, *supra* note 44, at 284. This need to ground ethics on facts, Richards asserts, undercuts the naturalistic fallacy. See *id.* at 286.

⁶⁷ See, e.g., COSTAS DOUZINAS & RONNIE WARRINGTON, *POSTMODERN JURISPRUDENCE* 14-18 (1991); STEPHEN TOULMIN, *COSMOPOLIS* 175-201 (1990).

⁶⁸ Though Hume may have been there first by asserting that "reason is . . . the slave of the passions." HUME, *supra* note 30, at 415. Still, evolutionary psychologists can explicate details of the master-slave relationship. For the empiricist vision of morality, Wilson cites, along with Hume, Aristotle and Darwin. See WILSON, *CONSILIENCE*, *supra* note 5, at 248.

⁶⁹ KITCHER, *supra* note 13, at 417 (citing *PROMETHEAN FIRE*, *supra* note 5, at 175; WILSON, *supra* note 52, at 5-7, 196). In evaluating Kitcher's attack on Wilson, I will largely restrict my discussion to the parts of Wilson's work that Kitcher himself cites.

⁷⁰ The tracts are, of course, NOZICK, *supra* note 64, and RAWLS, *supra* note 64.

⁷¹ See WILSON, *supra* note 52, at 5. Wilson provides Rawls' basic proposition: "In a just society the liberties of equal citizenship are taken as settled; the rights secured by justice are not subject to political bargaining or to the calculus of social interests." *Id.* Nozick's beginning is: "Individuals have rights, and there are things no person or group may do to them (without violating their rights). So strong and far-reaching are these rights they raise the question of what, if anything, the state and its officials may do." *Id.*; see WILSON, *CONSILIENCE*, *supra* note 5, at 250 (repeating this criticism of Rawls and Nozick). Incidentally, Ruse finds "that the way in which Rawls presents his moral theory sounds almost as if it had been prepared by a Darwinian." RUSE, *supra* note 30, at 245; see *id.* at 245-47. *But cf.* Chandler, *supra* note 56, at 160 (doubting Ruse's ready finding "that moral phenomena conform to sociobiological predictions"). Ruse argues that the sense that morality is objective is "a collective illusion foisted upon us by our genes" as an adaptive means to dispose us to beneficial, cooperative behavior. RUSE, *supra* note 30, at 253. This posited origin of the sense of morality skirts the naturalistic fallacy because it avoids justification altogether. See Ruse, *supra* note 4, at 217-19.

liberalism and Nozick with libertarianism. "Like everyone else, philosophers measure their personal emotional responses to various alternatives as though consulting a hidden oracle."⁷² Wilson then finds the oracle within the limbic system: emotional reactions are transformed, over evolutionary time, into hard-wired moral dispositions. These foundational dispositions, he asserts, "have been programmed to a substantial degree by natural selection over thousands of generations. The challenge to science is to measure the tightness of the constraints caused by the programming . . . and to decode their significance through the reconstruction of the evolutionary history of the mind."⁷³ So far, so good. Wilson does not use biology to bridge the gap between fact and value, but simply uses biology to understand the bridges intuited by moral philosophers.⁷⁴ Implicitly he does not find "the tightness of the constraints caused by the programming" to be very great, for Rawls and Nozick, far from alone in their particular leaps of faith, end up with very different normative schemes.⁷⁵ At least we see the schemes as very different, but that may be an illusion because our limbic systems have

⁷² WILSON, *supra* note 52, at 6. "The Achilles heel of the intuitionist position [such as Rawls's] is that it relies on the emotive judgment of the brain as though that organ must be treated as a black box." WILSON, *supra* note 23, at 562. Elsewhere also Wilson criticizes moral philosophers for their unwillingness to admit fallibility. See WILSON, CONSCIENCE, *supra* note 5, at 240. Wilson, no hypocrite, is willing to admit his fallibility, though, uncharacteristically, without much humility in his voice. See *id.* at 241 ("And yes—lest I forget—I may be wrong."). By this caveat, perhaps he is implicitly responding to Charles Taylor's prior observation, in this context, of Wilson's "sublime indifference to inconsistency." CHARLES TAYLOR, *SOURCES OF THE SELF* 406 (1989).

⁷³ WILSON, *supra* note 52, at 6. Elsewhere Wilson states that "by appealing to the core principles of neurobiology, evolutionary theory, and cognitive science, practitioners of a new human science can reach a deeper understanding of why we feel certain courses of action to be intrinsically correct. They can help us to understand why we have moral feelings." PROMETHEAN FIRE, *supra* note 5, at 183.

⁷⁴ This point is made again in the last source Kitcher points to for Wilson's "monotonous regularity" in advancing sociobiology as an aid to moral inquiry: "[E]thical philosophy should no longer operate outside the boundaries of science. Leaving it to the vagaries of genes and culture and the unaided intuition of great thinkers can be dangerous, as history has amply shown." *Id.* at 175. This does not strike me as radical or reactionary. Perhaps Kitcher objects to the author's venture into epistemology: "Because moral judgment is a physiological product of the brain, it too can be greatly assisted by the new, human-focused science." *Id.* This agenda is being pursued by some evolutionary psychologists. See, e.g., Patricia O'Neill & Lewis Petrinovich, *A Preliminary Cross-Cultural Study of Moral Intuitions*, 19 *EVOLUTION & HUM. BEHAV.* 349 (1998).

⁷⁵ De Waal feels that Rawls's political system, in accounting for "gratitude, obligation, retribution, and indignation," "elaborates on ancient themes, many of which are recognizable in our nearest relatives." DE WAAL, *GOOD NATURED*, *supra* note 7, at 161. He believes that our ancient ancestors were not the autonomous beings of Rousseau's and, presumably, Nozick's, political construct. See *id.* at 166-67.

blinded us to radically different possibilities, such as one in which we dedicate our lives and well-being to species that have demonstrated their superiority by surviving so long on earth—the cockroaches and horseshoe crabs.⁷⁶ Be that as it may, we see in pages by Wilson cited by Kitcher that, Kitcher’s contention notwithstanding, there is indeed more than “a vestige of argument” for the conclusion that “[e]volutionary biology . . . can settle traditional questions about the objectivity of ethics.”⁷⁷ Certainly not all the traditional questions, but at least the one of them discussed here: From where might moral philosophers derive their basic, assumed, supposedly objective premises?⁷⁸ Surely it is reasonable to examine whether that source is informed by biology.

⁷⁶ See, e.g., DAVID G. GORDON, *THE COMPLETE COCKROACH* 33 (1996) (“Geological evidence, largely in the form of fossilized wings, indicates that cockroaches have been around for at least 340 million years.”); JOHN MAYNARD SMITH, *THE THEORY OF EVOLUTION* 190 (3d ed. 1975) (The horseshoe crab is “a ‘living fossil’ which closely resembles in structure animals living 400 million years ago . . .”). Perhaps we need not resort to such wild imagination: Along with the range of systems found in existing societies, human nature reaches those that “might be achieved through conscious design by future societies. By looking over the realized social systems of hundreds of animal species and deriving the principles by which these systems have evolved, we can be certain that all human choices represent only a tiny subset of those theoretically possible.” WILSON, *supra* note 52, at 196. Again, this hardly sounds like biological determinism. But some of Wilson’s critics would go further: “[W]e know of no relevant constraints placed on social processes by human biology. There is no evidence from ethnography, archaeology, or history that would enable us to circumscribe the limits of possible human social organization.” Sociobiology Study Group of Science for the People, *Sociobiology—Another Biological Determinism*, in *THE SOCIOBIOLOGY DEBATE*, *supra* note 7, at 280, 290 [hereinafter Sociobiology Study Group]. Meaning, every attempted type of social organization succeeded? Responding to these critics, Wilson states that his position is closer to the environmentalist pole, at which people are infinitely malleable, than the genetic pole, at which they are completely fixed. See Edward O. Wilson, *Academic Vigilantism and the Political Significance of Sociobiology*, in *THE SOCIOBIOLOGY DEBATE*, *supra* note 7, at 291, 292 [hereinafter Wilson, *Academic Vigilantism*].

On the other hand, evolutionary success does not imply moral superiority, or even progress. Instead, evolution “branches all over the place, making it quite impossible to offer true assessments of top and bottom, higher and lower, better and worse.” M. Ruse, *Evolutionary Ethics: A Phoenix Arisen*, in *ISSUES IN EVOLUTIONARY ETHICS*, *supra* note 5, at 225, 227; see STEPHEN JAY GOULD, *FULL HOUSE* 135-230 (1996); ERNST MAYR, *THIS IS BIOLOGY* 197-98 (1997).

⁷⁷ KITCHER, *supra* note 13, at 417.

⁷⁸ Ruse similarly identifies the sociobiological contribution to ethics: “What is really important to the evolutionist’s case is the claim that ethics is illusory inasmuch as it persuades us that it has an objective reference. This is the crux of the biological position.” Ruse, *supra* note 76, at 235. For further elaboration, see RUSE, *supra* note 30, at 99-101. For challenges to this position, see Chandler, *supra* note 56, at 164-69; Peter G. Woolcock, *The Case Against Evolutionary Ethics Today*, in *BIOLOGY AND THE FOUNDATION OF ETHICS*, *supra* note 4, at 276, 288-92.

But it must be acknowledged that in a later book, *On Human Nature*, Wilson slides onto thinner ice and creates a legitimate opening for critics. He contends that once we understand “the very origin and meaning of human values, from which all ethical pronouncements and much of political practice flow,”⁷⁹ then we must address: “Which of the censors and motivators should be obeyed and which ones might better be curtailed or sublimated?”⁸⁰ At some point “we must consciously choose among the alternative emotional guides we have inherited.”⁸¹ “Although human progress can be achieved by intuition and force of will, only hard-won empirical knowledge of our biological nature will allow us to make optimum choices among the competing criteria of progress.”⁸²

There is enough ambiguity in these last pronouncements to support the criticism of unsympathetic readers that Wilson finds value in fact.⁸³

⁷⁹ WILSON, *supra* note 52, at 5.

⁸⁰ *Id.* at 6.

⁸¹ *Id.*

⁸² *Id.* at 7. As noted by Kitcher, Wilson makes similar points at 196.

⁸³ Rosenberg also finds that Wilson, in this chapter, rejects the naturalistic fallacy, along with Alexander. See Alexander Rosenberg, *The Biological Justification of Ethics: A Best-Case Scenario*, in ISSUES IN EVOLUTIONARY ETHICS, *supra* note 5, at 351, 354 (citing ALEXANDER, *supra* note 1); see also MICHAEL RUSE, MONAD TO MAN 524 (1996) (“Wilson believes that one can derive ethical norms from the history of life.”). Elsewhere Wilson makes a similarly confusing assertion while discussing the assistance that biological sciences can offer in uncovering why we feel certain conduct is intrinsically correct or even why we have moral feelings: “For now, though, the scientists can offer no guidance on whether we are really correct in making certain decisions, because no way is known to define what is correct without total reference to the moral feelings under scrutiny.” PROMETHEAN FIRE, *supra* note 5, at 183 (first emphasis added). This seemingly implies that scientists may eventually offer us guidance on correct moral decisions. But then the authors confound the point by continuing: “Perhaps this is the ultimate burden of the free will bequeathed to us by our genes: in the final analysis, even when we know what we are likely to do and why, each of us must still choose.” *Id.* Meaning, biological scientists cannot provide us with correct moral standards, but only identify moral motivation? Or meaning, after scientists inform us of correct moral decisions, we may nevertheless choose to make incorrect ones? This latter interpretation still abridges the naturalistic fallacy. But perhaps Wilson has now come to recognize the bite of the naturalistic fallacy: “There is a dangerous trap in sociobiology, one that can be avoided only by constant vigilance. The trap is the naturalistic fallacy of ethics, which uncritically concludes that what is, should be.” EDWARD O. WILSON, IN SEARCH OF NATURE 93 (1996) [hereinafter WILSON, SEARCH]. “The demonstration of any genetic bias cannot be used to justify a continuing practice in present and future societies.” *Id.* But, just as we can breathe easy that Wilson has seen the light, he confuses matters by proceeding with the argument that, because we live in a “radically new environment of our own making, the pursuit of such a practice would be bad biology; and, like all bad biology, it would invite disaster.” *Id.* Why doesn’t he notice that the practice may also be bad ethics as well as bad biology? Sober also finds in an article by

Even on Wilson's own clear terms, we might ask why any of the inherited emotional guides must be chosen? Perhaps none of them "should be obeyed," having arisen through natural selection in circumstances far different from those we find ourselves in now, and thus having little current survival or reproductive value,⁸⁴ let alone independent normative value.⁸⁵ Yet by this, Wilson might simply be pointing out that going against naturally disposed moral feelings is difficult. Some such feelings, therefore, should not be disobeyed even if they are morally problematic, when the cost of overcoming them is high in comparison to the positive normative consequences of succeeding. For example, minimal disinterested altruism, as in the paradigmatic case of easily saving a drowning baby,⁸⁶ may be a worthy social aim, but the costs and difficulties of legally implementing the aim may be too great in light of the common belief, in America anyway, that the state should avoid this type of interventionist regulation. Understanding the biology

Wilson and Ruse the suggestion that biology can offer moral guidance. See ELLIOTT SOBER, *Prospects for an Evolutionary Ethics*, in FROM A BIOLOGICAL POINT OF VIEW 93, 101-02 (1994) (quoting Michael Ruse & Edward O. Wilson, *Moral Philosophy as Applied Science*, 61 PHILOSOPHY 173, 174 (1986)). A recent commentator writes that Wilson, while originally equivocating about the naturalistic fallacy, is now committed to recognizing it. See Ullica Segerstråle, *Truth and Consequences in the Sociobiology Debate and Beyond*, in 6 RESEARCH IN BIOPOLITICS: SOCIOBIOLOGY AND POLITICS 249, 252-53, 263-66 (Albert Somit & Steven A. Peterson eds., 1998) [hereinafter Segerstråle, *Truth and Consequences*]. As early as 1975, Wilson clearly acknowledged the "trap" of the naturalistic fallacy. See SEGERSTRÅLE, *supra* note 6, at 25 (quoting E.O. Wilson, *Human Decency Is Animal*, N.Y. TIMES MAG., Oct. 12, 1975, at 38, 50). But this acknowledgment, "just as in a good novel, . . . was too late." *Id.* For what drove Wilson to his position, see *id.* at 38-40.

⁸⁴ Wilson states that precepts and religious faith have demonstrated their survival and reproductive success after more than a thousand generations of those who conformed to them. "There was more than enough time for epigenetic rules—hereditary biases of mental development—to evolve that generate moral and religious sentiments. Indoctrinability became an instinct." WILSON, *CONSCIENCE*, *supra* note 5, at 246-47 (1998); see WILSON, *supra* note 52, at 169-93 (religion). Thus, "[e]thical codes are precepts reached by consensus under the guidance of the innate rules of mental development." WILSON, *CONSCIENCE*, *supra* note 5, at 247; see *infra* note 88 (natural moral dispositions). They "are created from the bottom up, from the people to their culture," and not top down. WILSON, *CONSCIENCE*, *supra* note 5, at 247. Well, this all worked well enough to allow us to survive to here, but will it work well enough to get us beyond here? And if the code that will best get us further is fascistic, should we embrace it?

⁸⁵ See the discussion of the "genetic" fallacy, *infra* note 100. One group of law and biology scholars comes to the conclusion that "there was no reason why the biological tendencies built into the species should necessarily be normatively privileged as a matter of law. At most biology should be followed or accepted as a rebuttable presumption." Elliott, *supra* note 7, at 606.

⁸⁶ See, e.g., JOEL FEINBERG, *The Moral and Legal Responsibility of the Bad Samaritan*, in FREEDOM AND FULFILLMENT 175, 176-77 (1992).

of this human disposition, if any, will help clarify its strength and perhaps suggest methods, and their costs, of curtailing or sublimating it and others when deemed appropriate.⁸⁷ But where the natural moral feeling is entirely unacceptable (say, a disposition to aggress against strangers, if such exists⁸⁸), then it must be overcome, irrespective of the price. Other normatively problematic dispositions, on the other hand, can be curtailed or sublimated though environmental forces with reasonable effort. Sociobiology helps us to calculate the costs and benefits.⁸⁹ Then we may make "optimum choices," incorporating costs, benefits, and well-understood basic principles.⁹⁰ And make them we

⁸⁷ Bradie refers to this as the "engineering view" which "holds that the primary use of biological information in the social sciences is as the empirical basis for altering human social behavior." MICHAEL BRADIE, *THE SECRET CHAIN: EVOLUTION AND ETHICS* 117 (1994).

⁸⁸ One ethologist "view[s] aggressive behavior as a fundamental characteristic of all animal and human life, but . . . also believe[s] that this trait cannot be understood in isolation from the powerful checks and balances that evolved to mitigate its effects." FRANS DE WAAL, *PEACEMAKING AMONG PRIMATES* 2 (1989). Among the evolutionary benefits of aggressive behavior are: "co-opting the resources of others, defending oneself and one's kin against attack, inflicting costs on intrasexual rivals, negotiating status and power hierarchies, deterring rivals from future aggression, and deterring long-term mates from infidelity or defection." BUSS, *PSYCHOLOGY*, *supra* note 8, at 309. *See generally id.* at 278-311; DE WAAL, *GOOD NATURED*, *supra* note 7, at 182-86. Violence among humans, as among animals who "ritualize" it, is regulated by rules, often unspoken. "In other words, the rules of fighting are as natural as the fighting itself." ROBIN FOX, *THE SEARCH FOR SOCIETY* 145 (1989). The sense of morality may have emerged to moderate aggression. *See* Christopher Boehm, *The Evolutionary Development of Morality as an Effect of Dominance Behavior and Conflict Interference*, in *LAW, BIOLOGY AND CULTURE*, *supra* note 42, at 134. "And what is perhaps amazing about this violent species of ours is not that we kill so many, but that, given our potential, we kill so few and so infrequently." FOX, *supra*, at 146; *see* WILLIAM F. ALLMAN, *THE STONE AGE PRESENT* 141 (1994) ("The complex role that aggression plays in primate life suggests that people are fundamentally neither aggressive nor nice."). Compared to the other mammals that have been studied, the rate of murder by humans is a fraction of a percentage of the killing of conspecifics by our nearest relatives. *See* DENNETT, *supra* note 2, at 478 (citing George C. Williams, *Huxley's Evolution and Ethics in Sociobiological Perspective*, 23 *ZYGON* 383 (1988)).

⁸⁹ "Because the success of an ethical code depends on how wisely it interprets the moral sentiments, those who frame it should know how the brain works, and how the mind develops." WILSON, *CONSCIENCE*, *supra* note 5, at 240. For success, the framers must also be able to predict "the consequence of particular actions as opposed to others, especially in cases of moral ambiguity." *Id.* With this knowledge of human nature, "we should be able to fashion a wiser and more enduring ethical consensus than has gone before." *Id.* So, with knowledge of human biology, the propounders of a moral code will wisely interpret moral sentiments, predict consequences, and fashion a more enduring ethical consensus, but will the code be "right," or merely efficient or expedient? For more on the cost-benefit analysis that evolutionary psychology may offer to those considering legal regulation of behavior, *see infra* note 388 [Jones et al].

⁹⁰ "By relying on moral intuition, on those satisfying visceral feelings of right and wrong, people remain enslaved by their genes and culture." PROMETHEAN FIRE, *supra* note

can. For, as Wilson states, though “we are forced to choose among the elements of human nature by reference to value systems which these same elements created in an evolutionary age now long vanished. . . . , this circularity of the human predicament is not so tight that it cannot be broken through an exercise of will.”⁹¹

Kitcher is adept at finding other thin ice beneath his target, as where Wilson states that “[i]n the beginning the new ethicists will want to ponder the cardinal value of the survival of human genes in the form of a common pool over generations.”⁹² From this and the following statements, Kitcher understands Wilson to be claiming as a “fundamental ethical principle” that “[h]uman beings should do whatever may be required to ensure the survival of a common gene pool for *Homo sapiens*.”⁹³ Kitcher finds this claim, which is in Wilson’s view, “entirely justified by certain facts about sexual reproduction,” as

5, at 183. “Only by penetrating to the physical basis of moral thought and considering its evolutionary meaning will people have the power to control their own lives. They will then be in a better position to choose ethical precepts and the forms of social regulation needed to maintain the precepts.” *Id.* With this deepened knowledge of human nature, some of the most self-destructive of human propensities, “aggression and xenophobia, can be blunted. Other equally human propensities for altruism and cooperation might be enhanced. The value of institutions and forms of government can be more accurately judged, alternative procedures laid out, and steps cautiously suggested.” *Id.* at 183-84. “People who know human nature in this way are more likely to agree on universal goals within the constraints of that nature and recognize absolute ethical truths, if such can be shown to exist.” *Id.* at 184. Concluding this book, the authors opine that societies “can employ knowledge of the [epigenetic] rules to guide individual behavior and cultural evolution to the ends on which their members may someday agree.” *Id.* Lewontin attacks Wilson’s claim of universal xenophobia with examples of cultures that have embraced the norms of other cultures. See R.C. LEWONTIN, *BIOLOGY AS IDEOLOGY* 91-92 (1991). In attacking this example of Wilson’s “determinism,” he fails to note that Wilson speaks in terms of universal propensities, finding room for cultural amelioration.

⁹¹ WILSON, *HUMAN NATURE*, *supra* note 52, at 196.

⁹² *Id.* at 196-97, *quoted in* KITCHER, *supra* note 13, at 427.

⁹³ KITCHER, *supra* note 13, at 428. If this mandate is correct, so much for my system of sacrifice for the sake of cockroaches and horseshoe crabs. Another group of commentators also finds sociobiologists to be making a similar assertion. See R.C. Solomon et al., *Group Three [Reports on Group Discussions]*, in *MORALITY AS A BIOLOGICAL PHENOMENON* 253, 260 (Gunther S. Stent ed., rev. ed. 1980). “This argument, whose conclusion is sometimes denied as soon as it appears . . . nevertheless permeates the atmosphere in which sociobiology is discussed.” *Id.* Waddington falls within Wilson’s camp. See C.H. WADDINGTON, *THE ETHICAL ANIMAL* 7 (1960) (“[A]ny particular set of ethical beliefs . . . can be meaningfully judged according to their efficacy in furthering th[e] general evolutionary direction.”).

transgressing the naturalistic fallacy.⁹⁴ Kitcher notes that, although Wilson is troubled by the specter of the naturalistic fallacy, he mollifies this elsewhere by observations that, in recent years, the fallacy has lost much of its bite.⁹⁵ But, as Kitcher correctly observes, this hardly satisfies those who feel the bite, whether or not attenuated, nor, if the naturalistic fallacy remains a fallacy, will factual assertions grounded in biology alone give rise to normative conclusions without argument.⁹⁶ More tellingly, Kitcher continues with Kantian-based hypotheticals in which it may be morally defensible to allow the gene pool to perish in light of dire circumstances in which essential volunteers refuse to step forward.⁹⁷ Kantians would not use another person for their own means only, even if the consequences are that the entire gene pool will vanish.⁹⁸

Does Wilson indeed breach the naturalistic fallacy as Kitcher contends? Well, perhaps, but the case is not as clear as Kitcher would have it. In the pages of Wilson's piece cited by Kitcher for his deprecation of Wilson's supposed naturalistic fallacy, Wilson does contend that "[i]nnate moral imperatives exist in the form of learning rules and the brain-reward system."⁹⁹ But by this, Wilson means, as made clearer in his next paragraph, that humans innately feel these imperatives, not that they obtain them as a matter of pure moral or other logic.¹⁰⁰ Wilson goes on to acknowledge that "[i]t is probable that the

⁹⁴ KITCHER, *supra* note 13, at 428. The cockroaches and horseshoe crabs hope Kitcher is correct.

⁹⁵ *Id.* at 429 (quoting Edward O. Wilson, *The Relation of Science to Theology*, 15 ZYGON 425, 431 (1980); E.O. Wilson, *Comparative Social Theory*, in 1 THE TANNER LECTURES ON HUMAN VALUES 49, 68-69 (Sterling M. McMurrin ed., 1980) [hereinafter Wilson, *Social Theory*]).

⁹⁶ *See id.* at 429-30.

⁹⁷ *See id.* at 430-31. One of his hypotheticals is where, after a world-wide holocaust leaving few women, they refuse to bear children in light of humanity's recent history.

⁹⁸ *See, e.g.*, IMMANUEL KANT, *THE METAPHYSICAL ELEMENTS OF JUSTICE* 100 (John Ladd trans., 1965) (1797) ("If legal justice perishes, then it is no longer worth while for men to remain alive on this earth.").

⁹⁹ Wilson, *Social Theory*, *supra* note 95, at 68.

¹⁰⁰ This distinction between fact and belief is made clear(er) elsewhere where Wilson and Ruse assert that "[m]orality, or more strictly our belief in morality, is merely an adaptation put in place to further our reproductive ends." Ruse & Wilson, *supra* note 62, at 51. To this comment Dennett responds: "Nonsense." DENNETT, *supra* note 2, at 470. Perhaps our reproductive ends allowed our lineage to evolve into humans, and they may remain powerful influences on our reasoning still, but since then culture has become a part of our being, new values may have arisen independently of gene-derived, or gene-centered, ones. "It does not follow from the fact that our reproductive ends were the ultimate historical source of our present values, that they are the ultimate (and still principal) beneficiary of our ethical actions." *Id.* To believe otherwise is to commit the "genetic" fallacy identified by Nietzsche (and Darwin). *See id.*

imperatives were more nearly fully adaptive for the hunter-gatherer societies that lived during the major era of genetic evolution."¹⁰¹ Hence, "[m]ost modern difficulties arose from the attempt to solve unprecedented [moral] problems with a Pleistocene apparatus."¹⁰² Can, then, we still depend on the innate moral imperatives adaptive to a prehistoric age? No, according to Wilson: "innate ethical feelings do not automatically constitute good impulses."¹⁰³ Not only might moral impulses be maladaptive in today's world, but also we have the ability to reject all moral criteria based on genetic fitness.¹⁰⁴ "To do so would be to recognize implicitly that what *is*, in this case the biologically analyzable innate ethical precepts, need not be translated into a proposition of what *ought* to be."¹⁰⁵ But then, not quite willing to evict natural dispositions from our moral realm, Wilson expresses doubt that we will reject our

Again, in a recent book, Wilson seems to make the same argument in an ambiguous manner. He begins by contending that "the naturalistic fallacy is itself a fallacy. For if *ought* is not *is*, what is? To translate *is* into *ought* makes sense if we attend to the objective meaning of ethical precepts." WILSON, *CONSILIENCE*, *supra* note 5, at 249-50. Rather than being "ethereal messages outside humanity, . . . [t]hey are more likely to be physical products of the brain and culture." *Id.* at 250. "Precepts are the extreme in a scale of agreements that range from casual assent to public sentiment to law to that part of the canon considered unalterable and sacred." *Id.* Hence, "[t]he general empiricist principle takes this form: *Strong innate feeling and historical experience cause certain actions to be preferred; we have experienced them, and weighed their consequences, and agree to conform with codes that express them.*" *Id.* at 251. Yet, as close as this conservative, Burkean argument comes to the naturalistic fallacy, at the last moment Wilson pulls away:

The empiricist view concedes that moral codes are devised to conform to some drives of human nature and to suppress others. *Ought* is not the translation of human nature but of the public will, which can be made increasingly wise and stable through the understanding of the needs and pitfalls of human nature. It recognizes that the strength of commitment can wane as a result of new knowledge and experience, with the result that certain rules may be desacralized, old laws rescinded, and behavior that was once prohibited freed. It also recognizes that for the same reason new moral codes may need to be devised, with the potential in time of being made sacred.

Id. As much as *is* drives our understanding and dispositions regarding *ought*, in the end we are free to make independent moral choices. And, at times, we should. For other efforts to overcome the hurdles to developing an evolutionary ethics, see ARNHART, *supra* note 42; BRADIE, *supra* note 87. See generally EVOLUTIONARY ETHICS, *supra* note 44; ISSUES IN EVOLUTIONARY ETHICS, *supra* note 5.

¹⁰¹ Wilson, *Social Theory*, *supra* note 95, at 68.

¹⁰² *Id.*

¹⁰³ *Id.*

¹⁰⁴ See *id.*

¹⁰⁵ *Id.*

innate moral precepts because “[t]hey are the essence of humanity.”¹⁰⁶ (And, we might note, the essence of our “inhumanity,” as Wilson indicates just before in mentioning our dangerous “proneness toward ethnocentricity, xenophobia, territoriality, moralistic aggression, and unfettered reproduction.”¹⁰⁷) Striking middle ground by means of lyrical expression, Wilson concludes that our innate ethical feelings

¹⁰⁶ *Id.* This seems to portray nature’s leash as weaker than had been depicted by Wilson two years earlier. Then, while acknowledging that moral principles “can at least in theory be non-Darwinian,” he doubts that cultural evolution will overcome the insistencies of genetic evolution. WILSON, *supra* note 52, at 167. “The genes hold culture on a leash. . . . 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.” *Id.* Ayala takes Wilson to task for this last sentence, finding, as does Kitcher, that Wilson possibly sees the function of moral codes as preserving human genes, which entails the naturalistic fallacy. See Ayala, *supra* note 33, at 309. Dennett also chimes in with the observation that “[t]here is no reason to think, however, that evolutionary biology shows us that our genes are powerful enough, and insightful enough, to keep us from making policies quite antithetical to their interests.” DENNETT, *supra* note 2, at 471. Perhaps Wilson is claiming that, factually, there is no other possible ultimate function for a moral code, that as a matter of fact humans cannot realistically adopt a moral code that does not aim to preserve human genes. Cf. Ayala, *supra* note 33, at 309 (“It is possible that Wilson is simply giving the reason why ethical behavior exists at all; his proposition would be that humans are prompted to evaluate morally their actions as a means to preserve their genes, their biological nature.”). To this we respond, let’s see. The Shakers evidence the contrary. See *infra* note 123. Perhaps Wilson undermines here his claim to have respected, even reluctantly, the naturalistic fallacy.

¹⁰⁷ Wilson, *Social Theory*, *supra* note 95, at 68. “Territorial expansion and defense by tribes and their modern equivalents the nation states is a cultural universal.” WILSON, CONSILIENCE, *supra* note 5, at 170 (emphasis omitted). But “[b]iologists have determined that territoriality is not unavoidable during social evolution. It is apparently entirely absent in many animal species. The territorial instinct arises during evolution when some vital resource serves as a ‘density-dependent factor.’” *Id.* “Humanity is decidedly a territorial species.” *Id.* at 171. Indeed, “[t]he dark side to the inborn propensity to moral behavior is xenophobia.” *Id.* at 253. “People give trust to strangers with effort, and true compassion is a commodity in chronically short supply.” *Id.* The strategy of cooperating with a member of one’s own group and not cooperating with members of other groups appears to be “evolutionarily stable,” that is, beneficial to those who adopt the strategy once the pattern is established. See ALLMAN, *supra* note 88, at 249-52; W.D. HAMILTON, *Innate Social Aptitudes of Man: An Approach from Evolutionary Genetics*, in NARROW ROADS OF GENE LAND 329, 330 (1996) (“[I]t is suggested that the ease and accuracy with which an idea like xenophobia strikes the next replica of itself on the template of human memory may depend on the preparation made for it there by selection—selection acting, ultimately, at the level of replicating molecules.”); DEL THIESSEN, BITTERSWEET DESTINY 296 (1996) (“The common evolutionary adaptations of strong kinship ties were nepotism, ethnocentrism, tribalism, social bonding, obedience to authority, nationalism, patriotism, territorially [sic], enemy thinking, xenophobia, jingoism, and reciprocal social exchange. We carry these traits with us to the market every day.”). For more on Wilson’s view of human territoriality and tribalism, see WILSON, *supra* note 23, at 564-65.

“have to be played somewhat like a musical instrument, with some parts stressed to produce results of great beauty and pleasure (by terms of the human limbic system) and other parts sublimated or averted.”¹⁰⁸ Ignoring these feelings will, in words quoted and chided by Kitcher, “produce an ultimate dissatisfaction of the spirit and eventually social instability and massive losses in genetic fitness.”¹⁰⁹ Is this an argument of a person who believes value can be determined by fact alone? Or is this an argument of a person who believes that value choices must weigh heavily the factual consequences, some of which spring from natural moral feelings? Kitcher believes the former. Wilson’s language is quite consistent with the latter.¹¹⁰ By my reading, contrary to Kitcher’s understanding, Wilson does not claim as a “fundamental ethical principle” that “[h]uman beings should do whatever may be required to ensure the survival of a common gene pool for *Homo sapiens*.”¹¹¹ Humans may feel the impulse to follow this principle, but it may not be morally proper in particular, peculiar circumstances. This would seem to be especially true for Wilson, who is a champion of biological diversity,¹¹² when the interests of the human gene pool conflict with other gene pools. In any case, I, no doubt like Kitcher, am left with the impression that Wilson might prefer the dissolution of the naturalistic fallacy, but nevertheless he gives it lip service and, most importantly, ultimately acknowledges its bite.

Finally, Kitcher admonishes Wilson and other sociobiologists for their failure to confront the “central task for any system of ethics [which] is the construction of the impartial perspective.”¹¹³ The foundational,

¹⁰⁸ Wilson, *Social Theory*, *supra* note 95, at 68-69.

¹⁰⁹ *Id.* at 69, *quoted in* KITCHER, *supra* note 13, at 429. In my view, this is not a bad prediction of what will ensue when we commit our lives and welfare to the cockroaches and horseshoe crabs, unless, perhaps, we are in the thralls of some weird cult.

¹¹⁰ See Wilson, *Social Theory*, *supra* note 95, at 431 (“[A] scientific analysis of human nature appears to be the only rational way to make a cost-benefit analysis of social change.”).

¹¹¹ KITCHER, *supra* note 13, at 428. Mayr and Julian Huxley may subscribe to the principle. See MAYR, *supra* note 76, at 269 (endorsing Huxley’s “evolutionary humanism”: “our most basic ethical principle should be to do everything toward enhancing the future of mankind”). If so, so much for the system of self-sacrifice for the sake of cockroaches and horseshoe crabs.

¹¹² See, e.g., EDWARD O. WILSON, *BIOPHILIA* (1984); EDWARD O. WILSON, *THE DIVERSITY OF LIFE* (1992).

¹¹³ KITCHER, *supra* note 13, at 433. This assumes that an impartial perspective is possible. The non-cognitivists deny that it is. See, e.g., RICHARD B. BRANDT, *ETHICAL THEORY* 203-41 (1959). One of the leading Darwinian philosophers, Michael Ruse (a professor of philosophy and zoology), endorses a non-cognitivist “ethical scepticism.” See MICHAEL RUSE, *Evolution and Ethics*, in *EVOLUTIONARY NATURALISM*, *supra* note 3, at 223, 249. “A

undefended propositions of moral philosophers, such as those of Rawls and Nozick, lead to conflicting normative systems. This, Kitcher suggests, must be addressed by sociobiologists, who have not done so. Rawls has constructed his famous framework of resolving moral conflicts in the original position behind the veil of ignorance.¹¹⁴ "[E]ven if we were to suppose that pop sociobiologists have fathomed all the hypothalamic imperatives, the problem Rawls addresses would remain untouched."¹¹⁵ Despite "Wilson's biologicization," issues loom: "Can we find a set of reasons that are valid for all parties in a clash of interests? If so, how do we specify such reasons? Has Rawls succeeded in giving a method for discovering the reasons?"¹¹⁶ For resolving apparent conflicts of interest, Kitcher dismisses sociobiology as having "nothing to offer." "There is no higher standpoint than the dictates of the hypothalamus. There is no impartial perspective."¹¹⁷

Kitcher is harking back to his third possible task for the biologicization of ethics: "Evolutionary biology can explain what ethics is all about and can settle traditional questions about the objectivity of ethics. In short, evolutionary theory is the key to meta-ethics."¹¹⁸ Again, sociobiology may not be "the key to meta-ethics," but it seems to be useful in addressing questions of the objectivity of ethics, perhaps in ways that Wilson, insofar as he is a libertarian,¹¹⁹ would not find satisfying. If the basic, undefended propositions of moral philosophers spring from their limbic systems pursuant to natural impulses honed during the stone age, then this would say something about the likelihood of the proposition being the product of objective, disinterested evaluation. The selfish gene tends to encourage the selfish individual (beyond the reproductive benefits of kin selection and reciprocal altruism), and thus one would expect the limbic moral impulses to reflect this selfishness. But the advancement of a moral system constructed on selfish impulse smacks of limbic special pleading. And it appears to be

major attraction to my position in my eyes is that one simply cannot be guilty of committing the naturalistic fallacy or violating the is/ought barrier, because one is simply not in the justification business at all." *Id.* at 249. "[N]ormative ethics is a biological adaptation, and I would argue that as such it can be seen to have no being or reality beyond this." *Id.* For a defense, see *id.* at 250-56.

¹¹⁴ See RAWLS, *supra* note 64, at 118-92.

¹¹⁵ KITCHER, *supra* note 13, at 433.

¹¹⁶ *Id.*

¹¹⁷ *Id.* at 434.

¹¹⁸ *Id.* at 418.

¹¹⁹ See *infra* note 258.

the special pleading of a limbic system formed in prehistoric circumstances substantially different from those of today. Not only does this make us wary of the supposed disinterestedness of the impulse,¹²⁰ but its consequences may even be counterproductive in modern times on its own terms since the qualities advantageous to reproduction have changed significantly. This is not to say that these selfish impulses necessarily lead to a moral system that is wrong or indefensible on fully objective grounds,¹²¹ but simply that one should be skeptical in light of their probable self-serving origin. To the extent they are grounded on leaps of faith that are not, or are less, selfish,¹²² egalitarian or

¹²⁰ In Gould's words, "I like to apply a somewhat cynical rule of thumb in judging arguments about nature that also have overt social implications: When such claims imbue nature with just those properties that make us feel good or fuel our prejudices, be doubly suspicious." GOULD, *Kropotkin Was No Crackpot*, in *BULLY FOR BRONTOSAURUS*, *supra* note 18, at 325, 338-39. Then, addressing the side of the coin that Gould himself would favor, he writes that he is "especially wary of arguments that find kindness, mutuality, synergism, harmony—the very elements that we strive mightily, and so often unsuccessfully, to put into our own lives—intrinsically in nature." *Id.* at 339.

¹²¹ For example, Alexander, another Darwinian who is not hesitant to enter the moral arena, contends "that morality need not be contrary to natural selection or inconsistent with it but . . . may instead be a logical outgrowth or extension of the practice of social reciprocity by a complexly social organism which changes as a result of both genetic evolution and cumulative social leaning." R.D. Alexander, *A Biological Interpretation of Moral Systems*, in *ISSUES IN EVOLUTIONARY ETHICS*, *supra* note 5, at 179, 182 (emphasis omitted).

¹²² Even Rawls's welfare-state liberal edifice is constructed on the choices of persons behind the veil of ignorance who make, as Rawls sees it, a self-interested decision. See RAWLS, *supra* note 64, at 142 ("I have assumed throughout that the persons in the original position are rational. In choosing between principles each tries as best he can to advance his interests."). Michael Ruse sees this grounding as "mesh[ing] with the evolutionary approach." Ruse, *supra* note 76, at 232. But, according to Ruse, the Darwinian can take the next step by "linking the principles of justice to our biological past, via the epigenetic rules. This is a great bonus, for Rawls himself admits that his own analysis is restricted to the conceptual level. He leaves unanswered major questions about origins." *Id.* Yet when pondering the psychological principles Rawls assumes to be true, he queries the origin of the underlying human nature: "The theory of evolution would suggest that it is the outcome of natural selection; the capacity for a sense of justice and the moral feelings is an adaptation of mankind to its place in nature." RAWLS, *supra* note 64, at 503, *quoted in* Ruse, *supra* note 76, at 233, and Michael Ruse, *The New Evolutionary Ethics*, in *EVOLUTIONARY ETHICS*, *supra* note 44, at 133, 149 [hereinafter Ruse, *New Ethics*]. The adaptation may precede mankind. See JANE GOODALL, *IN THE SHADOW OF MAN* 201-02 (1971) (suggesting chimpanzees may have a sense of justice); Frans B.M. de Waal, *The Chimpanzee's Sense of Social Regularity and Its Relation to the Human Sense of Justice*, in *THE SENSE OF JUSTICE*, *supra* note 36, at 241 (ditto). *But cf.* Daniel J. Povinelli & Laurie R. Godfrey, *The Chimpanzee's Mind: How Noble in Reason? How Absent of Ethics?*, in *EVOLUTIONARY ETHICS*, *supra* note 44, at 277 (finding that chimpanzees possess only some of the abilities that, among humans, emerged into ethical systems).

communitarian normative systems are worthy of diminished skepticism regarding the degree of their disinterested objectivity. Sociobiology may provide a basis for presumptions in demonstrating the validity of normative systems.¹²³ This is still far from *the* key to meta-ethics, but it argues that evolutionary biology “can [help] settle traditional questions about the objectivity of ethics.”¹²⁴

¹²³ Ruse finds that Darwinism leaves no place for objectivity in ethics: “The evolutionist’s claim . . . [is that] morality has objective reference even though it does not. Because of this, a causal analysis of the type offered by the evolutionist is appropriate and adequate, whereas a justification of moral claims in terms of reasoned foundations is neither needed nor appropriate.” Ruse, *supra* note 76, at 236. First, Ruse seems to bridge the fact-value chasm. He later clarifies his position and concludes “that our morality is a function of our actual human nature and that it cannot be divorced from the contingencies of our evolution. Morality, as we know it, cannot have the necessity or objectivity sought by the Kantian and Rawlsian.” *Id.* at 245. Yes, morality should not ignore the fact that humans eat animal and vegetable matter, but it does not follow from this alone that all humans must have the right to eat these nutrients at all. This must be argued. Those who believe in strong animal rights, ethnic cleansing, and capital punishment, for example, subscribe to a morality that limits the right of all to eat. Furthermore, evolution has also contingently led to a human nature that is undoubtedly immoral in part, as in aspects of our aggressive and violent impulses. A moral system must separate out acceptable from unacceptable impulses. See R.J. Richards, *A Defense of Evolutionary Ethics*, in *ISSUES IN EVOLUTIONARY ETHICS*, *supra* note 5, at 249, 260. Second, to the lament of cockroaches and horseshoe crabs everywhere, Ruse leaves no room for a moral system that is demonstrably contrary to the self-interest of one’s genes. One wonders where this leaves the Shakers who subscribed to a belief system that included total celibacy, a genetic dead-end, or the Hutterites who embrace beliefs of extreme selflessness, including the scorning of nepotism and reciprocity. See DENNETT, *supra* note 2, at 473-75 (discussing the “drastically oversimplified” ethics of the Hutterites). Genes may create a moral leash, but it is breakable. See Ayala, *supra* note 33, at 302 (Because “[t]he norms of morality must be consistent with biological nature, . . . accepted norms of morality will often promote behaviors which increase the biological adaptation of those who behave according to them. But this is neither necessary nor indeed always the case.”). Ruse even has trouble with moral obligations to unrelated humans outside the likely, narrow reach of reciprocal altruism. See Ruse, *supra* note 76, at 239-40. Third, detecting neither a need nor aptness for reasoned moral foundations, Ruse’s claim verges into genetic determinism inasmuch as he believes humans cannot embrace a disinterested morality. But then Ruse finds a place for the belief in objectivity: “Furthermore, completing the case, the evolutionist points out that there are good (biological) reasons why it is part of our nature to objectify morality. If we did not regard it as binding, we would ignore it.” *Id.* at 236; see also Ruse, *New Ethics*, *supra* note 122, at 152 (“The simple fact is that if we recognized morality to be no more than an epiphenomenon of our biology, we would cease to believe in it and stop acting upon it.”). Ah, now we are getting somewhere. But I wonder if this is true of ethical relativists once they “see” the relativity of ethics.

¹²⁴ Bradie concludes his study of biology and ethics with a similar conclusion. See BRADIE, *supra* note 87, at 147 (Though “evolutionary considerations alone are not capable of generating a foundation for ethical theory . . . , a Darwinian perspective on ethics and

Let us reconnoiter where Wilson stands against Kitcher's claim of Wilson's indiscretions, the overexuberance of his "intellectual hobbyhorses," his "*idée fixe*."¹²⁵ First, let us review Kitcher's criticism of Wilson's attempt "to explain ethics and ethical philosophers, if not epistemology and epistemologists, at all depths."¹²⁶ Insofar as normative inquiry does require a "leap of faith," and insofar as cognition does turn on the evolved brain and human nature,¹²⁷ then sociobiology may well explain "ethical philosophers, if not epistemology and epistemologists" at great depth, if not "at all depths." Even ethics would be explained at some depth, at least the depth of possibilities (A) and (B) above, and perhaps even into the level of possibility (C). That is, despite Kitcher's doubts, "evolutionary biology . . . can [help] settle traditional questions about the objectivity of ethics." If we felt generous to Wilson,¹²⁸ forgiving him his enthusiasm in expounding an emerging magnifying glass for moral inquiry, we may even write off his perceived overstatements as examples of the misfirings common during a new discipline's "heroic" or "romantic" period.¹²⁹ Frankly, I personally find

ethical theory is capable of generating potentially deep insights into the nature of our moral practices and the formulation of our moral beliefs and principles.").

¹²⁵ KITCHER, *supra* note 13, at 417.

¹²⁶ *Id.* (quoting WILSON, *supra* note 23, at 3) (emphasis added). Unrepentant, Wilson recently wrote that "[m]oral reasoning, I believe, is at every level intrinsically consilient with the natural sciences." WILSON, CONSILIENCE, *supra* note 5, at 238 (distinguishing transcendentalists, who believe to the contrary, from empiricists).

¹²⁷ That cognition does depend on the evolved brain and human nature, see generally GERALD M. EDELMAN, NEURAL DARWINISM (1987); PINKER, *supra* note 6, at 59-148.

¹²⁸ As in the nature-nurture debate taken up next, the protagonists have been far from generous to one another, though my own view based on reading the literature is that the critics have been far less generous. Regarding the nature-nurture controversy, one commentator finds that if you look closely at what the opponents are accused of saying in this debate, "you may be quite startled by the extent of misquoting, quoting out of context, looking for the worst interpretation of what is said, and flagrant misrepresentation that goes on." MATT RIDLEY, NATURE VIA NURTURE 95 (2003) (quoting JANET RADCLIFFE-RICHARDS, HUMAN NATURE AFTER DARWIN (2000)).

¹²⁹ Wilson describes this period "experienced by every successful scientific discipline during its youth. For a relatively brief interval, usually a decade or two, rarely more than half a century, researchers are intoxicated with a mix of the newly discovered and the imaginable unknown." WILSON, CONSILIENCE, *supra* note 5, at 99. "The pioneers are paradigm hunters. They are risk takers, who compete with rival theorists for big stakes and are willing to endure painful shake-outs." *Id.* at 100. The modern synthesis of evolutionary biology has recently experienced its heroic period. *Id.* Even Ruse, "a friendly observer of Wilson's work," and proud of it, admits Wilson's speculations outrun the hard data, but notes that Wilson subscribes "to a philosophy of scientific research that puts a premium on bold conjectures." RUSE, *supra* note 3, at 213; see RUSE, *supra* note 8, at 184-87 (discussing Wilson's scientific values and how they differ from Lewontin's). Less friendly critics have also noted Wilson's speculative leaps. See, e.g., Elizabeth Allen et al., *Against*

aspects of Wilson's normative inquiry to be unpalatable: his insufficient obeisance to the naturalistic fallacy, his moral relativism, his existential angst,¹³⁰ and his postmodernist over-discounting of reason. But how many approaches to moral philosophy, even during their mature periods, are beyond criticism, even withering attacks? Have any impenetrable normative fortresses been formulated by the critics of sociobiology, or for that matter, anyone else?¹³¹ Wilson's own limbic system may interfere with his "objective" analyses and valuations (as with Kitcher and with me), but he brings much to the table that is

"Sociobiology," in THE SOCIOBIOLOGY DEBATE, *supra* note 7, at 259, 261-64; Sociobiology Study Group, *supra* note 76, at 285-86. Nevertheless, the mistakes of exuberance are not to be entirely regretted. "[T]he understandable propensity of researchers with new ideas to claim too much for them is, for all the controversy generated thereby, an encouragement to their correction by further research." W.G. Runciman, *Introduction to EVOLUTION OF SOCIAL BEHAVIOUR PATTERNS IN PRIMATES AND MAN*, *supra* note 33, at 1, 2. Gould agrees: "Give me a fruitful error any time, full of seeds, bursting with its own corrections. You can keep your sterile truth for yourself' (Pareto's comment on Kepler)." STEPHEN JAY GOULD, *Hutton's Purpose*, in HEN'S TEETH AND HORSE'S TOES, *supra* note 14, at 79, 83. Indeed, Mayr criticizes Gould's initial overexuberance over his theory of punctuated equilibrium, noting his later moderation and justification on grounds of fruitfulness. See ERNST MAYR, *Speciational Evolution Through Punctuated Equilibria*, in TOWARDS A NEW PHILOSOPHY OF BIOLOGY 457-88 (1988); Stephen J. Gould, *Punctuated Equilibrium in Fact and Theory*, 1 SKEPTIC 48, 58 (1992) ("Fruitfulness in research, with results both pro and contra, has provided our greatest satisfaction with punctuated equilibrium."). The science having developed since Wilson's seminal book of 1975, sociobiologists' "testable scientific beliefs about human nature have changed and been considerably refined since Wilson's book came out." ANDREW BROWN, THE DARWIN WARS 57 (1999). But even though there has been "the emergence and triumph of a refined and purified sociobiology. . . , some of [Gould's] criticisms of Wilson's original *Sociobiology* are now accepted even by its sympathisers." *Id.* at 148.

As an example of overexuberant neglect of the naturalistic fallacy, Buss argues that, although society may object to promiscuity from a moral point of view, "[f]rom a scientific point of view, however, taking the long view over evolutionary time, there is no moral justification for placing a premium on a single strategy within the collective human repertoire. Our human nature is found in the diversity of our sexual strategies." BUSS, DESIRE, *supra* note 8, at 216. Even a sophisticated philosopher of biology, such as Hull, can slip: "Why cannot people who are essentially different nevertheless have the same rights? Until this question is answered, I remain suspicious of continued claims about the existence and importance of human nature." David L. Hull, *On Human Nature*, in THE PHILOSOPHY OF BIOLOGY, *supra* note 34, at 383, 396.

¹³⁰ Wilson ends his most famous book with a quote from Camus that includes: "In a universe divested of illusions and lights, man feels an alien, a stranger." WILSON, *supra* note 23, at 575 (citing ALBERT CAMUS, THE MYTH OF SISYPHUS (1955)). Ruse also objects to Wilson's "Spencerian progressiveness." See RUSE, *supra* note 30, at 96-99.

¹³¹ As Hull puts it, "[a]lthough I feel uneasy about founding something as important as ethics and morality on evolutionary contingencies, I must admit that none of the other foundations suggested for morality provides much in the way of a legitimate sense of security either." Hull, *supra* note 129, at 396.

worthy of digestion and assimilation for the discerning consumer. Kitcher's criticisms notwithstanding, Wilson propounds a powerful tool for the understanding of the human condition. While sociobiology needs much refinement, an appreciation of human nature, including moral impulses, is an essential requisite for effectively, justly regulating society and increasing personal flourishing.

B. Biological Determinism

Critics commonly complain that sociobiology implies biological determinism.¹³² When addressed to the current generation of evolutionary psychologists, this complaint, taken at face value, is gratuitous.¹³³ While occasionally one may use deterministic language

¹³² "The most common charge against human sociobiology is that it is an exercise in biological or genetic 'determinism.' It is not always made crystal clear what exactly this means, but whatever it is, it is not a good thing." RUSE, *supra* note 113, at 252 (citation omitted); see, e.g., LEWONTIN, *GENES*, *supra* note 11, at 5-6, 17-36, 257; LEWONTIN, *supra* note 90, at 15-16, 23, 26, 87; DOROTHY NELKIN & LAURENCE TANCREDI, DANGEROUS DIAGNOSTICS 10-15 (1989); ROSE, *supra* note 11, at 5-7; Richard M. Burian, *A Methodological Critique of Sociobiology*, in *THE SOCIOBIOLOGY DEBATE*, *supra* note 7, at 376, 377; Sociobiology Study Group, *supra* note 76, at 280. For a discussion of the various relevant meanings of determinism, see ALEXANDER, *supra* note 1, at 98-103.

¹³³ Lewontin, Rose, and Kamin use as their prime examples of strongly deterministic sociobiologists Sir Francis Galton, a contemporary eugenicist cousin of Darwin, Konrad Lorenz during the Nazi regime, and, in more recent times, Arthur Jensen and Richard Herrnstein. See LEWONTIN, *GENES*, *supra* note 11, at 30, 69. While these authors find the modern works of Wilson and Richard Dawkins to be "biologically determinist writings," see *id.* at 59, my readings of the cited books uncovered careful acknowledgments of the substantial role of nurture in forming individual character. See, e.g., DAWKINS, *SELFISH GENE*, *supra* note 22, at 331-32; WILSON, *supra* note 52, at 53-70. Even Herrnstein, in his (rightfully) most controversial book with Murray, stresses the role of nurture in intelligence differences. See RICHARD J. HERRNSTEIN & CHARLES MURRAY, *THE BELL CURVE* 311 (1994). Wilson responds to the critics by claiming "[t]hey misunderstand gene-culture coevolution, confusing it with rigid genetic determinism, the discredited idea that genes dictate particular forms of culture." WILSON, *CONSILIENCE*, *supra* note 5, at 166. "Genes do not specify elaborate conventions Instead, complexes of gene-based epigenetic rules predispose people to invent and adopt such conventions. If the epigenetic rules are powerful enough, they cause the behaviors they affect to evolve convergently across a great many societies." *Id.* at 166-67. These conventions are then known as cultural universals. See *id.* Still, even a sympathetic commentator such as Ruse dissociates himself from "the fairly deterministic view of human nature favoured by Wilson and Lumsden." MICHAEL RUSE, *The View from Somewhere*, in *EVOLUTIONARY NATURALISM*, *supra* note 3, at 154, 159. For support of Ruse's interpretation, see *infra* note 171. Still, "there is little evidence that Wilson advocated any such total biological determinism." ROSE, *supra* note 6, at 169. I decline to defend Jensen. See WRIGHT, *supra* note 7, at 183-87 (the Jensen "furor").

when making various points by means of unqualified language,¹³⁴ just as many writers occasionally overgeneralize to avoid the infelicities of appending extended qualifications, no mainstream Darwinist believes that genes alone determine behavior, or rather, determine behavior interesting to normative or legal issues,¹³⁵ including any natural disposition to behave morally.¹³⁶ Evolutionary psychologists deny genetic determinism and assert that environment substantially

¹³⁴ See, e.g., ALEXANDER, *supra* note 1, at 100; Wilson & Kniffin, *supra* note 33, at 292 ("Assuming genetic determinism allows behavioral evolution to be explored without worrying about the messy proximate mechanisms that actually separate genes from behavior."). For example, Montagu calls Wilson to task for writing: "The question of interest is no longer whether human social behavior is genetically determined; it is to what extent." WILSON, *supra* note 52, at 19, *quoted in* Ashley Montagu, *Introduction to SOCIOBIOLOGY EXAMINED* 3, 9 (Ashley Montagu ed., 1980). But even here Wilson is not speaking of "determinism" in a strong sense, for otherwise there is no need to question "to what extent." For a discussion of the unqualified statements, or metaphors, that subject Richard Dawkins to the claim of determinist, see BROWN, *supra* note 129, at 34-44.

¹³⁵ See WILSON, CONSILIENCE, *supra* note 5, at 188 (Insofar as genetic determinism is "the belief that human behavior is fixed in the genes, and that its most destructive properties, such as racism, war, and class division, are consequently inevitable. . . ., I have never met a biologist who believes in genetic determinism."); John Alcock, *Unpunctuated Equilibrium in the Natural History Essays of Stephen Jay Gould*, 19 *EVOLUTION & HUM. BEHAV.* 321, 324 (1998) ("The extreme determinist position assigned by debater [Stephen Jay] Gould to sociobiologists and E.O. Wilson is embraced by *no* thinker, to the best of my knowledge."). Alcock believes this claim of determinism is a polemical strawman. See *id.* Some behavior may indeed be more influenced by genes than others, such as the basic instincts of fight, flight, feeding, and reproduction. But these impulses usually have little to do with the difficult normative questions. Where they do come to the forefront, as where a thief defends her theft of food on the grounds that she was starving to death, or a rapist advances the natural desire to leave offspring, the law has revealed few compunctions about passing condemnatory judgment. Kitcher, one of the strongest critics, acknowledges the public disavowal of genetic determinism by virtually all biologists, but worries about the consequences of "genetalk" that uses the "convenient shorthand" of referring, in deterministic language, to genes for particular characteristics or behavior. See PHILIP KITCHER, *THE LIVES TO COME* 239-40, 245-49, 268-69 (1996).

¹³⁶ See MAYR, *supra* note 5, at 156-57 ("Undoubtedly, a genetic propensity for accepting and maintaining such [legal and religious] cultural prescriptions is favored by selection, but the contents of the ethical repertory are acquired in the individual's lifetime and are not fixed genetically.") (citing WADDINGTON, *supra* note 93); Wynne-Edwards, *supra* note 44, at 105 (noting that a genetically disposed ingredient of moral persuasion "is conscience, the *alter ego* which resides in us and constrains us to do what is right in conformity with moral law"). De Waal posits the process of coming to individual moral outlooks: "Human morality shares with language that it is far too complex to be learned through trial and error, and far too variable to be genetically programmed." DE WAAL, *GOOD NATURED*, *supra* note 7, at 36. "Possibly we are born, not with any specific social norms, but with a learning agenda that tells us which information to imbibe and how to organize it. We could then figure out, understand, and eventually internalize the moral fabric of our native society." *Id.*

influences conduct,¹³⁷ just as credible critics acknowledge that behavior reflects both nature and nurture.¹³⁸ Genes may dispose people to certain

¹³⁷ For example, Buss insists that the deterministic implication that behavior is "immutable, intractable, and unchangeable" is based on a mistaken belief that "divides human behavior into two separate categories, one biologically determined and the other environmentally determined. In fact, human action is inexorably a product of both." BUSS, *DESIRE*, *supra* note 8, at 17. Stewart and Cohen assert that the claim of genetic determinism "stems from a grievous misunderstanding of human development. The genome is more a recipe than a blueprint, and the ingredients and the skill of the cook are at least as important." IAN STEWART & JACK COHEN, *FIGMENTS OF REALITY* 229 (1997). In light of this, Alexander points out that the unforeseeability of environmental influences and their effects, as well as the feed-back effects from human cognition and self-reflection, are enough to make behavior effectively unpredictable. ALEXANDER, *supra* note 1, at 276-77. Dawkins, presuming to speak for Wilson as well, rebuts critics by pointing out that "it is perfectly possible to hold that genes exert a statistical influence on human behaviour while at the same time believing that this influence can be modified, overridden or reversed by other influences." DAWKINS, *SELFISH GENE*, *supra* note 22, at 331. Let us allow Wilson to speak for himself in positing a role in moral reasoning for genes, culture, and self-conscious decision: "[M]oral reasoning is based on the epigenetic rules that channel the development of the mind. . . . But the rules only bias development; they do not determine ethical precepts or the necessary decisions in a fixed manner." PROMETHEAN FIRE, *supra* note 5, at 179. For more detail, see *id.* at 179-82. See WILSON, *SEARCH*, *supra* note 83, at 88-94. While Dawkins is optimistic about freewill, see DAWKINS, *SELFISH GENE*, *supra* note 22, at 201 ("We are built as gene machines and cultured as meme machines, but we have the power to turn against our creators. We, alone on earth, can rebel against the tyranny of the selfish replicators."), Mackie questions the optimism by pointing out various hurdles, see J.L. Mackie, *The Law of the Jungle: Moral Alternatives and Principles of Evolution*, in *ISSUES IN EVOLUTIONARY ETHICS*, *supra* note 5, at 165, 176-77. But the claims of determinism cannot be entirely dismissed: "Natural selection tends to make the members of a species alike in their adaptive traits, because whichever version of a trait is better than the others will be selected and the alternative versions will die out." PINKER, *supra* note 11, at 260. "That is why most evolutionary psychologists attribute systematic differences among people to their environments and attribute only random differences to the genes." *Id.*

¹³⁸ See, e.g., STEPHEN JAY GOULD, *A Hearing for Vavilov*, in *HEN'S TEETH AND HORSE'S TOES*, *supra* note 14, at 134, 144 ("A complete theory of evolution must acknowledge a balance between 'external' forces of environment imposing selection for local adaptation and 'internal' forces representing constraints of inheritance and development."); STEPHEN JAY GOULD, *THE MISMEASURE OF MAN* 35 (rev. ed. 1996) [hereinafter GOULD, *MISMEASURE*] ("[N]o person with an iota of knowledge would say such a foolish thing" as to deny the role of both nature and nurture.); ROSE, *supra* note 11, at 98-135. Rose contends that Wilson improperly "privileges the gene as . . . an unmoved mover," when "[i]t is far more appropriate to recognize . . . that genes and environments are dialectically interdependent throughout any individual's lifeline." ROSE, *supra* note 11, at 133. Gould levels a similar complaint against Herrnstein and Murray, writing that "[w]hen causative factors (more than two, by the way) interact so complexly, and throughout growth, to produce an intricate adult being, we cannot, in principle, parse that being's behavior into quantitative percentages of remote root causes." GOULD, *MISMEASURE*, *supra*, at 34. "A '60 percent' biodeterminist is not a subtle interactionist, but a determinist on the 'little bit pregnant' model." *Id.* Even if the causes of behavior cannot be privileged or parsed into percentages, it strikes me that the acknowledgment that genes play some unquantifiable role, or that the

behavior, more so for some behavior than other,¹³⁹ but nurture as well as nature affect character.¹⁴⁰ Individuals can overcome genetic dispositions.¹⁴¹ The debate about the relative role of nature and nurture

environment does, suffices to make one "a determinist on the 'little bit [we can't know how much] pregnant' model."

¹³⁹ Selective advantage controls the mix of nature and nurture that guides particular behavior. See JOHN T. BONNER, *THE EVOLUTION OF CULTURE IN ANIMALS* 39-40 (1980).

¹⁴⁰ See, e.g., JEROME KAGAN, *GALEN'S PROPHECY: TEMPERAMENT IN HUMAN NATURE* 29 (1994) ("[E]ach species is born with a central nervous system that biases the animal to find some habits easy to acquire, some difficult, and some impossible. Children belonging to different temperamental categories, like closely related species, also differ in the ease with which particular emotions and accompanying behaviors become habitual."); RIDLEY, *supra* note 128, at 82-83 (reporting that among the five personality types recognized today by psychologists—openness, conscientiousness, extroversion, agreeableness, and neuroticism—"a little over 40 percent of the variation in personality is due to direct genetic factors, less than 10 percent due to shared environmental influences (i.e., mostly the family), and about 25 percent due to unique environmental influences experienced by the individual"). Kagan cautions against giving nature "an unwarranted ascendancy because scientific progress is more rapid in the neurosciences than in psychology." KAGAN, *supra*, at 23-24. Pinker emphasizes the nature side in stating "[t]he three laws of behavioral genetics": (1) "All human behavioral traits are heritable"; (2) "The effect of being raised in the same family is smaller than the effect of the genes"; (3) "A substantial portion of the variation in complex human behavioral traits is not accounted for by the effects of genes or families." PINKER, *supra* note 11, at 372-73. While the first law "is a bit of an exaggeration," *id.* at 375, the heritability values are "generally between .25 and .75," *id.* at 374.

¹⁴¹ . Wilson, quoting himself, seems to even plea for this position: "To an extent not yet known, we trust—we insist—that human nature can adapt to more encompassing forms of altruism and social justice. Genetic biases can be trespassed, passions averted or redirected, and ethics altered . . ." Wilson, *supra* note 42, at 267. "Yet the mind is not infinitely malleable." *Id.*

continues hardly abated,¹⁴² but all credible commentators find a substantial place for both influences.¹⁴³

¹⁴² While “[f]or more than 50 years sane voices have called for an end to the debate [about nature versus nurture.] . . . nobody could stop the argument. Immediately after calling the debate futile or dead, the typical protagonist would charge into the battle himself and start accusing others of overemphasizing one or the other extreme.” RIDLEY, *supra* note 128, at 3. For brief discussions of the difficulties of teasing apart the relative roles of nature and nurture, see ANNE FAUSTO-STERLING, *MYTHS OF GENDER* 7-8 (2d ed. 1992); ROSE, *supra* note 11, at 188-90; ELLIOTT SOBER, *Apportioning Causal Responsibility, in FROM A BIOLOGICAL POINT OF VIEW* 184 (1994); WILSON, *CONSILIENCE*, *supra* note 5, at 138-42; WRIGHT, *supra* note 7, at 110-13. One of the complications is that nurture itself, insofar as it is informed by culture, is influenced by genes. See AVISE, *supra* note 22, at 158; *infra* Part III.B. The terms “gene” and “environment” are “complex and many-layered.” ROSE, *supra* note 11, at 140. See generally *id.* at 136-73 (“Lifelines”). Behavioral variation may stem from a third source, “one of chaotic origin—chancy, nonlinear, highly variable, emerging, and self-organized. Any dynamic system, like the brain, possesses this chaotic nature.” THIESSEN, *supra* note 106, at 403.

¹⁴³ “Everybody with an ounce of common sense knows that human beings are a product of a transaction between [both nature and nurture].” RIDLEY, *supra* note 128, at 3; see, e.g., NANCY L. SEGAL, *ENTWINED LIVES*, at xvi-xvii (1999); WRIGHT, *supra* note 8, at 348 (“[T]he phrase ‘genetic determinism’ exudes ignorance as to what the new Darwinism is about. . . . [E]veryone (including Darwin) is a victim not of genes, but of genes and environment together: knobs and tunings.”).

Disparaging the role of genes in behavior, “[t]he three dominant themes on behavior for a good part of the century were Freudianism, which said aberrant behavior was produced in the childhood environment; Boasism, which said behavior was produced by the cultural environment; and behaviorism, which said behavior resulted from environmental conditions and learning.” WRIGHT, *supra* note 7, at 170. We certainly have political reason to hope that nature does play a role in human behavior, for, as Chomsky has pointed out, “a *tabula rasa* model of the human mind is a ‘totalitarian’s dream.’” ALLMAN, *supra* note 88, at 30 (citing a quote from Noam Chomsky in DONALD SYMONS, *THE EVOLUTION OF HUMAN SEXUALITY* (1979)); see DE WAAL, SUSHI MASTER, *supra* note 7, at 90 (behaviorism as “a perfectly Orwellian worldview”).

Owen Jones opines that the antagonistic assertion of biological determinism is “a function of two things: (1) an essentially narcissistic fiction that mind may be entirely divorced from matter, and (2) misperception of the biological mechanism by which certain behavioral patterns may be influenced and genetically inherited.” Jones, *supra* note 7, at 273. Elsewhere Jones ascribes confusion about genetic determinism to “The Error of the False Dichotomy” and the “failure to distinguish between two very different aspects of behavioral biology: (1) behavioral genetics; and (2) evolved or ‘species-typical’ psychology.” Owen D. Jones, *Sex, Culture, and the Biology of Rape: Toward Explanation and Prevention*, 87 CAL. L. REV. 827, 878 (1999) (with explanation). Alcock asserts that “the myth of the deterministic sociobiologist” continues among some critics despite rebuttals “[b]ecause the genetic determinist is too convenient a strawman to be discarded.” ALCOCK, *supra* note 13, at 44. See generally *id.* at 41-56.

Different understandings of the term "biological determinism" may trigger some of the debate among the commentators.¹⁴⁴ We may distinguish "loose" determinism from "tight" determinism.¹⁴⁵ That genes produce behavioral dispositions establishes loose determinism. Biology channels conduct to a degree that depends on the type of behavior in question.¹⁴⁶ For example, one might suppose that the human disposition to nurture the young is among the most strongly channeled traits, for it is hard to imagine how those in normal situations, particularly women, who are indifferent to their newborns would succeed in spreading their genes.¹⁴⁷ Still, here also, the channel is not stifling, for there is a substantial range of accepted methods and practices in nurturing the young even within a single culture, and regular news

¹⁴⁴ For example, "[w]hile many critics have been particularly vocal in asserting that [sociobiology] necessarily implies genetic determinism and is vitiated by ideological bias, in fact the approach merely applies a cost-benefit approach, like that of the Sophists or of Machiavelli, to the analysis of animal behavior." ROGER D. MASTERS, MACHIAVELLI, LEONARDO, AND THE SCIENCE OF POWER 115 (1996) (footnote omitted).

¹⁴⁵ The terms "loose" and "tight" determinism are not entirely divorced from the traditional distinction between "soft" and "hard" determinism used to distinguish moral arguments that determinism is compatible with freedom and moral responsibility from those that assert it is not. See, e.g., D.D. RAPHAEL, MORAL PHILOSOPHY 96-97 (1981); NICHOLAS RESCHER, *The Meaning of Life, in* HUMAN INTERESTS 151, 158-60 (1990). See generally BERNARD BEROFKY, FREEDOM FROM NECESSITY (1987).

¹⁴⁶ "The reaction norm for a particular genotype is all possible phenotypes that would result, given all possible sequences of environments in which the organism might survive." Hull, *supra* note 129, at 391. "Some reaction norms are very narrow—that is in an environment in which the organism can develop, it exhibits a particular trait, and only that trait. Sometimes reaction norms turn out to be extremely broad." *Id.* Reaction norms may begin broad and then become narrow, be continuous or disjunctive, produce most organisms at the center of the norm or clustered at the extremes, and so forth. See *id.*; see also MASTERS, POLITICS, *supra* note 42, at 120-25 (discussing "norm of reaction" or "reaction range"). "Because the genetic reaction range of *Homo sapiens* is so broad that humans must rely on culturally transmitted and individually learned information to survive and reproduce, the probability of contradictions between individuals or groups is exceptionally high." MASTERS, POLITICS, *supra* note 42, at 138. But see John Tooby & Leda Cosmides, *The Psychological Foundations of Culture, in* THE ADAPTED MIND, *supra* note 7, at 19, 33 ("[T]he idea that the phenotype can be partitioned dichotomously into genetically determined and environmentally determined traits is deeply ill-formed, as is the notion that traits can be arrayed along a spectrum according to the degree that they are genetically versus environmentally caused.").

¹⁴⁷ "Interestingly, in a tradition filled with law, there is no law obligating a mother to nurture her child." Harlan J. Wechsler, *The View of Rabbinic Literature, in* JUSTICE ACROSS GENERATIONS 19, 20 (Lee M. Cohen ed., 1993). This intuition is not entirely correct. There are situations in which even maternal infanticide may have long term reproductive advantages. See, e.g., Jones, *supra* note 17, at 1170-1216 (1997).

reports of parents who fall far short of even minimal requirements.¹⁴⁸ The dispositions to eat and drink, and the sex drive, are perhaps even stronger examples, though again there is a wide variety of actual behavior, including those that are biologically beneficial and self-destructive.¹⁴⁹ Some belief in moral norms may also be rather narrowly prescribed, though the particular norms themselves may not be.¹⁵⁰ Tight determinism resides at the far pole of the dichotomy. It connotes a narrow channel of choice, a straight line at the limit. In the typical debate among those who espouse freewill or determinism, this strong form usually centers attention.

Because even the harshest critics of sociobiology acknowledge loose biological determinism,¹⁵¹ it is not likely that they consider this sufficient

¹⁴⁸ On the other hand, efforts to overcome the natural bonding of children and parents in favor of communal upbringing have met great difficulties, as exemplified by the efforts on the Israeli kibbutz. See ARNHART, *supra* note 42, at 91-101.

¹⁴⁹ "Chastity is a viable option for humans." CARTWRIGHT, *supra* note 7, at 332.

¹⁵⁰ Ruse contends that the belief in moral norms falls within "a strong sense of genetic determinism," though "even here I am allowing—demanding—an environmental causal input." RUSE, *supra* note 113, at 253. Hamilton considers "the selective value of having a conscience. The more consciences are lacking in a group as a whole, the more energy the group will need to divert to enforcing otherwise tacit rules or else face dissolution." HAMILTON, *supra* note 107, at 332. Yet, "[t]o give the human conscience a comfortable place within Darwin's theory without reducing human feelings and motives to a complete travesty is one of the greatest challenges to biology today." DE WAAL, GOOD NATURED, *supra* note 7, at 117. Ruse bolsters his case: "did any moral thinker, except perhaps the French existentialists at their most bizarre and unconvincing, ever truly think that we choose the rules of moral action?" RUSE, *supra* note 113, at 253. For more detail, see *id.* at 253-56; MICHAEL RUSE, *Evolutionary Ethics*, in EVOLUTIONARY NATURALISM, *supra* note 3, at 257. When discussing the interrelationship between genes and culture, Lumsden and Wilson generalize Ruse's position: "even when the underlying epigenetic rules and assimilation functions are rigidly constrained by genetic prescription, they can generate wide cultural diversity." CHARLES J. LUMSDEN & EDWARD O. WILSON, GENES, MIND, AND CULTURE 181 (1981). Perhaps taking a position less constraining than Ruse's when related to moral norms, they contend that "[a]dditional variation arises from the probabilistic nature of ethnographic distributions due to continuing flux in the decisions of individuals." *Id.*

¹⁵¹ See, e.g., *supra* text accompanying notes 132-43. For example, it seems that Lewontin and his coauthors use the term "determinism" in a weak sense, at least sometimes. Thus, in introducing the "three claims of biological determinism," they specify the second claim: "Second, while liberal ideology has followed a cultural determinism, emphasizing circumstance and education, biological determinism locates such successes and failures of the will and character as coded, *in large part*, in an individual's genes" LEWONTIN, *supra* note 90, at 68 (emphasis added). First, I am not familiar with a well-recognized liberal ideology that asserts that cultural determinism is so strong as to threaten substantially the notion of individual freewill. Rawls certainly makes much of biological and environmental influences in challenging the notion of personal desert, see RAWLS, *supra*

to preclude freewill, for then the critics would fall within the reach of their own complaint against sociobiologists.¹⁵² Furthermore, because the critics acknowledge environmental influences on behavior, some claiming that it is entirely controlling, this form of determinism, whether loose or tight, should also make them uncomfortable with pointing fingers.¹⁵³ Within the moral debate over freewill and determinism, those

note 64, at 100 ("inequalities of birth and natural endowment are undeserved"), but he falls far short of denying freewill. Is the same weak determinism also being ascribed to biological determinism? Second, as the added emphasis highlights, even Lewontin and his coauthors admit that sociobiologists are not very strong biological determinists. How strong is "in large part"? But then, in specifying the third claim of biological determinism, the authors seem to find a very strong determinism: "Finally, it is claimed that the presence of such biological differences between individuals of necessity lead to the creation of hierarchical societies because it is part of biologically determined human nature to form hierarchies of status, wealth, and power." LEWONTIN, *supra* note 90, at 68 (emphasis added). Wilson does go so far so as to argue that dominance orders pay off for animals, and that it would be "surprising" if humans avoided them, the evidence suggesting that they have not. See WILSON, CONSILIENCE, *supra* note 5, at 259-60. We cannot point to the experiments in communism as counterexamples (Am I being snotty? If so, I am just simply caught up in the spirit of the debate. Or, perhaps more in the spirit, "I couldn't help myself."). This supposed strong deterministic belief of sociobiologists is reasserted later by Lewontin and cohorts: "The central assertion of sociobiology is that all aspects of human culture and behavior, like the behavior of all animals, are coded in the genes and have been molded by natural selection." LEWONTIN, *supra* note 90, at 235-36 (continuing with an acknowledgment that "sociobiologists sometimes hedge on the issue of direct genetic determination of every detail of social and individual behavior"). But I am not familiar with reputable sociobiological claims this strong. The three critics themselves subscribe to a view that most sociobiologists would probably second: "We must insist that a full understanding of the human condition demands an integration of the biological and the social in which neither is given primacy of ontological priority over the other . . ." *Id.* at 75. Lewontin elsewhere counters genetic determinism with the argument that some "variation is a consequence of neither genetic nor environmental variation. It is developmental noise, a consequence of random events within cells at the level of molecular interactions." LEWONTIN, TRIPLE HELIX, *supra* note 11, at 36. While this may undermine genetic and environmental determinism, instead of favoring freewill, it puts our destiny in the hands of the fates.

¹⁵² See VON SCHILCHER & TENNANT, *supra* note 18, at 48 ("It is jejune for the free will theorist, in seeking room for human free will in the causal web of doings, to set more store on either genetic or environmental causation than the other."); WILSON, SEARCH, *supra* note 83, at 89 (The critics of sociobiology "are quick to project a political scenario in which genetic determinism leads to support for the status quo and continued social injustice. Seldom do they entertain an equally plausible scenario, one in which complete cultural determinism leads to support for authoritarian mind control and worse injustice.").

¹⁵³ Posner, on the other hand, is willing to point the finger of determinism at himself. He rejects the misunderstanding that he "subscribe[s] to a naive distinction between determinism and freedom, regarding the former as the domain of biology and the latter as that of economics. In fact, the model of economic man is as deterministic as the biological model; rational man goes where the balance of costs and benefits inclines." RICHARD A. POSNER, SEX AND REASON 88 (1992). With friends like this, it seems that sociobiologists

who discern loose determinism are likely to be “compatibilists” who contend that it does not preclude freewill or personal responsibility.¹⁵⁴ Wherever one falls within the debate over the relative influence of nature and nurture, loose determinism raises its head, but this need not relegate us to moral despair.

To begin with, we might challenge the deterministic aspect of the nature-nurture controversy. As Tooby and Cosmides explain, “[t]he notion that inherited psychological structure constrains is the notion that without it we would be even more flexible or malleable or environmentally responsive than we are. This is not only false but absurd. Without this evolved structure, we would have no competences or contingent environmental responsiveness whatsoever.”¹⁵⁵ To respond to the environment at all, organisms must have mechanisms designed to make connections to it. “Our evolved cognitive adaptations—our inherited psychological mechanisms—are the means by which things are affirmatively accomplished.”¹⁵⁶ In sum, “[f]ar from constraining, specialized mechanisms enable competences and actions that would not be possible were they absent from the architecture.”¹⁵⁷

Or, we might even challenge the deterministic assumption beneath genetic behavioral dispositions. As Matt Ridley points out, “We instinctively assume that bodily biochemistry is cause whereas behaviour is effect If genes are involved in behaviour then it is they

hardly need enemies. But then, he retreats. “Sociobiology identifies influences on behavior, not determinants of it.” *Id.* at 109. Perhaps the retreat was ill-advised. Hume, for one, “rejects the contrast between free will and determinism as a false dichotomy.” ARNHART, *supra* note 42, at 84. “We are free when our actions are determined by our deliberate choices.” *Id.*

¹⁵⁴ For an analysis of compatibilism and incompatibilism, see John Martin Fischer, *Introduction: Responsibility and Freedom*, in *MORAL RESPONSIBILITY* 9, 32-40 (John Martin Fischer ed., 1986). Ruse places himself in this camp. See RUSE, *supra* note 113, at 253 (“[S]uch determinism is a condition of moral choice rather than a barrier.”). Balkin contends that “cultural software empowers individuals even as it constructs and creates them. It untaps the potential power of the human mind just as an increasingly complicated and sophisticated software program allows a computer to do more.” J.M. BALKIN, *CULTURAL SOFTWARE* 18 (1998). “Cultural software, rather than being the enemy of human autonomy, is the very condition of its possibility.” *Id.*

¹⁵⁵ Tooby & Cosmides, *supra* note 146, at 38; see DANIEL C. DENNETT, *Cognitive Wheels: The Frame Problem of AI*, in *BRAINCHILDREN* 181, 188 (1998) (“We can all agree, today, that there could be no learning at all by an entity that faced the world at birth as a tabula rasa”).

¹⁵⁶ Tooby & Cosmides, *supra* note 146, at 38.

¹⁵⁷ *Id.* at 39. For another study along these lines, see MICHAEL S. GAZZANIGA, *NATURE’S MIND* (1992).

that are the cause and they that are deemed immutable.”¹⁵⁸ But, Ridley cautions, “genes need to be switched on, and external events—or free-willed behaviour—can switch on genes. Far from us lying at the mercy of our omnipotent genes, it is often our genes that lie at the mercy of us.”¹⁵⁹

Furthermore, we might champion the benefits of determinism, of a soft sort. As Dennett points out, there are important social benefits to the absence of complete freewill. Holding people responsible depends on it. Without some determinism, people “would not be deterred by the threat of punishment, or be ashamed by the prospect of opprobrium, or even feel the twinge of guilt that might inhibit a sinful temptation in the future, because [they] could always choose to defy those causes of behavior.”¹⁶⁰

Even without these ways to finesse the problem, the most unmitigated sociobiologist is unlikely in principle to be a strong determinist. For one, the ability to learn is an evolved trait.¹⁶¹ To put it in ironic terms, it is genetically “determined” that organisms can learn

¹⁵⁸ MATT RIDLEY, *GENOME* 153 (1999).

¹⁵⁹ *Id.* Ridley provides this example: “It is also an indisputable fact that you can trigger activity in the ‘happiness centres’ of the brain with a deliberate smile, as surely as you trigger a smile with happy thoughts. It really does make you feel better to smile.” *Id.* at 154. Ridley also points out that one must not equate determinism with fatalism, threats to political freedom, or lack of responsibility. *See id.* at 306-13.

¹⁶⁰ PINKER, *supra* note 11, at 176-77 (discussing DANIEL C. DENNETT, *ELBOW ROOM: THE VARIETIES OF FREE WILL WORTH WANTING* (1984)). This also leads to “Hume’s Fork”: “Either our actions are determined, in which case we are not responsible for them, or they are the result of random events, in which case we are not responsible for them.” *Id.* at 178.

¹⁶¹ *See, e.g.*, ALLMAN, *supra* note 88, at 31; ROBIN DUNBAR, *GROOMING, GOSSIP, AND THE EVOLUTION OF LANGUAGE* 34 (1996) (“Learning is just another example of a Darwinian process: it is differential survival of traits (behavioural rules in this case) as a result of selection.”); GOULD, *MISMEASURE*, *supra* note 138, at 361 (“If intelligence sets us apart among organisms, then I think it probable that natural selection acted to maximize the flexibility of our behavior.”); KONNER, *supra* note 18, at 24-25 (noting that behavioral scientists “have always stressed that the hallmark of human evolution is an increase of individual adaptability”); H.C. Plotkin, *Learning and Evolution*, in *THE ROLE OF BEHAVIOR IN EVOLUTION* 133, 136 (H.C. Plotkin ed., 1988) (“Learning is adaptive. This is the most commonplace view of the role of learning in evolution, and it is closely related to the generally accepted notion that learning is an evolved trait or set of traits.”). “The error of many [behavioral scientists] was, to quote Julian Huxley, to ‘forget that even the capacity to learn, to learn at all, to learn only at a definite stage of development, to learn one thing rather than another, to learn more or less quickly, must have some genetic basis.” KONNER, *supra* note 18, at 25 (quoting JULIAN HUXLEY, *ESSAYS OF A HUMANIST* (1965)).

and respond to their environments.¹⁶² Strong genetic behavioral determinism (other than, perhaps, the ability to learn) would be an evolutionary dead end.¹⁶³ Even in a relatively stable environment, the

¹⁶² Because the ability to learn is honed by selective pressures, some things are learned more easily than others. "Learning is part of the adaptive pattern of a species and can be understood only when it is seen as a process of acquiring skills and attitudes that are of evolutionary significance to a species when living in the environment to which it is adapted." S.L. Washburn et al., *Field Studies of Old World Monkeys and Apes*, 150 SCI. 1541 (1965), quoted in HAMILTON, *supra* note 107, at 329; see PROMETHEAN FIRE, *supra* note 5, at 83 ("Mental capacities and emotional responses were shaped in ways that favored particular levels of inquisitiveness and optimism, as well as idiosyncratic modes of reasoning, a stubborn tendency to see the world as a peculiar medley of lights, sounds, and smells, and the deep, emotionally controlled preference for certain cultural choices over others."). Browne observes that the ease with which males and females learn their social sex roles suggests an adaptive advantage to them. See Kingsley R. Browne, *Sex and Temperament in Modern Society: A Darwinian View of the Glass Ceiling and the Gender Gap*, 37 ARIZ. L. REV. 971, 1063-64 (1995). See generally Leda Cosmides & John Tooby, *Cognitive Adaptations for Social Exchange*, in THE ADAPTED MIND, *supra* note 7, at 163.

¹⁶³ "The hypothesis that human behavioral propensities are adaptations shaped by natural selection does not imply that human behavior is not plastic or that differences in behavior among human populations are the result of genetic differences." Irons, *supra* note 19, at 5 (emphasis omitted). Seemingly, differences in social behavior among groups "are environmentally induced variations in the expression of basically similar genotypes," the ability and propensity for such variable responses being itself an adaptation. *Id.* (emphasis omitted); see *id.* at 7-8 (offering support for the view "that this flexibility is an adaptive character produced by natural selection"); RICHARD D. ALEXANDER, THE BIOLOGY OF MORAL SYSTEMS 9 (1987) ("Inflexibility or preprogramming would be the worst possible strategy in the face of conflicts of interest, competition, the importance of cooperation, and other aspects of sociality."); Elliott, *supra* note 7, at 619 ("Because of differences in environments, and also because of the notion that there is a diversity of [adaptive] strategies which are being played in any population, one would not expect the same thing that works in a particular culture to work in another context."); Michael S. Fried, *The Evolution of Legal Concepts: The Memetic Perspective*, 39 JURIMETRICS J. 291, 295 (1999) ("[I]n the competition for survival among genes, the ability to respond rapidly to environmental fluctuations proved to be a successful strategy. This was accomplished by designing organisms that were able to adjust their behavior according to past experiences in their lives."). Dennett, after pointing out the need of organisms to partially "redesign themselves" to cope with the unpredictable, even chaotic, conditions they encounter, notes that "[s]ometimes such redesign is called *learning* and sometimes it is called just *development*," the line between the two being contentious. DENNETT, *supra* note 18, at 183. The "postnatal design-fixing" is accomplished "by a process strongly analogous to the process that fixes the prenatal design, or in other words, a process of evolution by natural selection occurring within the individual (within the phenotype)." *Id.* The capability to do this "also reflects back on the process of genetic evolution and *speeds it up*" by means of a phenomenon known as the Baldwin effect. *Id.* at 184; see JOHN T. BONNER, LIFE CYCLES 89-90 (1993) ("This process of genes infiltrating or becoming assimilated to reinforce something that is already occurring is called the Baldwin effect."); CARTWRIGHT, *supra* note 7, at 19 ("The theory became known as 'organic selection' but is usually today known as the 'Baldwin effect' and describes how a learnt adaptation could become fixed in the

contingencies that must be coped with by a complex animal are so varied as to require an excessive amount of hard wiring within a fully determined organism.¹⁶⁴ Creatures that confront the multitude of contingencies encountered by humans would not do well with strongly determined behavior.¹⁶⁵ While the strength of a particular behavioral

genome.”); KONNER, *supra* note 18, at 23 (“In one process, sometimes called the Baldwin effect, change within the life course of some individuals in a population creates conditions that, over a longer course of time, select for genetic features that mimic the same changes.”); PINKER, *supra* note 6, at 178-79 (explaining the principle of the Baldwin effect); PLOTKIN, *supra* note 20, at 65 (“What Baldwin was saying is that selection does not operate upon genetical variation alone but upon phenotypic variation which is the outcome of both genetically and developmentally generated variation.”); Geoffrey E. Hinton & Steven J. Nowlan, *How Learning Can Guide Evolution*, 1 COMPLEX SYS. 495, 495 (1987) (Under the Baldwin effect, “[l]earning alters the shape of the search space in which evolution operates and thereby provides good evolutionary paths towards sets of co-adapted alleles.”). For further explanation, see DENNETT, *supra* note 18, at 184-91.

¹⁶⁴ See MILLER, *supra* note 35, at 393 (“Evolution avoids such [deterministic] preprogramming by endowing animals with senses for registering what is going on in the environment, and reflexes for letting those senses influence movements. These senses and reflexes allow behavior to track environmental variables faster than genetic evolution can.”); PINKER, *supra* note 11, at 90-94 (Brain assembly is not completely determined because “a gene cannot anticipate every detail of the environment” and “the genome is a limited resource.”); Paul W. Andrews, *The Psychology of Social Chess and the Evolution of Attribution Mechanisms: Explaining the Fundamental Attribution Error*, 22 EVOLUTION & HUM. BEHAV. 11, 15-16 (2001) (“To deal with a nearly infinite number of subtly varying contexts that could be encountered, the biological automaton must come equipped with a nearly infinite number of hard-wired rules, each of which is invoked in a slightly different context.”). Since nature does not have “true prescience,” “[i]t learns that uncertainty can never be entirely eliminated; that the chance, the contingent, the arbitrary, have always to be reckoned with.” PLOTKIN, *supra* note 5, at 194. Hence, “not everything can be phylogenetically acquired and doled out to individuals by way of their genes as *a priori* knowledge, either complete in the form of instincts or partial as in the case of constrained learning.” *Id.*

¹⁶⁵ “[B]ehavioral flexibility becomes increasingly adaptive in proportion to the complexity and responsiveness of an organism’s environment, especially its social environment.” Jones, *supra* note 7, at 275. Despite genetic tendencies, “the more advanced an individual’s capacity for context recognition, analysis, and learning, the more external conditions may affect the manifestation or repression of a genetically coded behavioral predisposition.” *Id.* “Because circumstances vary significantly, an ability to shift among a variety of potential behaviors in response to endlessly shifting environmental conditions often proves adaptive.” Jones, *supra* note 17, at 1146 (“Condition-Dependent Strategies”); see PAUL R. EHRlich, HUMAN NATURES 124-25 (2000). “[N]onmalleable behaviors . . . would be the worst of all strategies to enter the competition and cooperativeness of social life, in which others are prepared to alter their responses, with only preprogrammed behaviors.” Richard D. Alexander, *Biology and Law*, 7 ETHOLOGY & SOCIOBIOLOGY 167, 171 (1986). “It would be like trying to plan a game of, say, chess, without reference to the moves of the other player.” *Id.* In Wilson’s words, “genes promoting flexibility in social behavior are strongly selected at the individual level.” WILSON, *supra* note 23, at 549. Lewontin and his coauthors respond: “While that might indeed be true, it deprives

predisposition is likely to differ among individuals, thereby providing variation for natural selection to work on,¹⁶⁶ still, for every individual, the advantage of behavioral versatility turns on the context.¹⁶⁷ For example, while it may be best to cope with the unforeseeable obstacles to capturing sophisticated prey with a cunning flexibility, it may be best for the prey itself to avoid being anticipated by acting quite randomly.¹⁶⁸ On the other hand, the trustworthiness facilitating cooperation will be undermined if behavior is unpredictable, that is, if people cannot rely on one another.¹⁶⁹ Nevertheless, strong determinism is still not necessary for dependability when, for example, reliable commitment by the parties

sociobiology of all content." LEWONTIN, *GENES*, *supra* note 11, at 254. This response overshoots. As Wilson's following comments make clear, genes do not promote total behavioral flexibility: they do not allow much room for entirely self-destructive behavior, for example. Understanding the direction and reach of the flexibility would be very useful for social decisionmaking.

¹⁶⁶ See, e.g., Anne Fausto-Sterling, *Beyond Difference: Feminism and Evolutionary Psychology*, in ALAS, POOR DARWIN, *supra* note 13, at 209, 222-23 ("In fact, geneticists studying animals and plants have amassed experimental data showing that plasticity is a trait under genetic control, and can evolve via natural selection."); Jones, *supra* note 143, at 851-52.

¹⁶⁷ See, e.g., WRIGHT, *supra* note 8, at 215-16 (discussing the advantage of flexibility regarding reciprocal altruism and cheating); Geoffrey F. Miller, *Protean Primates: The Evolution of Adaptive Unpredictability in Competition and Courtship*, in MACHIAVELLIAN INTELLIGENCE II, at 312, 313-14 (Andrew Whiten & Richard W. Byrne eds., 1997) (noting various counterstrategies to predictions and manipulations by others).

¹⁶⁸ "If another organism is trying to predict what you will do in order to catch you and eat you, you had better behave a bit more randomly. Selection may favor brain circuits that randomize responses, to produce adaptively unpredictable behavior." MILLER, *supra* note 35, at 394. Determined randomness!?! For exposition, see *id.* at 394-406.

¹⁶⁹ See Derek Freeman, *Sociobiology: The "Antidiscipline" of Anthropology*, in SOCIOBIOLOGY EXAMINED, *supra* note 134, at 198, 201-02 (discussing essays from ERNST MAYR, *EVOLUTION AND THE DIVERSITY OF LIFE* (1976), which explain that a "closed" behavioral program is adaptive when conspecifics interact through formal signals and appropriate responses); H. Kummer, *Analogs of Morality Among Nonhuman Primates*, in MORALITY AS A BIOLOGICAL PHENOMENON, *supra* note 93, at 31, 43 ("Every being can become more dangerous simply by becoming less predictable, regardless of whether it appears in the role of an enemy, a competitor, or a cooperator. . . . [B]ehaving in a predictable way increases the benefits and alleviates the risks of social life."). An advantage of the evolution of moral faculties may be in its "selective suppression of shrewd flexibility in the social context." Kummer, *supra*, at 44. "[P]erfect flexibility would often make it impossible to solve the commitment problem [that facilitates cooperation which seems contrary to self-interest]." FRANK, *supra* note 34, at 162. For some moral behavior, "there may thus be powerful advantages in having one's hands tied by emotional predispositions" *Id.* Hirschleifer formalizes the advantages of a "tender trap" in which any behavioral rule that allows predictions of actions is preferable to no rules. See Hirschleifer, *supra* note 32, at 13.

will suffice.¹⁷⁰ Perhaps for humans it is even adaptive to believe in freewill.¹⁷¹

For critics to claim that sociobiologists are inevitably strong determinists smacks of additional irony. If it is the case that behavior is strongly determined by genes, then the sociobiologists who are determinists cannot help themselves and criticism of them must be inefficacious. But we must not criticize the critics for this superfluous endeavor, for they also cannot help themselves. For that matter, if we do criticize the critics, that is something we cannot choose to avoid, because we also are determined. The entire endeavor of discussing biological determinism, and everything else, is a formalistic playing out of a prerecorded tape. "One can critically assess only what one can 'step away from,' and consider rejecting only what is not determined."¹⁷² So why bother to try? (Because we have no choice.)

Moving beyond this ironical toying with concepts, if we take sociobiologists at their considered word that genes predispose behavior having fitness consequences, not determine it, this is hardly a position to raise alarm. But this does invite the discussion to progress to the nature-nurture debate. To what extent is behavior biased by nature and by nurture? Is it even possible to unravel the interactions? Irrespective of the relative inputs of nature and nurture, predisposition obtains, however grounded. No resolution of the controversy eliminates all determinism, it simply identifies its sources. Hence, those who criticize biological determinism on the grounds that it denies human freedom must, to keep their freedom unfettered, deny the channeling influences

¹⁷⁰ For a general discussion of the relationship between commitment and evolution, see FRANK, *supra* note 34.

¹⁷¹ In advancing an argument against "simple determinism" based on the need to track the "all but infinite in detail" workings of the human brain in order to fully know and predict its responses, Wilson proclaims that "the self can go on passionately believing in its own free will. And that is a fortunate circumstance. Confidence in free will is biologically adaptive. Without it the mind, imprisoned by fatalism, would slow and deteriorate." WILSON, *CONSCIENCE*, *supra* note 5, at 120. Is this why Calvinism has pretty much departed from the world stage? "Thus in organismic time and space, in every operational sense that applies to the knowable self, the mind *does* have free will." *Id.* Is this, then, complex determinism? Relatedly, Pinker "simply note[s] that our moral sense cannot work unless it *believes* that right and wrong have an external reality." Steven Pinker, *The Blank Slate, the Noble Savage, and the Ghost in the Machine*, in 21 THE TANNER LECTURES ON HUMAN VALUES 179, 207 (Grethe B. Peterson ed., 2000). Are, then, moral relativists all immoral?

¹⁷² Solomon et al., *supra* note 93, at 261.

of nurture as well.¹⁷³ Few commentators seem comfortable with the claim that human choice is entirely free from all exogenous influences.

Finally, those who morally criticize sociobiologists as determinists fail to notice its relationship to Hume's chasm between "is" and "ought." A sociobiologist who claims that genes strongly determine behavior is not likely to add, "And that is a good thing." The supposed claim is doubtlessly a factual one, not a normative one: "It is the case that genes strongly determine behavior," not, "It should be the case . . ." ¹⁷⁴ To criticize a person on normative grounds for making such an observation is to make a category mistake. It is like attacking Copernicus for discovering that the earth is not the center of the universe for the reason that this undermines belief in biblical revelations. It is indeed proper to criticize any claim of biological determinism on the facts, but not on the normative overtones of the facts.¹⁷⁵ Don't shoot the messenger.

¹⁷³ See PROMETHEAN FIRE, *supra* note 5, at 174; RIDLEY, RED QUEEN, *supra* note 8, at 319-20; Pinker, *supra* note 171, at 202; Jones, *supra* note 17, at 1154. Wilson, quoting Noam Chomsky in support, levels this twist against some of his harshest critics, the Sociobiology Study Group of Science for the People, a group that includes Lewontin and Gould, pointing out that environmental determinism may support reactionary politics. See Wilson, *Academic Vigilantism*, *supra* note 76, at 300-02 (responding to Sociobiology Study Group, *supra* note 76). Lewontin and his coauthors confront this problem by finding that behavioral determinism, unlike the supposed claims of biological determinists, results from such a vast multitude of causes that any one or few of them have negligible influence, allowing us to overcome even these by our ability to control and recreate "our own psychic and material environments." LEWONTIN, GENES, *supra* note 11, at 287-90. I wonder if these critics could ever feel themselves "free" to choose to murder their sociobiological archenemies, even with the repeal of homicide statutes. My guess is that their environments have too strongly channeled their behavior to the contrary. See Bailey Kuklin, *You Should Have Known Better*, 48 U. KAN. L. REV. 545, 552-58 (2000). But Gould is not so quick to deny cultural determinism. In one piece he quotes approvingly Gunnar Myrdal: "Cultural influences have set up the assumptions about the mind, the body, and the universe with which we begin; pose the questions we ask; influence the facts we seek; determine the interpretation we give these facts; and direct our reaction to these interpretations and conclusions." STEPHEN JAY GOULD, *Utopia, Limited*, in AN URCHIN IN THE STORM 216, 216 (1987) (quoting GUNNAR MYRDAL, AN AMERICAN DILEMMA (1944)).

¹⁷⁴ For example, Alexander, who sees a natural self-interested tendency to adopted norms, see *infra* text accompanying note 223, believes that, nevertheless, evolution has "nothing whatsoever" "to say about normative ethics." ALEXANDER, *supra* note 1, at 276.

¹⁷⁵ Pinker discusses the critics' fallacious "confusion of explanation with exculpation," quoting the old saying, "To understand is not to forgive." Pinker, *supra* note 171, at 202. Gould responds to the point: "Critics have never rejected sociobiology simply because they dislike a potential social message." Stephen Jay Gould, *Sociobiology and Human Nature: A Postpanglossian Vision*, in SOCIOBIOLOGY EXAMINED, *supra* note 134, at 283, 285. But then he characterizes the sociobiologist's message in extreme terms: "I believe that the methodological flaws in human sociobiology are serious enough to incapacitate its central

To reemphasize the point, that critics would shift the center of gravity of behavioral dispositions from the realm of biology to that of environment hardly avoids the indictment of determinism. Behavior remains channeled whether formed by genes or caregivers. Yet critics do not admit to environmental determinism. This is because, apparently, the term "determinism" is an epithet used by critics as a rhetorical, political tool in the debate with sociobiologists.¹⁷⁶ The words of Stephen Jay Gould, perhaps the most famous critic, reveal this. In one essay, he writes: "I am supposed to be a 'nurturist' in the great 'nature-nurture' debate, but I find nothing upsetting in this notion of biological influence upon human behavior."¹⁷⁷ Remaining calm, he points out "for the umpteenth time" that "there is no 'nature-nurture' debate as such" because "[e]very scientist, indeed every intelligent person, knows that human social behavior is a complex and indivisible mix of biological and social influences."¹⁷⁸ The real issue is "the degree, intensity, and nature of the constraint exerted by biology upon the possible forms of social organization."¹⁷⁹ (One might also wonder about the constraints exerted by nurture on the possible forms of social organization. Furthermore, we seem to have shifted our attention from "human social behavior," which apparently focuses on individual behavior, to "social organization," which relates to group behavior. While obviously these are intertwined, as are nature and nurture themselves, they are not identical, as suggested by the frequent unwillingness of individuals to conform their behavior to social mandates, such as seatbelt and littering laws, or even informal social norms, such as election voting. Finally, one may ponder if there are polemical purposes for redeploying the term "determinism," which earned its notoriety in the freewill-determinism debates over individual behavior, to the related, but separate, question of constraints on group behavior.)

My parenthetical quibbles aside, let us get to the heart of Gould's tactics. The quotations above are from a review of a book by Lumsden and Wilson contending that genes and culture coevolve. Gould pursues

claim of strong genetic constraint imposed by nature selection for specific, adaptive behaviors." *Id.*

¹⁷⁶ See WRIGHT, *supra* note 7, at 199-200.

¹⁷⁷ STEPHEN JAY GOULD, *Genes on the Brain*, in AN URCHIN IN THE STORM, *supra* note 173, at 107, 112 (reviewing PROMETHEAN FIRE, *supra* note 5).

¹⁷⁸ *Id.* at 112-13.

¹⁷⁹ *Id.* at 113; see GOULD, MISMEASURE, *supra* note 138, at 359 ("In one sense, the debate between sociobiologists and their critics is an argument about the breadth of ranges [of behavior].").

his criticism by listing seven “genetic universals” found by the two authors, including “avoidance of brother-sister incest; learning of color vocabularies; . . . the universality of certain facial expressions; . . . [and] anxiety of very young children in the presence of strangers”¹⁸⁰ He continues:

Item two on color provides a good illustration of why I maintain that these genetic universals offer no threat to the attitude often mistakenly called the ‘nurturist’ position—that *human biology is rarely sufficiently constraining to determine human culture directly and that biology usually permits a wide and flexible range of different cultural possibilities.* (The two positions should be called biological determinism and biological potentiality, not naturist and nurturist. We might instead refer to determinists and potentialists.)¹⁸¹

GoULD then explains the biology behind the genetically programmed, color vision.¹⁸² “Now why should any potentialist (or even an old-fashioned, caricatured, exaggerated, nonexistent, tabula rasa nurturist)¹⁸³ feel threatened by such a discovery?”¹⁸⁴ Why indeed?!? That our flag is more likely to be red, white, and blue than fuchsia, ivory, and azure hardly occasions outrage and denial over the supposed biological constraints on our flag waving. While the main reaction to most of the

¹⁸⁰ GOULD, *supra* note 177, at 113 (reviewing PROMETHEAN FIRE, *supra* note 5). Lumsden and Wilson do not refer to these characteristics as “genetic universals” but rather “label the various regularities of development as epigenetic rules.” PROMETHEAN FIRE, *supra* note 5, at 70 (emphasis omitted). In continuing, they demonstrate, the impression from Gould notwithstanding, their belief in the interaction between nature and nurture: “Epigenesis is a biological term that means the sum of all the interactions between the genes and the environment that create the distinctive traits of an organism.” *Id.* at 70-71. Does Gould use the term “genetic universals,” rather than Lumsden and Wilson’s “developmental regularities,” because it connotes “determinism”?

¹⁸¹ GOULD, *supra* note 177, at 113-14 (emphasis added) (reviewing PROMETHEAN FIRE, *supra* note 5).

¹⁸² *See id.* at 114.

¹⁸³ “The straw man set up to caricature biological determinism is cultural determinism or the tabula rasa in its pure form.” STEPHEN JAY GOULD, *Nurturing Nature, in AN URCHIN IN THE STORM*, *supra* note 173, at 145, 152. To this I respond, “people in glass houses” “Although biological determinists often like to intimate, for rhetorical effect, that their opponents hold such a view, no serious student of human behavior denies the potent influence of evolved biology upon our cultural lives. Our struggle is to figure out how biology affects us, not whether it does.” *Id.*

¹⁸⁴ GOULD, *supra* note 177, at 114 (reviewing PROMETHEAN FIRE, *supra* note 5).

seven “genetic universals” may be normative indifference, what of the one listed last above, the “anxiety of very young children in the presence of strangers”? At first blush it would seem that this might partially reflect or ground, “determine” in Gould’s parlance, several important behavioral traits, such as xenophobia and aggression, that would have far-reaching consequences in understanding, judging, and tempering human conduct. About the implications of this item on the list, there is not a word from Gould. Furthermore, Lumsden and Wilson observe that, based on preliminary evidence uncovered in the prior twenty years, there appear to be other

developmental regularities in even the most subtle and complex forms of mental activity. . . . People follow unexpected and sometimes remarkably inefficient procedures in the way they recall information, judge the merits of other people, estimate risk, and plan strategy. Among the peculiarities of decision making is the excessive use of stereotypes.¹⁸⁵

These and other mentioned qualities strike me as potentially having interesting, substantial normative repercussions.

But let us examine more closely Gould’s rhetoric above.¹⁸⁶ Like every other scientist, indeed, every intelligent person, Gould

¹⁸⁵ PROMETHEAN FIRE, *supra* note 5, at 71. Over twenty years ago, one leading sociobiologist wrote that the discipline “has accounted or can readily account for the evolution of such human phenomena as altruism, parent-offspring conflict, the double standard, lying, sex differences in behavior, ethnocentrism and race prejudice, incest taboos, altruism, [and] sexual jealousy” Jerome H. Barkow, *Sociobiology: Is This the New Theory of Human Nature?*, in *SOCIOBIOLOGY EXAMINED*, *supra* note 134, at 171, 173. These characteristics are not morally neutral.

¹⁸⁶ Many other examples appear in Gould’s writings. One more will do: “Biological determinists . . . complain bitterly that they have been maligned, and that they do, after all, acknowledge the importance and independence of culture. They then allot the percentages so that genes control what really matters—80 percent determinism, after all, is usually good enough for the cause.” GOULD, *supra* note 183, at 152 (citations omitted). Who are these sociobiologists he is invoking and what behavior do they find this much determined? Perhaps he is referring to the IQ controversy. “In my reading, the literature of estimates of heritability for IQ is a confusing mess—with values from 80 percent . . . all the way down to . . . [the] contention . . . that existing information is not incompatible with a true heritability of flat zero.” STEPHEN JAY GOULD, *Singapore’s Patrimony (and Matrimony)*, in *THE FLAMINGO’S SMILE* 319, 325 (1985); *see, e.g.*, DEAN HAMER & PETER COPELAND, *LIVING WITH OUR GENES* 218-19 (1998) (reporting that IQ is 48-75% heritable); SEGAL, *supra* note 143, at 49-60, 135-36 (While reporting at 135 that “different ways of calculating genetic influence [on IQ] yield a range of values, usually 30-70%,” Segal states at 49 that “IQ heritability . . . is

acknowledges in the quoted, emphasized language the role of biology in human behavior. While, as he opines, it may be true "that human biology is rarely sufficiently constraining to determine human culture directly and that biology usually permits a wide and flexible range of different cultural possibilities," does he believe it is not important or useful to uncover what these biological constraints are, however weak they might be? As a biologist and paleontologist specializing in snails, he doubtlessly expended great effort studying them, including, I would suppose, their behavioral traits. Can others not legitimately investigate the biology of human behavior?¹⁸⁷ And, to pursue the quoted paragraph

estimated to be 20% in infancy, 40% in childhood, 50% in adolescence and 60% in adulthood."); SEGERSTRÅLE, *supra* note 6, at 236, 283, 407 (reporting that IQ inheritability is said to be up to 0.8); Tim Beardsley, *For Whom Did the Bell Curve Toll?*, 9 SCI. AM. PRESENTS 30, 30 (1998) ("In a recent book that reanalyzes *The Bell Curve's* major arguments, *Intelligence, Genes and Success*, statisticians and geneticists Michael Daniels, Bernie Devlin and Kathryn Roeder argue that the figure [for IQ heritability] is actually about 48 percent."); Linda S. Gottfredson, *The General Intelligence Factor*, 9 SCI. AM. PRESENTS 24 (1998) (discussing the controversy over, including the heritability of, IQ). Contrary to Gould, I am not familiar with any reputable scientist who has reported heritability as high as 80% for normatively interesting behavioral dispositions. See, e.g., SEGAL, *supra* note 143, at 70-71 ("Approximately 20-50% of individual differences in personality are genetically based, so genes have a somewhat lesser impact upon personality traits than they do upon intellectual skills."). Is it IQ, then, that is all that "really matters"? Are sociobiologists all elitists who espouse an intellectual aristocracy? Even so, B.F. Skinner was a 100 percent, tabula rasa "potentialist," yet I am not aware of any reputable sociobiologist who sticks this claim on all the critics.

¹⁸⁷ Gould seems ambivalent. Picking up a theme adumbrated earlier, see Gould, *supra* note 175, at 290, he writes at one point that when sociobiology "is judicious and implicates genetics only in setting the capacity for broad spectra of culturally conditioned behaviors, then it is not very enlightening," STEPHEN JAY GOULD, *The Ghost of Protagoras*, in AN URCHIN IN THE STORM, *supra* note 173, at 62, 68 [hereinafter GOULD, *Protagoras*] (contrasting nonsensical, "injudicious" sociobiology that speculates about specific human behaviors). Then, elsewhere in the same book, he writes: "Clearly, there must be a potential evolutionary science of behavior. If we wish to call this enterprise sociobiology (broad version), then no right-thinking person can oppose it." STEPHEN JAY GOULD, *Cardboard Darwinism*, in AN URCHIN IN THE STORM, *supra* note 173, at 26, 32 [hereinafter GOULD, *Cardboard Darwinism*] (contrasting the improper "narrow version" based on the theory that natural selection takes place exclusively at the level of individuals). "Potential evolutionary science of behavior"! Meaning, current Darwinists have not even begun the enterprise? Well, no. "The character of the biological universals that we can identify (and we have no reason to think that further research will alter the form of example, though the list will obviously be augmented) suggests that the leash is loose and nonconstraining, though well worth our continued examination." GOULD, *supra* note 177, at 114-15. To the contrary, another critic asserts that the biological universals are likely to yield only generalizations "at a level of abstraction that renders them trivial or common-place," and therefore of little use. Michael A. Simon, *Biology, Sociobiology, and the Understanding of Human Social Behavior*, in SOCIOBIOLOGY EXAMINED, *supra* note 134, at 291, 297.

above, are the consequences of the positions of naturists and nurturists sufficiently different to be distinguished by the labels “biological determinism” and “biological potentiality”? In other words, why is it biologically *deterministic* to assert that “human biology is rarely sufficiently constraining to determine human culture directly” and biologically *potentialistic* to assert that “biology usually permits a wide and flexible range of different cultural possibilities”? Are not these two assertions essentially the same? If, instead, he is referring to the different orientations alone, focusing on constraints on the one hand and flexibility on the other, though they are interrelated,¹⁸⁸ notice that he rejects the labels “naturist” and “nurturist” in favor of “determinists” and “potentialists.” Allow me to speculate why he does this. For one, “determinist,” as mentioned above, carries much baggage that is best avoided for one’s own debating position and ascribed to the opponent’s.¹⁸⁹ “Naturist” and “nurturist” both have overtones of determinism, whether by genes or by environment. “Potentialism,” on the other hand, suggests freedom from constraints, freewill in the terms of the freewill-determinism debate.¹⁹⁰ In sum, while Gould readily admits that all intelligent persons are biological “determinists” to some degree, he quickly eschews that label for his own position and sticks it on his opponents, apparently for polemical reasons.¹⁹¹ Is this reasoned, objective scientific analysis?¹⁹²

¹⁸⁸ Elsewhere Gould writes that it is not merely a difference in emphasis on the potential range of behavior. Rather, if, as he ascribes to sociobiologists, “ranges are narrow, then genes do code for specific traits and natural selection can create and maintain individual items of behavior separately.” GOULD, *MISMEASURE*, *supra* note 138, at 359. But if, as he believes, “ranges are characteristically broad, then selection may set some deeply recessed generating rules; but specific behaviors are epiphenomena of the rules, not objects of Darwinian attention in their own right.” *Id.* If this is the case, it seems to me that this would not derail investigation, but simply steer it to the level of the underlying rules, which presumably are “objects of Darwinian attention.”

¹⁸⁹ “During most of the twentieth century ‘determinism’ was a term of abuse, and genetic determinism was the worst kind of term.” RIDLEY, *supra* note 128, at 98.

¹⁹⁰ Gould uses these labels in another of his essays criticizing Wilson’s tract. See STEPHEN JAY GOULD, *Biological Potentiality vs. Biological Determinism*, in *EVER SINCE DARWIN* 251 (1977). Yet despite this loaded labeling, Gould concedes that “[t]here is no hard evidence for either position,” and wonders what difference it makes whether we conform mainly from genetic or environmental forces. *Id.* at 258.

¹⁹¹ I am not the first to accuse Gould of resorting to debater’s tricks. See BROWN, *supra* note 129, at 57-58 (“To call the [sociobiologists] ‘Darwinian fundamentalists’, as Gould does, is an inspired piece of polemical mud-slinging, but neither fair nor accurate.”). For a sustained diatribe against this tactic by Gould, see Alcock, *supra* note 134. One commentator notes that the flaws in Gould’s and Lewontin’s criticisms of Darwinian “gradualism” and “adaptationism” “are so serious that their work is now studied by

C. Future Fitness

Once one grants a place for some biological influences on behavior, it must be recalled that selection pressures on human nature were formative largely during the millions of years when humans dwelled on the savanna in small hunting and gathering groups.¹⁹³ The dramatic changes in the human physical and social environment stemming from the establishment of agricultural communities began only ten millennia ago, a mere three to four hundred human generations. Evolutionarily speaking, this is only a brief moment in the metaphorical day of life on earth. Human dispositions could be tweaked during this period, but the basic genetic program that emerged on the savanna is still largely in

rhetorical theorists as a model of sophisticated rhetoric in science." ARNHART, *supra* note 42, at 12. Yet Gould is willing to yell "foul" when others use rhetorical tactics. For example, in an unfavorable review of a book by Jeremy Rifkin attacking genetic engineering, Gould complains, "Rifkin does not respect the procedures of fair argument. He uses every debater's trick in the book to mischaracterize and trivialize his opposition, and to place his own dubious claims in a rosy light." STEPHEN JAY GOULD, *Integrity and Mr. Rifkin, in AN URCHIN IN THE STORM*, *supra* note 173, at 229, 234-35 (reviewing JEREMY RIFKIN, ALGENY (1983)).

¹⁹² Midgley also criticizes Gould's argument with "biological determinism." See MIDGLEY, *supra* note 13, at 62-68. She believes it partially stems from his aversion to fascism, *see id.* at 67, though it may well be inconsistent with his attraction to Marxism, *see infra* note 259. For Ruse's similar analysis of Gould's psychology, see RUSE, *supra* note 8, at 142-46. In mentioning this debate, Dunbar writes that "[t]he bugaboo of genetic determinism is for many a modern-day version of Social Darwinism. But once again, the problem is largely one of misinformation—sometimes exacerbated by a refusal to listen." DUNBAR, *supra* note 161, at 34. I agree with the first sentence, but question the second. Scientists as astute as Gould do not succeed as he has if they remain misinformed on a topic they write about regularly. Instead, I suppose, for the sake of their intellectual investments and other personal motivations, they just baldly deny or misunderstand the information. Perhaps this cognitive dissonance leads to, in Dunbar's words, "a refusal to listen." Conceivably, as Kuhn suggests sometimes occurs, we must simply wait for them to die off before disinterested debate is possible. See THOMAS S. KUHN, *THE STRUCTURE OF SCIENTIFIC REVOLUTIONS* 152 (2d ed. 1970).

¹⁹³ See, e.g., ALLMAN, *supra* note 88, at 18-19; RIDLEY, RED QUEEN, *supra* note 8, at 188-92; WILSON, *supra* note 52, at 196 ("Human nature is, moreover, a hodgepodge of special genetic adaptations to an environment largely vanished, the world of the Ice-Age hunter-gatherer. Modern life [is] ... only a mosaic of cultural hypertrophies of the archaic behavioral adaptations."); WILSON, CONSILIENCE, *supra* note 5, at 223. But social life on the savanna was apparently far from uniform: "Judging from extant foragers as well as archaeological evidence, Pleistocene foragers developed a range of social systems, subsistence systems, mating patterns, and so on, not all of them matching the stereotype of nomadic band societies." Eric A. Smith, *Is Tibetan Polyandry Adaptive?: Methodological and Metatheoretical Analyses*, 9 HUM. NATURE 225, 241 (1998); see also ROSE, *supra* note 6, at 152 (questioning whether we can sufficiently know of living patterns on the African savanna).

place.¹⁹⁴ Present natural dispositions were selected during an age in which the survival and reproductive needs of the individual were situated in a very different setting.¹⁹⁵

It is exceeding unlikely that the traits beneficial for enduring the prehistoric savanna would wholly coincide with those beneficial in modern industrialized society.¹⁹⁶ Certainly there must be a substantial overlap, for humans have made themselves fairly comfortable in the developed world. But success at survival and reproduction in the past offers no assurance of continuance in circumstances that have substantially altered, ironically largely as a consequence of that very success.¹⁹⁷ For example, from an individual vantagepoint in the United States, the appetite for sweets and fat that induced our ancestors to store up for periodic famines has led to an epidemic of unbalanced consumption and obesity that is driving many people to a premature

¹⁹⁴ See, e.g., ALLMAN, *supra* note 88, at 35. "There are estimates that in the 10,000 years since the invention of agriculture, with all the massive changes that the juggernaut of technological culture has since then imposed, our genes have changed by only a tiny, tiny fraction of 1 per cent—in effect, in the face of enormous cultural change, our biology has not altered at all." PLOTKIN, *supra* note 5, at 264. Some evolutionary biologists refer to the period of human development on the savanna as the EEA, the environment of evolutionary adaptedness. See, e.g., WRIGHT, *supra* note 8, at 37-39; Symons, *supra* note 7, at 143-44.

While the ancient history of human behavioral traits is often touted, one must not underestimate the facility of genetic evolution. "In laboratory experiments in which stocks of fruit flies were subjected to artificially imposed selection, a variety of behavioral traits have been dramatically altered in ten generations or less." GOLDSMITH, ROOTS, *supra* note 20, at 92 (footnote omitted). "Some traits are conservative, change slowly with evolution, and remain with the lineage for long periods of time; others are more malleable and exhibit much greater variation." *Id.* at 93. "[M]ost of the traits that characterize the social lives of vertebrates—for example, group size, presence or absence of harem structure, presence or absence of territoriality, involvement of both sexes in rearing young—are not very conservative, exhibiting differences at the species or even the population level." *Id.* (footnote omitted); see WILSON, SEARCH, *supra* note 83, at 103.

¹⁹⁵ "There is no reason to expect an organism to produce an adaptive response, especially one based on the interaction of many genes, to a set of environmental conditions never encountered by its ancestors." Irons, *supra* note 19, at 6.

¹⁹⁶ See Wilson, *Academic Vigilantism*, *supra* note 76, at 301 ("We cannot follow the suggestions of the [internal] censors and motivators blindly. Although they are the source of our deepest and most compelling feelings, their genetic constraints evolved during the millions of years of prehistory, under conditions that to a large extent no longer exist."). Dworkin overlooks this point (and other evolution concepts) when attacking Posner for his Darwinian-driven ethical relativism. See Ronald Dworkin, *Darwin's New Bulldog*, 111 HARV. L. REV. 1718, 1735-38 (1998).

¹⁹⁷ See, e.g., Owen D. Jones, *On the Nature of Norms: Biology, Morality, and the Disruption of Order*, 98 MICH. L. REV. 2072, 2088-90 (2000) (reviewing FUKUYAMA, *supra* note 50).

demise.¹⁹⁸ From a community perspective, the value ascribed to high birth rates needed in an age of low survival,¹⁹⁹ along with an innate territoriality, aggressiveness, or xenophobia that may have been useful in keeping rival congeners at bay in the contest for the sparse resources of the wide savanna,²⁰⁰ appear to be explosively destructive in a congested, mightily-armed world.

While the broad and flexible range of naturally disposed individual behavior has spawned a similarly wide variation in social organization,²⁰¹ insofar as ancient innate dispositions are harmful under current conditions, and previously marginal dispositions are increasingly beneficial, the invisible hand of evolution cannot be depended on to do its work of adequately modifying the pool of natural tendencies. First, some of the selection pressures for individual change have been reduced in the developed world by social action protecting the genetically vulnerable and unlucky who would perish in an indifferent milieu.²⁰² On the one hand, this might diminish the

¹⁹⁸ See, e.g., HAMER & COPELAND, *supra* note 186, at 236-69; RANDOLPH M. NESSE & GEORGE C. WILLIAMS, WHY WE GET SICK 147-51 (1994); Randolph M. Nesse & George C. Williams, *Evolution and the Origins of Disease*, 279 SCI. AM. 86, 91 (1998). As the most destructive aspects of misceating occur after a person is beyond the prime breeding period, the selection pressure against this trait is reduced.

¹⁹⁹ See WILSON, SEARCH, *supra* note 83, at 93; Margaret Gruter, *The Origins of Legal Behavior*, 2 J. SOC. BIOLOGICAL STRUCTURES 43, 45 (1979) (The continued valorization of high birth rates is maladaptive and threatens species' survival.).

²⁰⁰ See WILSON, SEARCH, *supra* note 83, at 93.

²⁰¹ See WILSON, *supra* note 23, at 549. "In order to generate the amount of variation actually observed to occur, it is necessary for there to be multiple adaptive peaks. In other words, different forms of society within the same species must be nearly enough alike in survival ability for many to enjoy long tenure." *Id.* While societies with "obvious inefficiencies and even pathological flaws" have endured in the past, *id.*, with the shrinking of the modern, competitive world, one might wonder if this will continue to be true, *see id.* at 550. As an example, Gell-Mann refers to the Southeast Asian ethnic groups who practice irrigated rice agriculture as having dominated, through greater production per acre, the groups practicing dry rice production. See MURRAY GELL-MANN, THE QUARK AND THE JAGUAR 256 (1994). "The course of cultural evolution has similarly been marked by a succession of types each of which has embodied more varied and effective energy-capturing devices and consequently has tended to spread at the expense of its less fortunately endowed predecessors." David Kaplan, *The Law of Cultural Dominance*, in EVOLUTION AND CULTURE 69, 73 (Marshall D. Sahlins & Elman R. Service eds., 1960).

²⁰² See, e.g., WILSON, CONSILIENCE, *supra* note 5, at 274-75. One early commentator on Darwin posited that "[i]f natural selection produced the social and moral sentiments in man, . . . such feelings would in proto-human groups prevent the beneficial culling of the morally and intellectually degenerate. . . . [M]embers of a tribe would prevent their dim-witted friend who wished to pet the sleeping sabre-tooth from meeting his natural end." Robert J. Richards, *The Moral Foundations of the Idea of Evolutionary Progress: Darwin*,

robustness of the gene pool in some respects, as when the susceptibility to emerging ailments is overcome by medical intervention.²⁰³ On the other hand, this may enrich the gene pool in other respects, as where the amicable natural temperament of a particular group of individuals is preserved by international mandate that protects the group from its belligerent neighbors.²⁰⁴ Second, with the reduction of abject poverty and the advancement of the reproductive sciences, the leaving of offspring has become more a matter of pure individual choice than simply natural selection.²⁰⁵ Third, as communities become less separated and broad-ranging intermarriage becomes more common, the relative isolation in breeding communities that facilitates the evolution of traits is disappearing. Indeed, some geneticists opine that human evolution has slowed to a stall.²⁰⁶ Fourth, with respect to variations in brain structures,

Spencer, and the Neo-Darwinians, in *THE PHILOSOPHY OF BIOLOGY*, *supra* note 34, at 592, 605 (citing W.R. Greg, *On the Failure of "Natural Selection" in the Case of Man*, 78 *FRASER'S MAG.* 353 (1868)).

²⁰³ For example, upon reporting that adverse mutations occur in the human genome more rapidly than in other animals, it was noted that "some biologists fear that as the bite of natural selection is relaxed by medical advances, the mutational baggage could become more significant in the centuries ahead." Nicholas Wade, *To Err Is Human, DNA Analysis Shows*, *N.Y. TIMES*, Jan. 28, 1999, at A24. But perhaps we are on the brink of overcoming this problem by gene therapy. See WILSON, *CONSILIENCE*, *supra* note 5, at 275-76.

²⁰⁴ "The concept of temperament refers to any moderately stable, differentiating emotional or behavioral quality whose appearance in childhood is influenced by an inherited biology, including differences in brain neurochemistry." KAGAN, *supra* note 140, at xvii. Pinker mentions "the five major ways in which personality can vary . . . : openness to experience, conscientiousness, extroversion-introversion, antagonism-agreeableness, and neuroticism." PINKER, *supra* note 11, at 375; see RIDLEY, *supra* note 128, at 82-83.

The preservation of the vulnerable may support the benefits of natural selection since it "preserve[s] a greater range of variation in the species and help[s] those to survive who are needed by the species in its growing dependence on intelligence, inquisitiveness, and social invention." LIONEL TIGER & ROBIN FOX, *THE IMPERIAL ANIMAL* 182 (1971). On the other hand, it may also preserve, to put it crudely, the stupid, incurious and prosaic.

²⁰⁵ See, e.g., GEORGE AINSLIE, *PICOECONOMICS* 368 (1992) ("Henceforth, the people who leave the most surviving offspring will largely be those who are most motivated to do so (or least motivated not to do so), a trait that may not be particularly correlated with the skills of environmental mastery that our reward structure evolved to foster."). Darwin responded to the concern that the "inferior classes" were reproducing at a rate that would swamp the superior genes of their betters with the opinion that their social conditions prevented this. See Richards, *supra* note 202, at 606. But, "it could be that civilized nations faced, after reaching a peak, a gradual decline." *Id.*

²⁰⁶ See, e.g., LUIGI L. CAVALLI-SFORZA & FRANCESCO CAVALLI-SFORZA, *THE GREAT HUMAN DIASPORAS* 246 (1995); MAYR, *supra* note 76, at 240; IAN TATTERSALL, *BECOMING HUMAN* 238-39 (1998); WILSON, *CONSILIENCE*, *supra* note 5, at 271-73; WILSON, *supra* note 23, at 575 ("In particular, the rate of gene flow around the world has risen to dramatic levels and is accelerating, and the mean coefficients of relationship within local communities are correspondingly diminishing."). But see MAYNARD SMITH, *supra* note 76, at 327 (It "is

the advantages of learning to cope with the environment through cultural knowledge, rather than merely on raw mental power, may have relieved the evolutionary pressure on gene selection.²⁰⁷ Finally, and most importantly, the looming crises in the human condition created by our population and material successes to this point will not await the many generations needed to make significant evolutionary changes.²⁰⁸

Since we cannot wait for nature, we must turn to nurture. In place of the glacial pace of genetic evolution, the necessities of the modern condition now depend on the development of responsive human culture. Despite the contentions of some Darwinists that morality springs from "altruistic" natural dispositions, such as those beneath kin selection and reciprocal altruism,²⁰⁹ perhaps, early in the controversy over Darwinism, Thomas Huxley got it right: "Let us understand, once for all, that the ethical progress of society depends, not on imitating the cosmic process, still less on running away from it but in combating it."²¹⁰ From this

almost certainly the case [that] the rate of human evolution today is, as evolutionary rates go, extremely rapid."); CHRISTOPHER WILLS, *CHILDREN OF PROMETHEUS: THE ACCELERATING PACE OF HUMAN EVOLUTION* (1998).

²⁰⁷ See DENNETT, *supra* note 18, at 208 ("The design improvements one receives from one's culture—one seldom has to 'reinvent the wheel'—probably swamp most individual genetic differences in brain design, removing the advantage from those who are slightly better off at birth.").

²⁰⁸ Will gene manipulation become an available option to speed the process? In any event, Wills surveys the alarmists predicting the end of human evolution, and finds their observations unpersuasive. See WILLS, *supra* note 206, at 17-25. In fact, the thrust of his book is that human evolution is actually invisibly accelerating.

²⁰⁹ See generally ARNHART, *supra* note 42; PAUL L. FARBER, *THE TEMPTATIONS OF EVOLUTIONARY ETHICS* (1994); WRIGHT, *supra* note 8; Dennis L. Krebs, *The Evolution of Moral Behaviors*, in *HANDBOOK OF EVOLUTIONARY PSYCHOLOGY* 337 (Charles Crawford & Dennis L. Krebs eds., 1998).

²¹⁰ Thomas H. Huxley, *Evolution and Ethics*, in *EVOLUTIONARY ETHICS*, *supra* note 44, at 29, 68. For a brief historical perspective of Huxley's position, see FARBER, *supra* note 209, at 58-69. For agreement with Huxley, see Ayala, *supra* note 42, at 235, 237. Williams, one of the towering evolutionary biologists of the century, asserts that modern studies support an even stronger condemnation of nature. See George C. Williams, *Huxley's Evolution and Ethics in Sociobiological Perspective*, in *ISSUES IN EVOLUTIONARY ETHICS*, *supra* note 5, at 317, 337-38 [hereinafter Williams, *Huxley's Evolution*]; George C. Williams, *Mother Nature Is a Wicked Old Witch*, in *EVOLUTIONARY ETHICS*, *supra* note 44, at 217 (citing as supporters, at 229, A. Dillard, R. Dawkins, and J. Lopreato). De Waal challenges Huxley's view, first for "curb[ing] the explanatory power of evolution" and, second, for "offer[ing] no hint whatsoever where humanity could possibly have unearthed the will and strength to go against its own nature." DE WAAL, SUSHI MASTER, *supra* note 7, at 344; see *id.* at 344-49 (owing to its resemblance to the doctrine of original sin, calling this "Calvinistic sociobiology").

perspective, culture, a product of the group rather than the isolated individual,²¹¹ must come to our moral rescue.

D. Cultural Norms

Culture, then, is invoked to overcome the moral limitations of natural dispositions. Yet some sociobiologists contend that culture is subject to the same basic evolutionary framework as is nature.²¹² For example, Wilson and Charles Lumsden outline their position:

To start, the main postulate is that certain unique and remarkable properties of the human mind result in a tight linkage between genetic evolution and cultural history. The human genes affect the way that the mind is formed—which stimuli are perceived and which missed, how information is processed, the kinds of memories most easily recalled, the emotions they are most likely to evoke, and so forth. The processes that create such effects are called the epigenetic rules. The rules are rooted in the particularities of human biology, and they influence the way culture is formed. . . . Mathematical models created from the theory allow the prediction of patterns of cultural variation from a knowledge of such epigenetic rules. It is possible in principle to go from data in cognitive psychology to data in cultural anthropology and sociology, and then to work back in the reverse direction.

²¹¹ See DE WAAL, SUSHI MASTER, *supra* note 7, at 31 (“Culture is a way of life shared by the members of one group”); PLOTKIN, *supra* note 5, at 228 (“[C]ulture is, by definition, a group-level phenomenon.”).

²¹² See, e.g., L.L. CAVALLI-SFORZA & M.W. FELDMAN, CULTURAL TRANSMISSION AND EVOLUTION (1981); DURHAM, *supra* note 18, at 419; PLOTKIN, *supra* note 5, at 225; STEWART & COHEN, *supra* note 137; P.E. Griffiths & R.D. Gray, *Developmental Systems and Evolutionary Explanation*, in THE PHILOSOPHY OF BIOLOGY, *supra* note 34, at 117, 140-42. “Among biologists who are interested in the phenomenon of culture, there is widespread agreement not only that human culture is a product of evolution (as, of course, it must be) but also that human culture is itself an evolutionary process.” Plotkin, *supra* note 161, at 154. For an insightful introduction, see Tooby & Cosmides, *supra* note 146, at 19. See generally THE ADAPTED MIND, *supra* note 8. That evolution is the engine driving the culture of other species, including other primates, see BONNER, *supra* note 139; GOLDSMITH, ROOTS, *supra* note 20, at 124; Christophe Boesch, *The Emergence of Cultures Among Wild Chimpanzees*, in EVOLUTION OF SOCIAL BEHAVIOUR PATTERNS IN PRIMATES AND MAN, *supra* note 33, at 251.

This translation from mind to culture is half of gene-culture coevolution. The other half is the effect that culture has on the underlying genes. Certain epigenetic rules—that is, certain ways in which the mind develops or is most likely to develop—cause individuals to adopt cultural choices that enable them to survive and reproduce more successfully. Over many generations these rules, and also the genes prescribing them, tend to increase in the population. Hence culture affects genetic evolution, just as the genes affect cultural evolution.²¹³

Richard Alexander, in summarizing his book on Darwinian aspects of human affairs, “argue[s] that culture is, like phenotypes among all organisms, a kind of biological adaptation through plasticity that is simply more elaborate and has a greater potential for intergenerational heritability than other kinds of phenotypic plasticity.”²¹⁴ Thus, “variations in cultural patterns, like phenotypic variations in general, are interpretable as outcomes of the reproductive strivings of competing and

²¹³ PROMETHEAN FIRE, *supra* note 5, at 20. The authors had taken on the same subject for specialists a few years earlier. See LUMSDEN & WILSON, *supra* note 150. For brief summaries of the main threads, see WILSON, CONSCIENCE, *supra* note 5, at 127-28, 157-58, 217-18; WILSON, SEARCH, *supra* note 83, at 109-11. The epigenetic rules “are innate operations in the sensory system and brain. They are rules of thumb that allow organisms to find rapid solutions to problems encountered in the environment. They predispose individuals to view the world in a particular innate way and automatically to make certain choices as opposed to others.” WILSON, SEARCH, *supra* note 83, at 193. Lumsden and Wilson speculate, based on coevolutionary equations, that a “thousand-year rule” may operate to facilitate great acceleration of human genetic change through cultural innovation: “In as few as fifty generations—about a thousand years—substantial genetic evolution can occur in the epigenetic rules guiding thought and behavior.” PROMETHEAN FIRE, *supra* note 5, at 152. Culture “is a force so powerful in its own right that it drags the genes along. Working as a rapid mutator, it throws new variations into the teeth of natural selection and changes the epigenetic rules across generations.” *Id.* at 154. Notice how uncomfortably this speculation fits with assertions that human genetic evolution has been de minimus since the development of agriculture some 10,000 years ago, *see supra* note 194, or has even come to a halt, *see supra* note 206. Perhaps this inconsistency can be resolved by concluding that culture has not changed in the last ten millennia. Nahhhhh. They didn’t have blue jeans back then. Perhaps, then, Tinbergen is correct in surmising that genetic evolution has not kept pace with cultural change: “There are good grounds for the conclusion that man’s limited behavioral adjustability has been outpaced by the culturally determined changes in his social environment, and that this is why man is now a misfit in his own society.” Niko Tinbergen, *On War and Peace in Animals and Man*, in THE SOCIOBIOLOGY DEBATE, *supra* note 7, at 76, 89.

²¹⁴ ALEXANDER, *supra* note 1, at xvi.

cooperating individuals who live in different circumstances.”²¹⁵ Cultural change can be analyzed in a manner parallel to genetic evolution, the same general processes being at work.²¹⁶

One aspect of the view that culture affects evolution is that social norms face survival pressures. Irrespective of whether genes predispose humans to choose particular moral maxims,²¹⁷ once adopted, or even

²¹⁵ *Id.*; see Richard D. Alexander, *Evolution and Culture*, in *EVOLUTIONARY BIOLOGY*, *supra* note 7, at 59. “Culture, including the more resplendent manifestations of ritual and religion, can be interpreted as a hierarchical system of environmental tracking devices.” WILSON, *supra* note 23, at 560. “The span of the purely cultural tracking system parallels much of the slower segment of the biological tracking system, ranging from days [e.g., fashion] to generations [e.g., religion].” *Id.*

²¹⁶ See ALEXANDER, *supra* note 1, at 73-74 (the processes constituting inheritance, mutation, selection, drift, and isolation). Other commentators also see a coupling between cultural change and genetic evolution. See, e.g., *id.* at 78-82; THEODOSIUS DOBZHANSKY, *MANKIND EVOLVING* 18-21 (1962); DURHAM, *supra* note 18; GOLDSMITH, *ROOTS*, *supra* note 20, at 126-30; MASTERS, *POLITICS*, *supra* note 42, at 69-113 (“Society, Language, and Cultural Change”); PLOTKIN, *supra* note 5, at 230-40; William H. Durham, *Toward a Coevolutionary Theory of Human Biology and Culture*, in *EVOLUTIONARY BIOLOGY*, *supra* note 7, at 39 [hereinafter Durham, *Coevolutionary Theory*], and in *THE SOCIOBIOLOGY DEBATE*, *supra* note 7, at 428. For a comparison of some of the characteristics of organic and cultural evolution, finding that the essential difference is the replicating units (genes versus memes), see DURHAM, *supra* note 18, at 426; GOLDSMITH, *ROOTS*, *supra* note 20, at 126-28. Wilson concludes that “[t]he genetic fitness hypothesis—that the most widely distributed traits of culture confer Darwinian advantage on the genes that predispose them—has been reasonably well borne out by the evidence.” WILSON, *CONSILIENCE*, *supra* note 5, at 172. Comparing human social traits with the behavior of other primates, Wilson posits that some traits are relatively labile, such as “openness of group to others,” while others are comparatively conservative, such as “aggressive dominance systems, with males dominant over females” and “scaling of responses, especially in aggressive interactions.” WILSON, *supra* note 23, at 552. But again, as one critic acknowledges, both Wilson and Alexander are careful to deny biological determinism of culture. See Marvin Harris, *Sociobiology and Biological Reductionism*, in *SOCIOBIOLOGY EXAMINED*, *supra* note 134, at 311, 318 (quoting E.O. Wilson, *Biology and Social Sciences*, 106 *DAEDALUS* 127, 133 (1977) (“The evidence is strong that almost but probably not quite all differences among cultures are based on learning and socialization rather than on genes.”), and Richard Alexander, *Evolution, Human Behavior, and Determinism*, 2 *PHIL. SCI. ASS’N—PROC. BIENNIAL MEETINGS* 3, 6 (1976) (“I hypothesize that the vast bulk of cultural variations among peoples alive today will eventually be shown to have virtually nothing to do with their genetic differences.”)). De Waal explains the connection: “Although the relation between culture and nature can be tense, culture mostly tries to get along with nature, like the mouse with the elephant, because there is little doubt which is the heavyweight.” DE WAAL, *SUSHI MASTER*, *supra* note 7, at 275.

²¹⁷ One group of commentators surmises that evolutionary reasoning does not suggest a “genetic disposition toward specific moral norms.” H.S. Markl et al., *Group One [Reports on Group Discussions]*, in *MORALITY AS A BIOLOGICAL PHENOMENON*, *supra* note 93, at 209, 215. Nevertheless, Fukuyama contends “that we human beings are by nature designed to create moral rules and social order for ourselves. The situation of normlessness—what Durkheim

considered, the maxims confront other, competing maxims in the marketplace of ideas. Those that significantly handicap subscribers in the competition for resources and reproduction are likely to fare poorly against others. When potential subscribers consciously think of the tradeoffs among norms, they may evaluate the conceivable effects of the maxims on their welfare and dispositionally be influenced in their choices accordingly.²¹⁸ Even if they do not consciously think of the tradeoffs, those that choose maxims hindering reproductive success are less likely to leave offspring, thereby depleting the gene pool of any natural disposition that might support their choice. But (extended) prudence notwithstanding, humans, as rational, ethical beings, are fully capable of making principled, moral decisions irrespective of their survival or reproductive consequences. Both principle and prudence, though often at odds, doubtlessly influence individual moral decisionmaking.²¹⁹

Collectively, similar evolutionary pressures may confront general cultural norms.²²⁰ For example, in a society that does not reward war heroes or their kin, self-sacrificing norms will be more difficult to

labeled anomie—is intensely uncomfortable for us, and we will seek to create new rules to replace the ones that have been undercut.” FUKUYAMA, *supra* note 50, at 137.

²¹⁸ See Markl et al., *supra* note 217, at 215-19. In sum, “moral systems would be subject to selection in the process of cultural evolution according to their ability to confer greater fitness, that is, survival capacity on their adherents.” *Id.* at 216.

²¹⁹ De Duve, a Nobelist for his study of the cell, speculates that “ethical rules were fashioned and screened in the course of biological and, especially, cultural evolution, by a trial-and-error process in which their effects on individual fitness and social cohesion acted as selective factors.” CHRISTIAN DE DUVE, *VITAL DUST* 266 (1995). Yet this does preclude the possibility that “this evolution also reflects a progressive appreciation of absolute values, from dimly perceived and inadequately applied notions to more clearly apprehended and rationally argued imperatives. The two developments are not incompatible.” *Id.* For an extended, thought-provoking examination of values and evolution, see GEORGE E. PUGH, *THE BIOLOGICAL ORIGIN OF HUMAN VALUES* (1977).

²²⁰ Again, natural selection does not determine cultural norms. “It might, for example, be possible to show that a particular form of behavior in a particular society is maladaptive, but nevertheless evaluated, in that society, as morally good.” Irons, *supra* note 19, at 38. “It also does not imply that the behavior is morally incorrect by any universal standard that I am aware of.” *Id.* Durham hypothesizes “that cultural features of human phenotypes are commonly designed to promote the success of an individual human being in his or her natural and sociocultural environment.” Durham, *Coevolutionary Theory*, *supra* note 216, at 46 (emphasis omitted). But, since many cultural norms are rather neutral with respect to fitness costs or benefits, even in principle they would face inconsequential selection pressure. See *id.* at 50. That many cultural and moral norms are subject to the survival fires of between-group competition, see ELLIOTT SOBER & DAVID S. WILSON, *UNTO OTHERS* 173-75 (1998); Markl et al., *supra* note 217, at 218-19.

inculcate among warriors.²²¹ Difficult, but of course, not impossible, for the arts of entreaty have been well honed by the language-speaking species, as seen in the gung-ho, selfless attitude often instilled in the military and even far back in the mythological skills of Odysseus, the shrewd one, who has been said to have been the first modern man owing to his ability to have his way with others through his glibness and persuasiveness.²²² But perhaps these examples simply reflect the

²²¹ See *infra* note 237. One commentator surmises that cultural norms advantageous to group survival and reproduction, but not individual inclusive fitness, will not, in general, endure, and vice versa. See Durham, *Coevolutionary Theory*, *supra* note 216, at 51-53. On the other hand, the behavioral traits that increase an individual's reproductive success within a group, for example, dominance and territoriality, may also become manifest in intergroup conflicts, as where the "alpha male" is quick to meet threats by rival groups, thereby possibly having overall reproductive benefits despite the additional risk to the trait holder. See MASTERS, POLITICS, *supra* note 42, at 7-9.

²²² This observation about Odysseus came from my freshman literature instructor. I have found no written endorsement. "[I]n a group of communicators competing for attention and sympathies there is a premium on the ability to engage, interest, and persuade listeners." Steven Pinker & Paul Bloom, *Natural Language and Natural Selection*, in THE ADAPTED MIND, *supra* note 7, at 451, 483. "Symons's observation that tribal chiefs are often both gifted orators and highly polygynous is a splendid prod to any imagination that cannot conceive of how linguistic skills could make a Darwinian difference." *Id.* (citing SYMONS, *supra* note 143). "[L]et me grant at once that the intensity and form of altruistic acts are to a large extent culturally determined." WILSON, SEARCH, *supra* note 83, at 82. Although the promotion of morality is advantageous to each member of society, see *infra* note 222, the "continuing possibilities of differential success within groups" leads us to expect each individual "to promote a slightly greater degree of 'morality' (altruism) in his neighbor than in himself." Richard D. Alexander, *Biology and the Moral Paradoxes*, in LAW, BIOLOGY AND CULTURE, *supra* note 42, at 101, 106. According to Campbell, among the possible routes to the "ultrasociality" of humans "are reciprocal altruism (clique selfishness), moralistic aggression to punish defectors from reciprocal-altruist pacts, the in-group as a socially inherited reciprocal-altruist pact, socially evolved beliefs promising transcendent purposes, posthumous rewards for altruistic contribution to group welfare at own expense, and transcendent sanctions against self-serving behavior that jeopardizes group welfare." Donald T. Campbell, *Legal and Primary-Group Social Controls*, in LAW, BIOLOGY AND CULTURE, *supra* note 42, at 159, 160. For complications, see *id.* at 161-63. Wilson notes that "[h]uman beings are absurdly easy to indoctrinate—they seek it." WILSON, *supra* note 23, at 562. He speculates that this occurs because conformity has fitness value among groups or individuals. *Id.* Midgley defends Wilson's observation and observes that it is simply an example of social conditioning, not irresistible genetic determinism. See MIDGLEY, *supra* note 13, at xx-xxi. Thiessen also notes that humans are extraordinarily credulous, perhaps because during the evolution of hominids instant, uncritical action was sometimes required to avoid immediate risks. See THIESSEN, *supra* note 106, at 180-81. *But see* John Maynard Smith, *The Evolution of Animal Intelligence*, in MINDS, MACHINES AND EVOLUTION 63, 70 (Christopher Hookway ed., 1984) ("[M]en can be swayed by beliefs, but not too far."). Durham would grant the possible preservation of a social system that sacrifices individual inclusive fitness for the group advantage if it could be maintained by force or misinformation. See Durham, *Coevolutionary Theory*, *supra* note

observation that norm-setters are naturally disposed to espouse maxims that are in their own self-interest, so that, at a more remote vantagepoint, even apparently self-sacrificing norms are often under the sway of self-interest.²²³ Hence, inasmuch as cultural norms are also subject to the self-centered tendencies of evolution, to be truly ethical creatures we must counter some of the dispositions stemming from nurture as well as those from nature by finding the means to embrace maxims not driven simply by self-interest, for otherwise morals merely resolve into prudence.²²⁴ In principle, this can be done, for the biological and cultural evolutionary processes are largely driven by different replicators, genes versus memes,²²⁵ with reason closer to the surface of the latter. Even

216, at 52. But indoctrinability can go too far. "If a person played out a socially constructed role, other people could shape the role to prosper at his or her expense. Powerful men could brainwash the others to enjoy being celibate or cuckolded, leaving the women for them." PINKER, *supra* note 6, at 467. The genes for indoctrinability would then be selected out. *Id.*

²²³ See ALEXANDER, *supra* note 1, at 240 (contending that the function of the law is to regulate reproductive strivings for the sake of group unity, this providing "beneficial effects to those segments or units that propose, maintain, adjust, and enforce the laws"). Moving to the vantagepoint of the kin group, Alexander "suggest[s] that the concepts of right and wrong are instilled into children in such fashion as to guide them toward inclusive-fitness-maximizing behavior in the particular societies and groups within which they are growing up and are likely to live out their lives." *Id.* at 275. Beyond the kin group, each member of society would benefit from encouraging other members to be more altruistic. "One way of promoting this outcome is to designate as heroes (i.e. as appropriate targets for special rewards) those who most closely approach the ideal moral condition." Alexander, *supra* note 222, at 107. Irons urges anthropologists to test in traditional societies "the prediction that people will *try to influence the social rules* and other aspects of their culture in such a way as to promote their reproductive interests." Irons, *supra* note 30, at 77.

²²⁴ Following this reasoning, Williams concludes that, updating Huxley, the "program for the betterment of the human condition is a twofold attack on the natural enemy and any institutional enemies favored by cultural evolution." Williams, *Huxley's Evolution*, *supra* note 210, at 342.

²²⁵ See *supra* note 212; DENNETT, *supra* note 18, at 199-208 ("The Third Evolutionary Process: Memes and Cultural Evolution"); PLOTKIN, *supra* note 5, at 231 ("Put another way, if cultural change is wrought by the actions of cultural replicators and cultural vehicles, then those replicators copy and propagate themselves sometimes without regard to biological replicator survival."). *But see* DE WAAL, SUSHI MASTER, *supra* note 7, at 264-66 (doubting the parallelism of genes and memes). See generally BALKIN, *supra* note 154; SUSAN BLACKMORE, *THE MEME MACHINE* (1999); RICHARD BRODIE, *VIRUS OF THE MIND* (1996); AARON LYNCH, *THOUGHT CONTAGION* (1996); Fried, *supra* note 163. For an anthropological view, see *EVOLUTION AND CULTURE*, *supra* note 201. Posner has a less sanguine view. "A society's moral code . . . changes when it is shown to be nonadaptive, when changes in material conditions . . . challenge factual assertions entangled in the moral code, or when a charismatic moral leader uses nonrational methods of persuasion to alter moral feeling."

independent of reason, history has shown that some memes, such as those favoring smoking or the consumption of fast food, may overcome the interests of genes.²²⁶

Irrespective of whether culture, including its normative components, is subject to the same bottom up, invisible hand dynamic that drives genetic evolution,²²⁷ it also responds to top down, centrally commanded channeling, regardless of whether the channel is designed to promote reproduction.²²⁸ This, at least, is a key motivation behind the enactment of criminal sanctions, tax breaks, and other positive and negative legislative incentive schemes. People react to carrots and sticks.

These legislative incentive schemes may even affect the gene pool. For example, imprisonment removes offenders, violent ones usually during their prime reproductive years, from mating opportunities. Tax incentives, by increasing the wealth of those who exploit them, make these persons, especially if they are men,²²⁹ more reproductively

Richard A. Posner, *The Problematics of Moral and Legal Theory*, 111 HARV. L. REV. 1637, 1689-90 (1998).

²²⁶ See PLOTKIN,, *supra* note 5, at 235-36 (endocannibalism, smoking, fast driving). Even Wilson, the bulls-eye of much criticism of sociobiology, declares the epigenetic rules of evolution, including cultural evolution, to be "usually adaptive." WILSON, *CONSILIENCE*, *supra* note 5, at 150 (emphasis added). "Particular features of culture have sometimes emerged that reduce Darwinian fitness, at least for a time. Culture can indeed run wild for a while, and even destroy the individuals that foster it." *Id.* at 158. Plotkin remarks that some apparently destructive behavior may instead be beneficial through sexual selection, as where females favor men who engage in risky behavior for their bravery. PLOTKIN, *supra* note 5, at 236-38.

²²⁷ While biological evolution is Darwinian, that is, driven by the natural selection of adaptive characteristics, cultural evolution may be both Darwinian and Lamarckian, of sorts, in that it also allows for the passing of acquired characteristics through social learning. See BALKIN, *supra* note 154, at 35-36. But see PINKER, *supra* note 6, at 209 ("To say that cultural evolution is Lamarckian is to confess that one has no idea how it works."). Balkin finds the analogy between genes and culture limited, for some cultural choices are irrelevant to survival advantage, e.g., the various designs of guitars and violins. BALKIN, *supra* note 154, at 36. Yet this is also the case for biological evolution in which some genetic changes are neutral with respect to fitness. See, e.g., MAYR, *supra* note 5, at 151-53 ("neutral evolution"). The important relevant feature for genetic and cultural evolution is the capacity for variation, some beneficial, some deleterious, and some neutral.

²²⁸ See MASTERS, *POLITICS*, *supra* note 42, at 139 ("Whether or not enforced by a central government, law functions as a program whose primary function is to channel the behavior of the individuals and groups comprising a society.").

²²⁹ The qualities perceived as desirable for a mate diverge between men and women. Men generally prefer women who are young and physically attractive. Women generally prefer men who have status, maturity, and economic resources. See BUSS, *DESIRE*, *supra* note 8, at 211.

desirable. But in the short history of incentive programs, and even central government itself, consequent changes in the gene pool must be marginal at best.²³⁰ Draconian, even fascistic, measures, such as mandatory sterilization,²³¹ have been proposed and implemented in the past to remove perceived negative qualities from the breeding population,²³² but these eugenic steps have been rightfully rejected as too tyrannical for an enlightened society.²³³ While the excesses of advocates have even resulted in driving the term "eugenics" off stage as politically incorrect, the complaint is mainly leveled against "negative" eugenics, which aims to remove "bad" genes from the gene pool as by sterilization of "undesirables," rather than "positive" eugenics, which attempts to increase "good" genes as by establishing sperm banks of Nobelists.²³⁴ If

²³⁰ Interestingly, on the one hand, cultural change may "creat[e] new and different organic selection pressures." Durham, *Coevolutionary Theory*, *supra* note 216, at 53. On the other hand, over the long history of mankind, the cultural traits molded by natural selection may relieve selective pressure on individual genotypes since cultural norms, by guiding behavior, "may make the genotypes equally or almost equally 'fit.'" *Id.* Hence, because adaptive behavior may be driven by culture, as a "proximate" mechanism, rather than genes, as an "ultimate" mechanism, Durham believes this "shifts the burden of proof for any explicitly *biological* basis for particular adaptive human behaviors over to the sociobiologists." *Id.* at 53.

²³¹ Holmes insured that the excesses of mandatory sterilization will remain in modern consciousness with his memorable and misguided phrase, "[t]hree generations of imbeciles are enough." See *Buck v. Bell*, 274 U.S. 200, 207 (1927). Gould notes that "all liberal justices voted aye; the single dissent in this eight-to-one ruling was filed by the court's most conservative member, a catholic who upheld his church's position on reproductive controls." STEPHEN JAY GOULD, *Does the Stoneless Plum Instruct the Thinking Reed?*, in *DINOSAUR IN A HAYSTACK* 285, 287 (1995).

²³² While Darwin does not propose draconian measures to alleviate the perceived problem, he was not beyond expressing concern about the deleterious consequences of allowing the "inferior members of society" to breed abundantly. See CHARLES DARWIN, *The Descent of Man*, in *THE ORIGIN OF SPECIES* 501-02, 507 (Modern Library n.d.) (1871).

²³³ But, as Gould notices, eugenics has not been championed only by the authoritarian right. "[E]ugenics, touted in its day as the latest in scientific modernism, attracted many liberals and numbered among its most vociferous critics groups often labeled as reactionary and antiscientific." STEPHEN JAY GOULD, *Carrie Buck's Daughter*, in *THE FLAMINGO'S SMILE*, *supra* note 186, at 306, 310-11 (1985). "The movement spanned a full spectrum from hereditarian hardheads who wanted to sterilize the handicapped, the diseased, and even the merely impoverished, to Fabian idealists who hoped to persuade smart and gentle people to have more kids." GOULD, *supra* note 231, at 287.

²³⁴ See, e.g., DANIEL J. KEVLES, *IN THE NAME OF EUGENICS* 85 (1985). But Posner finds positive eugenics more ominous than negative eugenics such as genetic screening, though the "macrosocial effects" are so distant that "it seems idle to worry about them now." POSNER, *supra* note 153, at 432. Nevertheless, apparently Nobelists will have to find ways other than sperm banks to leave progeny. When such a sperm bank was founded in 1980, "[t]he couples who patronized the bank did not want the Nobel laureates' sperm . . . because of the advanced age of the laureates; for the older the male (as well as the female)

it did not strike the modern ear so discordantly, one might even say that some tax incentives are partially inspired by positive eugenics. Be that as it may, in their evolutionarily brief period of existence, it is hardly conceivable that positive eugenics alone can sufficiently affect human dispositions to solve immediate social problems.

Instead of channeling behavior by affecting the genetic component of natural tendencies in the population through positive or negative eugenics, society realistically is limited to creating an environment in which individual character is refined to the point where it can overcome, as much as possible, personal temperament that is individually injurious or socially detrimental. A just society struggles to devise an enlightened vision of human flourishing, and then implement that vision through means, public and private, that respect individual rights and encourage personal responsibility.

The question remains whether an enlightened vision of human flourishing aligns with the mechanisms that drive evolution. As seen in the next section, the common visions diverge from natural selection in important ways.

IV. THE POLITICS OF SOCIOBIOLOGY

Natural selection operates slowly over aeons of time at the level of the individual, even at the level of a particular gene within an individual, but not, generally, at the level of a group.²³⁵ Beyond the reach of

parent, the greater the risk of birth defects." *Id.* at 421. But the bank is prospering by offering the sperm of younger, well-regarded scientists. *Id.*

²³⁵ "All traits must begin as rare in a species and can increase in frequency only if they increase the survival and reproductivity of those bearing the traits." TRIVERS, *supra* note 19, at 85. Many evolutionary biologists have been seduced by the notion that evolution operates at the level of the group rather than the individual. *See id.* at 67-68. *See generally id.* at 67-85 ("The Group Selection Fallacy"). Indeed, there are conditions in which selection may operate at the level of the group rather than the individual. This occurs "only for groups with a fitness value that is greater than the arithmetic mean of the fitness values of the individuals of which it is composed. There are only two such groups," those encompassed by kin selection and reciprocal altruism. MAYR, *supra* note 5, at 157; *see* GOLDSMITH, ROOTS, *supra* note 20, at 41; MAYR, *supra* note 76, at 200-03; PLOTKIN, *supra* note 5, at 228-30; Robert N. Brandon, *The Level of Selection: A Hierarchy of Interactors*, in *THE PHILOSOPHY OF BIOLOGY*, *supra* note 34, at 176, 183-85; Mackie, *supra* note 137, at 172-75. Some modern biologists even see a substantial role for group selection, *see, e.g.*, GOULD, *Cardboard Darwinism*, *supra* note 187, at 30-31 (criticizing sociobiologists for failing to take this into account); SOBER & WILSON, *supra* note 220 (explaining the existence of altruism partially in terms of group selection); James H. Fetzer, *Group Selection and the Evolution of Culture*, in 6 *RESEARCH IN BIOPOLITICS: SOCIOBIOLOGY AND POLITICS*, *supra* note 83, at 3;

altruism falling within the principles of kin selection and reciprocal altruism, which upon closer inspection is self-interested in some sense,²³⁶ behavior that is beneficial to a group may provide no reproductive advantage to particular individuals within the group. To return to the example of the warrior who sacrifices herself on a battlefield “for the motherland,” she gains by this conduct alone no advantage in the struggle to increase her contribution to the gene pool. Consequently, any genes that might dispose a person to this unrewarded, sacrificial behavior will probably be selected against.²³⁷ In general, the interests of the individual may be disadvantageous to the group, be it family, tribe,

David S. Wilson & Elliott Sober, *Reintroducing Group Selection to the Human Behavioral Sciences*, 17 BEHAV. & BRAIN SCI. 585 (1994), but, as the commentators on Wilson and Sloan’s lead article reveal, most demur to an extensive reintroduction, *see, e.g.*, John Alroy et al., *Open Peer Commentary*, 17 BEHAV. & BRAIN SCI. 608 (1994), though there is life in the idea, *see* SEGERSTRÅLE, *supra* note 6, at 282-85. *See generally* ALEXANDER, *supra* note 1, at 36-43; THE PHILOSOPHY OF BIOLOGY, *supra* note 34, at 147-220 (“Units of Selection”); SEGERSTRÅLE, *supra* note 6, at 127-55; WILSON, *supra* note 23, at 106-29. Darwin recognized an interrelationship between group and individual selection. *See* DARWIN, *supra* note 232, at 443.

²³⁶ *See supra* text accompanying notes 27-37.

²³⁷ *See* D.T. Campbell, *Social Morality Norms as Evidence of Conflict Between Biological Human Nature and Social System Requirements*, in MORALITY AS A BIOLOGICAL PHENOMENON, *supra* note 93, at 67, 76 (“[T]he predicament of genetic competition among the cooperators precludes the biological evolution for any strong innate tendencies toward self-sacrificial altruism in the group’s benefit . . .”). Wright posits that, under the principle of kin selection, this wartime sacrificial behavior may have once had fitness value when the soldiers were in the presence of close relatives. *See* WRIGHT, *supra* note 8, at 390-91. Perhaps reciprocal altruism supports warrior cooperation and sacrifice. *See* John Q. Patton, *Reciprocal Altruism and Warfare*, in ADAPTATION AND HUMAN BEHAVIOR 417 (Lee Cronk et al. eds., 2000). Perhaps the self-sacrificers who survived had increased procreational opportunities. *See* Campbell, *supra*, at 77. Even today one can imagine substantial rewards to the relatives of sacrificing soldiers having reproductive benefits by means of kin selection. The tendency to praise and socially reward self-sacrifice may even be innate. *Id.* at 76-77. Or one can imagine that the disposition to such sacrificial behavior may spill over to other, genetically advantageous contexts, as where one makes other types of sacrifices for kin. In any case, for “nationalistic military patriotism[] [t]here probably has been more widespread convergent evolution . . . than for any other moralizing system.” *Id.* at 80 (citation omitted). In general, “[e]ven if sainthood takes you into the biologically maladaptive, the Darwinian would think this no more than the occasional price you pay for a first-class social-facilitating mechanism like morality. Most of us admire saints, but feel no great pressure to follow them – nor do we think we should.” RUSE, *supra* note 30, at 244 (citation omitted); *see* WILSON, *supra* note 52, at 164-66 (“Sainthood is not so much the hypertrophy of human altruism as its ossification. It is cheerfully subordinate to the biological imperatives above which it is supposed to rise.”); Posner, *supra* note 225, at 1667-68 (noting that to encourage sacrifice, the military and church forge group loyalties and provide posthumous rewards).

or nation,²³⁸ just as the interests of any of the group levels may conflict with the interests of another level.²³⁹

What normative lessons are to be drawn from the fact that selection operates glacially at the level of the gene rather than the group? The Humean chasm between "is" and "ought" instructs us that no moral lessons come directly since natural selection operates in the realm of fact and the inquiries into personal and community interests operate in the realm of value. Nevertheless, there is a noteworthy correlation between the political views of the antagonists over sociobiology and their particular positions.²⁴⁰ The labels and epithets in the attacks reflect this. The critics have contended that sociobiological analysis explicitly or implicitly justifies the inequalities of the status quo,²⁴¹ sexism,²⁴²

²³⁸ Consequently, "[o]ne set of moral norms can be understood as attempts to protect group members from the unbounded *self-interest* of others (the banning of murder, theft, witchcraft, slander, adultery)." N. Bischof, *On the Phylogeny of Human Morality*, in MORALITY AS A BIOLOGICAL PHENOMENON, *supra* note 93, at 48, 50. But "[t]here appears to be no 'general moral principle' from which all the concrete norms may be deduced." *Id.*

²³⁹ After making this observation, Wilson notes that

[c]ounteracting selection on these different units will result in certain genes being multiplied and fixed, others lost, and combinations of still others held in static proportions. According to the present theory, some of the genes will produce emotional states that reflect the balance of counteracting selection forces at the different levels.

Wilson, *Morality of the Gene*, *supra* note 5, at 155.

²⁴⁰ See, e.g., MAYR, *supra* note 76, at 41 ("And the reason why sociobiology was attacked so viciously in the 1970s was that it seemed to promote certain political values incompatible with those of its opponents."). Steven Rose maintains that science is inevitably swayed by the political outlook of its practitioners. "The metaphors and analogies we find attractive are laden with cultural values and expectations that come from outside our science. . . . That is, they are not and cannot be free from ideology." ROSE, *supra* note 11, at 68. Those scientists who deny this "are at best unselfreflective." *Id.*; see also LEWONTIN, *supra* note 90 (ideology permeates science).

²⁴¹ See, e.g., MARSHALL SAHLINS, *THE USE AND ABUSE OF BIOLOGY* 101 (1976); Allen et al., *supra* note 129, at 264; Martin Barker, *Biology and Ideology: The Uses of Reductionism*, in AGAINST BIOLOGICAL DETERMINISM, *supra* note 13, at 9, 26-27; Gould, *supra* note 175, at 285; Montagu, *supra* note 134, at 12-13; Simon, *supra* note 187, at 308-09; Sociobiology Study Group, *supra* note 76, at 280-81. "Darwin's evolutionary biology [has also been accused by postmodernists of] being motivated by a wish to perpetuate the privileged social class from which he came" CARL SAGAN, *THE DEMON-HAUNTED WORLD* 257 (1995). Irons states that the early claim by Sahlins, an anthropologist, that sociobiology was simply a form of a self-justificatory ideology supporting the entrenched bourgeois culture, among other things, made the subject politically incorrect for other anthropologists. See Irons, *supra* note 30, at 72-75 (discussing SAHLINS, *supra*).

One social scientist provides a taste of the Darwinian argument supporting the status quo: "If man . . . believes that he has a species-specific repertoire of behavior that can be combined successfully only in certain ways, then there are definite limits to what this

racism,²⁴³ elitism,²⁴⁴ nationalism,²⁴⁵ reactionary politics,²⁴⁶ fatalism,²⁴⁷ eugenics,²⁴⁸ discrimination,²⁴⁹ social injustice,²⁵⁰ preventive detention,

animal can do, to the kinds of societies he can operate, to the kinds of cultures he can live with." FOX, *supra* note 88, at 19. Fox lumps the "progressive-liberal" of the United States with the "revolutionary-socialist" of Soviet Russia as naively rejecting the natural limitations in human behavior and accepting "an infinitely perfectible human machine and a totally unoriginal virtue that will be implanted by the benign, self-appointed mentors." *Id.* at 40-41. Alexander matter-of-factly concludes that his sociobiological arguments regarding culture would give rise to certain expectations, including "a reasonably close correspondence between the structure of culture and its usefulness to individuals in inclusive-fitness-maximizing," as well as "tendencies for culture to be so structured as to resist substantial alteration by individuals and subgroups in their own interests and contrary to those of others." ALEXANDER, *supra* note 1, at 85. Barash rebuts this claim that Darwinism rationalizes the status quo on the grounds that, since evolution may lead to dead ends on the "adaptive landscape," "evolutionary biology does *not* claim that all phenotypes must represent fitnesses that are absolutely maximal." BARASH, *supra* note 28, at 280.

²⁴² See, e.g., GOULD, *Cardboard Darwinism*, *supra* note 187, at 29 (quoting Wilson's surmise that, owing to an apparently genetic bias, "[e]ven with identical education and equal access to all professions, men are likely to continue to play a disproportionate role in political life, business and science"); Joseph Alper et al., *Sociobiology Is a Political Issue*, in THE SOCIOBIOLOGY DEBATE, *supra* note 7, at 476, 481-85; Barker, *supra* note 241, at 11, 14, 26; Montagu, *supra* note 134, at 12-13; Sociobiology Study Group, *supra* note 76, at 280-81. Fausto-Sterling worries that the defense of "natural impulses" may even justify rape, at least partially. See FAUSTO-STERLING, *supra* note 142, at 156-58, 161-62.

²⁴³ See, e.g., ROSE, *supra* note 11, at 207 n.19; Barker, *supra* note 241, at 14-15; Montagu, *supra* note 134, at 12-13. One advocate disclaims the racist thrust of his discipline with this point: "Sociobiology deals with biological universals that may underlie human social behavior, universals that are presumed to hold cross-culturally and therefore cross-racially. What better *antidote* for racism than such emphasis on the behavioral commonality of our single species?" BARASH, *supra* note 28, at 278. Similarly, Pinker points out that to a biologist, the differences between races are "virtually invisible." For example, "the genetic difference between, say, two randomly picked Swedes is about twelve times as large as the genetic difference between the average of Swedes and the average of Apaches or Warlpiris." STEVEN PINKER, THE LANGUAGE INSTINCT 430 (1994); see PINKER, *supra* note 11, at 142-44. On the other hand, pop sociobiology has certainly been advanced for racist politics. For example, the main publication of the right-wing, pro-white Council of Conservative Citizens continually encourages subscribers "to study biological determinism, eugenics and other racist views packaged as 'scientific.'" Bob Herbert, *Mr. Lott's "Big Mistake,"* N.Y. TIMES, Jan. 7, 1999, at A31. Similarly, in Britain the right-wing extremist journal *New Nation* has found vindication in sociobiology. See RICHARD MORRIS, EVOLUTION AND HUMAN NATURE 162-63 (1983).

²⁴⁴ See, e.g., Thomas Sheehan, *Paris: Moses and Polytheism*, in SOCIOBIOLOGY EXAMINED, *supra* note 134, at 342, 349-54; Sociobiology Study Group, *supra* note 76, at 280-81.

²⁴⁵ See, e.g., Montagu, *supra* note 134, at 12-13; Sociobiology Study Group, *supra* note 76, at 280-81.

²⁴⁶ See, e.g., ROSE, *supra* note 11, at vii, 207 n.19 (discussing the "neo-Fascist," "New Right," and "neo-Nazi" political movements); N.A.C. & W.I., *Prologue* to EVOLUTIONARY BIOLOGY, *supra* note 7, at xv (Sociobiology "invariably encourage[s] reactionary politics."); Hilary Rose & Steven Rose, *Introduction* to ALAS, POOR DARWIN, *supra* note 13, at 1, 9

aggression,²⁵¹ “victim blaming,”²⁵² moral irresponsibility,²⁵³ and other objectionable viewpoints.²⁵⁴

As adumbrated by this laundry list of criticisms, some proponents of sociobiology are from the political right and the main attackers are from the left,²⁵⁵ this being the case even though the political terms “right” and

(“[T]he political agenda of EP [evolutionary psychology] is transparently part of a right-wing libertarian attack on collectivity, above all the welfare state.”).

²⁴⁷ See, e.g., S.A. Barnett, *Biological Determinism and the Tasmanian Native Hen*, in *SOCIOBIOLOGY EXAMINED*, *supra* note 134, at 135, 153; Lawrence G. Miller, *Philosophy, Dichotomies, and Sociobiology*, in *THE SOCIOBIOLOGY DEBATE*, *supra* note 7, at 319, 324 (“Determinist theories [such as sociobiology] . . . serve to inculcate an ethos of passivity and thus render us susceptible to active manipulation by others.”).

²⁴⁸ See, e.g., ROSE, *supra* note 11, at 274-76. See generally Diane B. Paul, *Is Human Genetics Disguised Eugenics?*, in *THE PHILOSOPHY OF BIOLOGY*, *supra* note 34, at 536. “Eugenics, to sociological humanists, raises the specter of Nazism and Mengele’s concentration camp experiments. Perhaps it should be countered that Stalin murdered some thirty million Soviet citizens in an intellectual climate of benign environmentalism represented by Lysenko.” van den Berghe, *supra* note 11, at 276.

²⁴⁹ See, e.g., ROSE, *supra* note 11, at 207 n.19 (xenophobia); Joseph Alper et al., *The Implications of Sociobiology*, in *THE SOCIOBIOLOGY DEBATE*, *supra* note 7, at 333, 336; Barker, *supra* note 241, at 14-15, 26 (xenophobia).

²⁵⁰ See, e.g., Alper et al., *supra* note 249, at 336.

²⁵¹ See, e.g., *id.* (“militarism”); Barker, *supra* note 241, at 14-15; Sociobiology Study Group, *supra* note 76, at 280-81.

²⁵² See, e.g., ROSE, *supra* note 11, at 296-97, 299.

²⁵³ See, e.g., PINKER, *supra* note 11, at 132-33; ROSE, *supra* note 11, at 297 (“It was not me, it was my genes.”).

²⁵⁴ See generally KITCHER, *supra* note 13; LEWONTIN, *GENES*, *supra* note 11, at 6-7, 18-24. “In the critiques that some biologists have directed at sociobiology, two fears recur: that a demonstrated evolutionary basis for a barbaric behavior would seem to justify it; and that a demonstrated genetic basis for the behavior would imply the futility of attempts at change.” JARED DIAMOND, *THE THIRD CHIMPANZEE* 97 (1992); PINKER, *supra* note 11, at 139 (noting that the fears over human nature center on four concerns: the justification of discrimination; the futility of improving the human condition; the challenge to moral responsibility; and, the undermining of the meaning of life).

“General opinion—stated and restated—is that if you can name a morally or ideologically offensive cultural value, you can be sure that it has been incorporated into evolutionary thought at some point.” RUSE, *supra* note 3, at 203. Ruse admits there have been sorry chapters in the history of evolutionary biology, and that “this is a legacy which persists,” *id.* at 206, but then, in partial defense, he situates the prejudices of the earlier biologists in their historical, cultural setting and finds liberality in some of their assertions notwithstanding, *see id.* at 207-11, and sees a “sea-change” for the better in the last two decades, *see id.* at 213-15, but still finds “antediluvian places” to criticize, “like Oxford, the home of Richard Dawkins,” *id.* at 215, though he concludes that, while not yet fully cleansed of prejudicial values, “evolutionary theorizing is no longer the sort of thing which could be morally objectionable,” *id.* at 217.

²⁵⁵ Even among champions of sociobiology, those with liberal inclinations may attack those with conservative ones, or at least their articles that have conservative overtones. For

“left” do not denominate uniform belief systems.²⁵⁶ Although they expressly recognize Hume’s chasm between “is” and “ought,” the

example, Kingsley Browne, after writing an article contending that evidence of the “glass ceiling” and the “gender gap” may be partially due to the naturally disposed temperamental differences between men and women, see Browne, *supra* note 162, at 971, was criticized by legal commentators with Darwinian orientations for providing “ammunition to those who would perpetuate per se barriers to women’s entry into areas of society from which they have been barred in the past,” Oliver R. Goodenough, *Biology, Behavior, and Criminal Law: Seeking a Responsible Approach to an Inevitable Interchange*, 22 VT. L. REV. 263, 287 (1997), and for taking a sexist position, see Cheryl Hanna, *Ganging Up on Girls: Young Women and Their Emerging Violence*, 41 ARIZ. L. REV. 93, 120 (1999), much to Browne’s chagrin, see Kingsley R. Browne, *Law, Biology, Sex, and Politics*, in LAW AND EVOLUTIONARY BIOLOGY 73, 82-86 (Lawrence A. Frolik ed., 1999). See CAVALLI-SFORZA & CAVALLI-SFORZA, *supra* note 206, at 268 (questioning the suggested agenda of HERRNSTEIN & MURRAY, *supra* note 133, which supports the recommendation “cherished by more extreme conservatives: reduce to the bone, if not cancel completely, social services, affirmative action, welfare programs, federal intervention in education, etc.”). “Politically, the dichotomies in the sociobiology controversy were not necessarily clearly between the left and the right, although it was often presented this way. . . . [R]ather, [it was] between a particular type of New Left activist on the one hand and traditional liberals and democrats on the other.” SEGERSTRÅLE, *supra* note 6, at 2-3.

²⁵⁶ While Tiger asserts that there is no “[logical] identification of biological-linked theory with political reaction,” Lionel Tiger, *Biology, Psychology, and Incorrect Assumptions of Cultural Relativism*, in EVOLUTIONARY BIOLOGY, *supra* note 7, at 511, 519, a study published in 1949 showed a correlation between a scientist’s political beliefs and her belief in the relative roles of nature and nurture in personal development, the conservatives emphasizing genes and the liberals, environment, see Montagu, *supra* note 134, at 4 (citing NICHOLAS PASTORE, *THE NATURE-NURTURE CONTROVERSY* (1949)). Montagu declares a “besetting sin of sociobiologists” is that, “in confirming their anticipated findings,” they discover biological inputs in behavior through analogy, extrapolation, or misinterpretation. *Id.* at 6. Gould specifies the framework of the political debate, though not without loaded terminology (i.e., “determinism”): “Leftist scientists are more likely to combat biological determinism just as rightists tend to favor this quintessential justification of the status quo as intractable biology; the correlations are not accidental.” GOULD, *supra* note 183, at 151. But Gould rejects the correlation as simply a reflection of biases. If “biological determinism” proved true, he would live with this “pernicious” discovery as one must cope with death. See *id.* “We have campaigned vigorously against this doctrine because we regard determinist arguments primarily as bad biology—and only then as devices used to support dubious politics.” *Id.* The dubious politics of “determinists” includes “pernicious attempts to reintroduce racism as respectable science,” “fob[bing] off the responsibility for war and violence,” and “blam[ing] the poor and the hungry for their own condition—lest we be forced to blame our economic system or our government for an abject failure to secure a decent life for all people.” STEPHEN JAY GOULD, *The Nonscience of Human Nature*, in EVER SINCE DARWIN, *supra* note 190, at 237, 239.

For introductions to the political background of the sociobiological debate, see CARL N. DEGLER, *IN SEARCH OF HUMAN NATURE* 317-21 (1991); PINKER, *supra* note 11, at 103-35; G.S. Stent, *Introduction to MORALITY AS A BIOLOGICAL PHENOMENON*, *supra* note 93, at 1. Of course, there are many ways in which personal politics may motivate views of sociobiology. See, e.g., John Maynard Smith, *Science and Myth*, in *THE PHILOSOPHY OF BIOLOGY*, *supra* note 34, at 374, 378 (“[M]y own caution about applying to humans ideas

proponents are often conservatives of one stripe or another.²⁵⁷ For example, Wilson, the leading light of sociobiology, is said to be a libertarian.²⁵⁸ The critics of sociobiology are often liberals who view

drawn from a study of animal societies . . . probably arose because I grew up under the shadow of Hitler and the Nazi theories of racial superiority and biological determinism, and not because of anything internal to biology or sociology.”).

²⁵⁷ Some insist that “conservative” is too moderate a term in describing sociobiologists. See, e.g., Barker, *supra* note 241, at 9 (“It is a matter of more than passing interest that reductionist biology [i.e., sociobiology] has been such a source of support for reactionary political views.”). Masters rebuts the contention that sociobiology is necessarily conservative or reactionary and offers interesting views as to why it is said to be so. See Masters, *supra* note 11, at 288. “In sum, there has been a tendency to simplify debate by collapsing a series of parallel distinctions.” *Id.* at 288.

²⁵⁸ See LEWONTIN, GENES, *supra* note 11, at 264 (citing an interview with E.O. Wilson by C. Fischler, in LE MONDE, Feb. 24, 1980, at 15). But Wilson’s political orientation has been variously characterized. See also SEGERSTRÅLE, *supra* note 6, at 45 (“Wilson prided himself on being a fairly liberal thinker—the sort of person who naturally falls to the left of center politically.”); Ullica Segerstråle, *Colleagues in Conflict: An “In Vivo” Analysis of the Sociobiology Controversy*, 1 BIOLOGY & PHIL. 53, 64 (1986) [hereinafter Segerstråle, *Colleagues in Conflict*]. While apparently espousing “conservatism,” Wilson insists that “[b]y that overworked and confusing term I do not mean the pietistic and selfish libertarianism into which much of the American conservative movement has lately descended. I mean instead the ethic that cherishes and sustains the resources and proven best institutions of a community.” WILSON, CONSILIENCE, *supra* note 5, at 277. In his autobiography Wilson describes his political leanings in diverse ways. “At my core I am a social conservative, a loyalist. I cherish traditional institutions, the more venerable and ritual-laden the better.” EDWARD O. WILSON, NATURALIST 25 (1994) [hereinafter WILSON, NATURALIST]. “[M]y vaguely centrist political beliefs . . .” *Id.* at 267. “I—a Roosevelt liberal turned pragmatic centrist . . .” *Id.* at 346-47. This does sound more like Burke than Nozick. One commentator ascribes Wilson’s moral outlook to his religiosity, see Segerstråle, *Truth and Consequences*, *supra* note 83, at 253, but also attributes the zeal of Wilson, a lapsed “born again” Baptist, “to an old desire of his: to prove the (Christian) theologians wrong” so that they cannot “impose arbitrary moral codes which would lead to unnecessary human suffering,” Segerstråle, *Colleagues in Conflict*, *supra*, at 57. For another psychological profile of Wilson, see RUSE, *supra* note 8, at 187-91. Indeed, sociobiologists are a mixed lot. Charles Murray and Richard Herrnstein, who stirred up a tempest with claims of natural differences in racial intelligences in THE BELL CURVE (1994), are known for their ideological, libertarian positions. See, e.g., GOULD, MISMEASURE, *supra* note 138, at 376 (“conservative ideologues”); Howard Gardner, *A Multiplicity of Intelligences*, 9 SCI. AM. PRESENTS 19, 21 (1998) (“like Herrnstein and Murray, who have an ideological ax to grind”). On the other hand, one of the leading biological theorists of human behavior, Robert Trivers, has identified himself with the left wing, see DE WAAL, GOOD NATURED, *supra* note 7, at 25 (self-described “political liberal”); WRIGHT, *supra* note 8, at 40, as have other sociobiologists, see, e.g., KAGAN, *supra* note 139, at xxi-xxii (characterizing himself as “an aging, politically liberal social scientist” unable “to take unreserved satisfaction from the implications of these last fifteen years of research” supporting a genetic mechanism beneath human temperament); RUSE, *supra* note 113, at 247 (describing himself “as a person with somewhat mushy left-wing sentiments”); Melvin Konner, *One Man’s Rainbow*, 280 SCI. AM. 107, 108 (1999) (reviewing RICHARD DAWKINS, UNWEAVING THE RAINBOW: SCIENCE, DELUSION AND

human nature as largely informed by environment and therefore alterable and improvable by social design.²⁵⁹ For example, among the

THE APPETITE FOR WONDER (1998)) ("I happen to share [a liberal philosophy with Stephen Jay Gould]."). "E.O. Wilson and most other leading sociobiologists are left-of-center liberals or social democrats." Pierre L. van den Berghe, *Sociobiology: Several Views*, 31 *BIOSCIENCE* 406, 406 (1980) (reviewing *SOCIOBIOLOGY EXAMINED*, *supra* note 134); see HOWARD L. KAYE, *THE SOCIAL MEANING OF MODERN BIOLOGY* 157 (1986) ("With the exception of Robert Wallace, the explicit political position of the leading human sociobiologists is a reform-minded liberalism."). One group of commentators, apparently seduced by the notion of group selection, see *supra* note 235, conclude that "[s]ince the emphasis is on survival, and since it is the genotype and surely not the individual that survives, sociobiology includes a distinctive bias against the individual," thereby precluding serious entertainment of "conceptions such as fairness and individual rights, since these would . . . probably work[] against the survival of the genotype." Solomon et al., *supra* note 93, at 262. On the other hand, Wilson asserts that "ethical standards are innately pluralistic." WILSON, *supra* note 23, at 575.

²⁵⁹ Lumsden and Wilson describe some of the main, "well-meaning" critics as from the "radical left," in particular, Marxism-Leninism. PROMETHEAN FIRE, *supra* note 5, at 39-40, 43. For supporting evidence, see, for example, JOHN BROCKMAN, *THE THIRD CULTURE* 60 (1995) (quoting Gould: "I had been brought up by a Marxist father."); BROWN, *supra* note 129, at 54-55 (Lewontin and Levins, formerly Wilson's friends and collaborators, as Marxists who savagely attacked Wilson); PINKER, *supra* note 11, at 126-28 (Gould, Kamin, Levins, Lewontin, and Rose as Marxists or Leninists); RUSE, *supra* note 8, at 144-46, 165-67 (Gould and Lewontin as Marxists); RUSE, *supra* note 83, at 520 (Lewontin and Levins wrote that "as working scientists in the field of evolutionary genetics and ecology, we have been attempting with some success to guide our own research by a conscious application of Marxist philosophy."); Segerstråle, *Colleagues in Conflict*, *supra* note 258, at 59 (Lewontin as Marxist). Perhaps the critics are simply liberals driven by the immediate concern to protect the political achievements of the 1960s. See Segerstråle, *Truth and Consequences*, *supra* note 83, at 254. Some sociobiologists have been less gentle in counterattacking their critics. For example, Robin Fox accuses the critics of the biological perspective of being lazy-minded, "leftover, anti-system, left-liberal, chic-radical campus rebels and lumpen Marxists of the 1960s and 1970s." ROBIN FOX, *THE CHALLENGE OF ANTHROPOLOGY* 376 (1994), quoted in WRIGHT, *supra* note 7, at 220. As another example, Alcock targets Stephen Jay Gould, quoting John Maynard Smith, "one of the deans of the field," for the view among evolutionary biologists that Gould's "ideas are so confused as to be hardly worth bothering with." Alcock, *supra* note 135, at 322 (quoting John Maynard Smith, *Genes, Memes, & Minds*, N.Y. REV., Nov. 30, 1995, at 46). Alcock then quotes Wright who, in responding to Gould's criticism of his work as an "absurd example" of "pop psychology," declares that Gould is, in the view of "top-flight evolutionary biologists, . . . not just a lightweight, but an actively muddled man who has warped the public's understanding of Darwinism." *Id.* at 322, 323 (quoting Robert Wright, *Homo Deceptus*, SLATE MAG., Nov. 27, 1996, at <http://www.slate.com>). For other disparaging views of Gould's reputation among evolutionists, see DE WAAL, SUSHI MASTER, *supra* note 7, at 86-87; RUSE, *supra* note 8, at 146-52. But Alcock doesn't have to quote others for his own railings against Gould. See Alcock, *supra* note 134, at 322-35. That the critics of sociobiology have sharply responded, see, for example, FAUSTO-STERLING, *supra* note 142, at 203-04; Gould, *Fundamentalism*, *supra* note 6, at 37.

In summarizing the common political divide, Maynard Smith writes that the claim that behavior is innate rather than acquired will be invoked to support the status quo,

most vocal, even shrill, critics of sociobiology are Stephen Jay Gould, R.C. Lewontin, and Steven Rose, who identify themselves as liberals, even liberal communitarians.²⁶⁰ With respect to examining the merits of sociobiology, are politically influenced commentators deriving "is" from "ought"?²⁶¹

"because social reform can hope to alter acquired characters but not innate ones. Radicals, from the authors of the Declaration of Independence to Karl Marx, have tended to take up an environmentalist stance, and conservatives from Plato onward, a hereditarian stance." J. Maynard Smith, *The Concepts of Sociobiology*, in MORALITY AS A BIOLOGICAL PHENOMENON, *supra* note 93, at 21, 26. For one desiring significant social change, the attractions of environmentalism are substantial: "If all individual, group, and gender differences were a matter of environmental circumstances, then everyone could reach social and economic equality; social problems could be engineered away." THIESSEN, *supra* note 107, at 272; see PINKER, *supra* note 6, at 47 ("The moral equation in most discussions of human nature is simple: innate equals right-wing equals bad."); PETER SINGER, A DARWINIAN LEFT 5 (1999) ("Belief in the malleability of human nature has been important for the left because it has provided grounds for hoping that a very different kind of human society is possible. Here, I suspect, is the ultimate reason why the left rejected Darwinian thought.").

²⁶⁰ Gould denies that his rejection of current evolutionary psychology stems from his political orientation. See GOULD, *Cardboard Darwinism*, *supra* note 187, at 40. Instead, it derives from his studied rejection of the strict adaptationist tenet of contemporary Darwinism. *Id.* It also derives from the "speculative literature [of sociobiology] that reached conclusions about people so out of whack with my concepts of reality." *Id.* at 41. "We must not trivialize an issue so central and important as adaptationism with the cardboard notion that only base motives could inspire any opposition." *Id.* Presumably, Gould's concepts of reality are independent of his political viewpoints. Yet Gould's compatriot on this question, Lewontin, contends that scientific workers bring to a particular scientific "issue deep-seated prejudices A scientist's present view of difficult questions is chiefly influenced by the history of his intellectual and ideological development up to the present moment." GLENDON SCHUBERT, *EVOLUTIONARY POLITICS* 137 (1989) (quoting RICHARD C. LEWONTIN, *THE GENETIC BASIS OF EVOLUTIONARY CHANGE* 28-29 (1974)). Similarly, one observer, after extensive interviews, attributes the fiery debate between Lewontin and Wilson not to personality or politics, but rather to "a conflict between long-term scientific-cum-moral agendas, with the 'reductionist program' as a key issue." Segerstråle, *Colleagues in Conflict*, *supra* note 258, at 53. She also accuses Lewontin's research of being reductionist itself. *Id.* at 60. On the other hand, the objection to the adaptationist, "reductionist program" is grounded in Marxist theory. See *infra* note 336. That contemporary Darwinism is not as strictly adaptationist as Gould and other critics claim, see PINKER, *supra* note 6, at 165-67.

²⁶¹ In this context, Bernard Davis refers to the "ideological fallacy: the belief that one can derive an 'is' from an 'ought.' Surely that doctrine is at least as egregious as the naturalistic fallacy of trying to derive an 'ought' from an 'is.'" Bernard Davis, *A Middle Course Between Irrelevance and Scientism*, in *THE SOCIOBIOLOGY DEBATE*, *supra* note 7, at 315, 318. That some critics had their own political reasons for attacking sociobiology, see SEGERSTRÅLE, *supra* note 6, at 183-84. On the other hand, "[w]ith Francis Bacon, . . . I believe it is possible to separate one's moral convictions from the study of nature and to let the natural phenomena guide one's inferences." KAGAN, *supra* note 140, at 14. But, Sagan asks, "why does it matter what biases and emotional dispositions scientists bring to their studies—so long as

Before turning to this question, one important distinction between political and evolutionary theory must be identified. Political theory is teleological in this sense: all the standard schools believe that political bodies have a purpose. They diverge over the extent to which the purpose is centered on the individual, the community, or even a higher power, but all find there to be some purpose. Evolutionary theory, on the other hand, rejects teleology. Certainly mainstream biologists do not say that evolution is designed to produce a certain type of life form, such as intelligent beings.²⁶² That intelligence has evolved is purely a matter of chance that may not recur upon a rerunning of the tape of deep time.²⁶³ We cannot even say that survival or reproduction is the purpose of evolution. Instead, evolutionary theory simply posits that if life is to emerge and endure in a hostile and changing environment, it will have certain minimal features. But it may not emerge or endure, nor is the theory wrong or “thwarted” if it does not.

A. *Political Orientations*

In this section, I discuss the main features that distinguish the salient strands in the broad range of contemporary political orientations. Since this exercise is simply for heuristic purposes, the explication of each strand is brief, hopefully not unduly so. I must emphasize that the beliefs of those who sympathize with a particular political orientation, wherever it falls on the spectrum, may not fully correspond to the defining tenets I catalog below, but rather my categories identify common strands through family resemblances.²⁶⁴ Finally, an individual may endorse views that embrace several orientations, as where she is a *laissez faire* conservative on economics, a liberal or libertarian on human rights, and a feminist communitarian on pornography.

First, let us turn to the right. Three primary strands of the political right may be identified for heuristic purposes: Lockean conservatives, extending into strong libertarianism, who emphasize the value of individual liberty; Smithian conservatives, who stress the “invisible

they are scrupulously honest and other people with different proclivities check their results?” SAGAN, *supra* note 241, at 257.

²⁶² Some commentators, such as Aristotle, believe that nature does have particular ends or purposes, from which moral norms can be implied. See, e.g., ARNHART, *supra* note 42, at 238-48.

²⁶³ See STEPHEN JAY GOULD, *WONDERFUL LIFE* (1989).

²⁶⁴ That it is notoriously difficult to classify political theories or doctrines, see Hillel Steiner, *Permissiveness Pilloried: A Reply to Etzioni*, 7 J. POL. PHIL. 104, 104 (1999).

hand" approach to political economy; and Burkean conservatives, who, seeing the individual as largely a product of society, underscore the need to conserve its traditions and values.²⁶⁵ While these three strands often discover much to fight about among one another, there are aspects of sociobiology that each finds agreeable.

Lockeans. It is with the Lockean conservatives that the claims of the individual against the community (the group) reign most supreme.²⁶⁶ As exemplified by libertarianism, the individual is said to be prior to the state and thus has superior claims of liberty against the community. For example, Nozick describes "[t]he night-watchman state of classical liberal theory" that is disallowed from coercively interfering with strong individual rights, and is "limited to the functions of protecting all its citizens against violence, theft, and fraud, and to the enforcement of contracts, and so on."²⁶⁷ Like those who call themselves libertarians,²⁶⁸ Lockeans in general, for the sake of personal liberty, grow uneasy once they contemplate moving beyond these restricted roles for the government.²⁶⁹ Not only is state action in principle likely to interfere with personal liberty, but also, even when designed to be noninterfering, it often does in practice because of the self-interest of the state actors who have their own personal agendas and foibles.²⁷⁰

²⁶⁵ For somewhat more detail on this tripartite division of the political right, see BAILEY KUKLIN & JEFFREY W. STEMPEL, *FOUNDATIONS OF THE LAW* 64-69 (1994). As an example of an explication of conservatism that does not identify the lines drawn here, see ROBERT NISBET, *PREJUDICES* 55-61 (1982) ("Conservatism").

²⁶⁶ For a discussion of the relationship between sociobiology and the "social contract" tradition, represented by Hobbes, Locke, and Rousseau, see Masters, *supra* note 11, at 282-86.

²⁶⁷ See NOZICK, *supra* note 64, at 26.

²⁶⁸ Among the libertarians best known in the legal literature are Randy Barnett and Richard Epstein. See, e.g., RANDY E. BARNETT, *THE STRUCTURE OF LIBERTY* (1998); RICHARD A. EPSTEIN, *TAKINGS* (1985).

²⁶⁹ But some libertarians will grant the government additional roles. For example, one libertarian declares that "[i]n a libertarian regime, government would protect property rights and provide true public goods but would do nothing else." Paul H. Rubin, *The State of Nature and the Evolution of Political Preferences*, 3 AM. L. & ECON. REV. 50, 61 (2001).

²⁷⁰ One reason is that power corrupts. See, e.g., JOHN E.E.D. ACTON, *ESSAYS ON FREEDOM AND POWER* 364 (Gertrude Himmelfarb ed., 1948); FRIEDRICH A. HAYEK, *THE CONSTITUTION OF LIBERTY* 449 n.4 (1960) (quoting Herodotus, Milton, Montesquieu, Kant, Burke, John Adams, and Madison). Discretion is abused and subject to human fallibilities. See, e.g., ALLEN BUCHANAN, *ETHICS, EFFICIENCY, AND THE MARKET* 25 (1985) ("Government regulation . . . is devised and administered by fallible human beings . . . and [may] endanger civil and political liberties by concentrating too much power in the government."); ROBERT H. FRANK, *CHOOSING THE RIGHT POND* 245 (1985) ("The bureaucrats

Liberty, the self-evident rally cry of libertarians, is one of the two basic values usually identified as grounding a liberal democracy. The other value is equality. To put into better perspective the disputes between some conservatives and liberals, and their alignment with Darwinism, these two political values are explored next.

The immediate and common observation is that liberty and equality often conflict. To the extent the state advances equality, it may thereby invade personal liberty. For example, as often heard in the protests of objectors, laws enacted in the name of equality to prevent private discrimination at the same time deny individuals the freedom to discriminate, or, in less loaded terms, the freedom to associate with whom they choose. But let us take a closer look at the idea of liberty. Isaiah Berlin identifies two forms of freedom or liberty (the two terms here taken as synonyms): positive and negative.²⁷¹ To borrow from his underlying idea, positive liberty is the freedom to act, while negative liberty is the freedom from the acts of others.²⁷² In short, it is the difference between "freedom to . . ." and "freedom from . . ." In the example above, it is the difference between the freedom to associate with whom one wants, and the freedom from discrimination by others. But wait a minute! This discrimination example was mustered to show the

who regulate us will almost invariably attempt to expand their sphere of control . . ."). It is better "to leave all causes to be measured by the golden and straight mete-wand of the law, and not to the incertain and crooked cord of discretion." HAYEK, *supra*, at 169 (quoting EDWARD COKE, *THE SECOND PART OF THE INSTITUTES OF THE LAWS OF ENGLAND* 51 (1642)).

²⁷¹ See ISAIAH BERLIN, *Two Concepts of Liberty*, in *FOUR ESSAYS ON LIBERTY* 118, 121-34 (1970).

²⁷² Schlag refers to "Berlin's distinction between negative liberty (in the sense of absence of constraints) and positive liberty (in the sense of freedom to do X or conscious self-direction) . . ." Pierre J. Schlag, *An Attack on Categorical Approaches to Freedom of Speech*, 30 *UCLA L. REV.* 671, 682 n.39 (1983). "'Negative' liberty consists of the absence of external social interference with one's chosen activities . . . , while 'positive' liberty consists of social conditions allowing for effective exercise of one's faculties of judgment and choice in the giving of direction to one's life." Frank I. Michelman, *Voices of the People: Essays on Constitutional Democracy in Memory of Professor Julian N. Eule: "Protecting the People from Themselves," or How Direct Can Democracy Be?*, 45 *UCLA L. REV.* 1717, 1730 n.44 (1998). "'Negative liberty' is 'liberty from; absence of interference beyond the shifting, but always recognizable, frontier.' . . . 'Positive liberty,' by contrast, consists in freedom to; it refers to the ability to be 'a doer—deciding, not being decided for, self-directed . . . [and capable] of playing a human role . . .'" Pamela S. Karlan, *Two Concepts of Judicial Independence*, 72 *S. CAL. L. REV.* 535, 535 (1999) (citations to Berlin's essay omitted). For other succinct definitions, see, for example, Frank B. Cross, *The Error of Positive Rights*, 48 *UCLA L. REV.* 857, 863 (2001); Peter Halewood, *Law's Bodies: Disembodiment and the Structure of Liberal Property Rights*, 81 *IOWA L. REV.* 1331, 1371 (1996); Christopher H. Schroeder, *Rights Against Risks*, 86 *COLUM. L. REV.* 495 (1986).

conflict between liberty and equality, and now it has segued into the difference between positive and negative liberty, with equality left out of the calculus altogether. Let me have another shot at characterizing the tradeoffs in the antidiscrimination law. It is the difference between the freedom to associate with whom one wants (i.e., with whom the discriminator wants), and the freedom to associate with whom one wants (i.e., with whom the discriminatee wants). Now the tradeoff is expressed in two forms of positive liberty! Enough of this verbal game. The point I want to make is simply that the distinction between liberty and equality may not be the strong dichotomy often attributed, but I do not wish to deny that there are real differences between the two.²⁷³ As exemplified by the discrimination example, it can be seen that the common understanding of the value of liberty is usually advanced by keeping the state away and allowing individuals to act as they personally choose, while the promotion of the value of equality often requires state intervention to prevent individuals from being treated unequally by others. It is here that Lockean conservatives depart from liberals. The Lockeans, in the name of liberty, prefer to keep the state at bay, while the liberals, in the name of equality, are more willing to bring in the hounds.

One can easily see the distinct coincidence between Lockean theory and evolutionary biology regarding the relationship between the individual and the group. Just as evolution operates at the level of the individual rather than the group,²⁷⁴ so should the body politic be centered on the individual rather than the state. While this last assertion surely violates the Humean caution against conflating fact and value, the coincidence nevertheless offers, at a minimum, a powerful metaphor in the propaganda wars with other political suasions, including other right wing ones, such as Burkeanism. Perhaps even more importantly, the operation of evolution at the level of the individual implies that any contrary organization of collective endeavor will entail intrinsic costs, perhaps insuperable, in overcoming the natural disposition for self-

²⁷³ Most English-speaking philosophers agree that "the concept of liberty is essentially a 'negative' one." Quentin Skinner, *The Idea of Negative Liberty: Philosophical and Historical Perspectives*, in *PHILOSOPHY IN HISTORY* 193, 194 (Richard Rorty et al. eds., 1984). Cf. RAWLS, *supra* note 64, at 114 ("The distinction between positive and negative duties is intuitively clear in many cases, but often gives way. I shall not put any stress upon it.").

²⁷⁴ Recall there may be some exceptions to this generality. See *supra* note 234.

interest.²⁷⁵ On the other side of the ledger, the natural self-interest of the state agents, unless severely curtailed, produces threats to the liberty of the citizenry through overreaching and abuse of discretion. If moral reasoning supports, or at least can support, an individualistic state, and natural science suggests that this is the most simple and secure means of public ordering, why look elsewhere for one's politics?

Although natural selection generally operates on individuals, not groups, this can hardly be advanced by libertarians, other than anarchists, as grounds for unfettered liberty. Along with the naturalistic fallacy, libertarians must confront the claim that at least part of the role proper for a government is legitimated because of the need to cope with troublesome human behavior, some of which is partially driven by biological dispositions.²⁷⁶ While there may be other recognized governmental functions, such as those to solve coordination problems (e.g., whether to drive on the left or the right),²⁷⁷ and to facilitate public goods (e.g., libraries and highways),²⁷⁸ the central, irreducible functions

²⁷⁵ See John O. McGinnis, *The Original Constitution and Our Origins*, 19 HARV. J.L. & PUB. POL'Y 251, 252-54, 257 (1996) (ascribing this Darwinian view of humans as self-interested to the constitutional framers).

²⁷⁶ As Elliott writes, "it is the *limitations* of biology that create the opportunity for law. This is not a new view. A similar point was made by Madison in the *Federalist*, that if men were angels, there would be no need for government or law . . ." Elliott, *supra* note 7, at 606 (also citing Augustine and Aquinas for parallel views). "Biology can teach us about some of the characteristics of human beings that create the need for law." *Id.* at 607. Since there is an "evolutionary lag," behavioral dispositions having evolved in prehistoric times, this leads Elliott to "propose that law amounts to a kind of *evolutionary prophesies*—that is, that law is useful to societies precisely to compensate for those areas in which biology does *not* suit us to live in our current environment." *Id.* Yet, Elliott notices, the "evolutionary lag" can be overcome by relatively rapid evolution in some circumstances, see *supra* note 194, and by cultural and other environmental developments in others. *Id.* at 607-08.

Locke himself would not grant that biological dispositions are a factor in troublesome behavior. He found the mind to be a *tabula rasa*. See FUKUYAMA, *supra* note 50, at 154-55 (without citation).

²⁷⁷ Coordination problems could be worked out without government input, though most likely less efficiently. For example, eventually a convention would doubtlessly arise as to whether to drive on the left or the right. Those who flout the convention would be induced to conform by likely social sanctions as well as imposed regulation. But society could still muddle along without the regulation.

²⁷⁸ We might question whether the need for a government to produce public goods is independent of biological dispositions. Public goods are those that are not consumed by use, such as information as contrasted to food. Because the producer cannot prevent users from passing along the goods to others without payment to the producer, the goods will not be produced at an efficient level by private enterprise. See, e.g., BUCHANAN, *supra* note 270, at 22-23. Why is it that people are willing to pass along goods to others without

granted even by libertarians short of anarchists are necessary because of vexatious human behavior.²⁷⁹ Libertarians are rarely utopians who believe that a proper environment alone will eliminate disruptive conduct. National defense, for one, is necessary because of what appears to be the universal, natural aggressiveness of humans in groups, men in particular, in pursuit of personal gain.²⁸⁰ Natural dispositions to take advantage of others for one's own benefit also necessitate the establishment of the police to prevent private trades through force or fraud and the political control of rent-seeking, exploitive factions.²⁸¹ Of course, culture and nurture may also reinforce aggressiveness and advantagetaking, or the converse, but history, sociology, anthropology, and ethology offer us little reason to believe that nature does not play a substantial role in these traits.

For many libertarians, any submission to the necessities of countering natural dispositions with government authority is distressing. Because of the human nature of the citizenry, authority is difficult to administer successfully, and because of the human nature of the governmental agents, authority is difficult to administer properly. The continued existence of political corruption and deplorable behavior by government actors is a fact that does not require footnotes. This is why some libertarians, such as Nozick, seeing the difficulties of

compensating the producers? And why is it that people are willing to freeride on the efforts of others? Arguably the answers to these questions include a biological component.

²⁷⁹ See FUKUYAMA, *supra* note 50, at 218 ("Apart from the most extreme libertarians, most people would agree that state intervention is often necessary to fix a range of problems that are both morally serious and not susceptible to spontaneous correction.").

²⁸⁰ Allman denies that humans are innately violent. "Ironically, the biggest factor in triggering group-against-group conflict in both chimpanzee and human foraging societies is *cooperation*: In chimps and technologically primitive human societies, a group typically attacks another group only if their side vastly outnumbers the other, so there is little risk of physical harm to the attackers." ALLMAN, *supra* note 88, at 155. "It is this ability to form close-knit coalitions and alliances among a group that makes possible violent attacks on other groups." *Id.* See generally *id.* at 138-58 ("The Beast Within"). Furthermore, Montagu is unaware of any unambiguous evidence that, during the Neolithic, humans engaged in warfare. See Montagu, *supra* note 134, at 8. If, contrary to Montagu's belief, the tendency to war is biologically disposed, then he opines that this would remove personal responsibility for warfare. "Such has been the conclusion of all serious students of the subject." *Id.* A strong determinism indeed to overcome the naturalistic fallacy.

²⁸¹ For example, "[i]f our informal mores and formal laws always took into account what was true in nature, adultery would not be a crime, for most primates, including chimpanzees, are promiscuous." KAGAN, *supra* note 140, at 18. "Similarly, chimpanzees and gorillas naturally deceive other members of their species . . ." *Id.* at 293; see McGinnis, *supra* note 275, at 254 (identifying the basic constitutional structures designed to control the power of factions).

governance as daunting, try to avoid the imposition of central authority altogether through anarchist solutions to social problems. Even moderate libertarians scrutinize human nature and find it so unruly as to warrant extreme caution in authorizing directives. As between the unruliness of the regulated and the unruliness of the regulators, the latter is much more to be feared. For the regulators have powers much beyond those of private citizens, and therefore their improprieties are more likely to cause pervasive harm, more difficult to prevent. The government must be kept on a short tether.²⁸² In the end, then, the libertarian outlook follows from a decisive observation: it is costly in many ways to counter human dispositions.

The Lockean's problems with the premises of evolutionary theory enter at the very place that provides support for opposing postulates. While the acknowledgment of self-interested human nature grounds their caution regarding the agents of government intervention, at the same time it undercuts their precept of the free-standing individual. Lockeans generally see the individual as prior to the state, and hence with claims against the state, because they perceive her to be self-made, as an internally-generated, autonomously-driven, rational being.²⁸³ Just as the Lockeans must contend with the Burkeans and liberals who dispute this understanding of the person by asserting that the individual is not entirely self-made, but rather is significantly molded by the society in which she is situated, so also in arguing that the individual is prior to the state they must contend with the sociobiologists who maintain that human character is biased by genetic predispositions.²⁸⁴ Humans, the

²⁸² See Bailey Kuklin, *On the Knowing Inclusion of Unenforceable Contract and Lease Terms*, 56 U. CIN. L. REV. 845, 882 (1988).

²⁸³ Locke would not agree with this tenet I ascribe to Lockeans. He does see individuals as prior to the state, but this is because the state is a compact of free individuals possessing natural rights derived from God. Humans are God-made, not self-made. See JOHN LOCKE, *TWO TREATISES OF GOVERNMENT* (Peter Laslett ed., Cambridge Univ. Press 1988) (1690). (I thank Joshua Foa Dienstag for clarifying this for me.) "The core of Locke's individualism is the assertion that every man is naturally the sole proprietor of his own person and capacities—the absolute proprietor in the sense that he owes nothing to society for them—and especially the absolute proprietor of his capacity to labour." C.B. MACPHERSON, *THE POLITICAL THEORY OF POSSESSIVE INDIVIDUALISM* 231 (1962) (footnote omitted). For the rational, autonomous, self-made man, we must turn to Kant. See KANT, *GROUNDWORK*, *supra* note 63, at 120; IMMANUEL KANT, *PROLEGOMENA TO ANY FUTURE METAPHYSICS* 112-15 (Paul Carus ed., Open Court Publishing 1967) (1783). Recall that Nozick, the libertarian, is a Kantian (as is Rawls, the liberal). See *supra* note 64.

²⁸⁴ One libertarian, contemplating the evolutionary influence on human behavior and social patterns, concludes that ancient libertarian regimes would have been unstable. See Rubin, *supra* note 268.

antagonists assert, strongly reflect both nature and nurture. Yet both the nurturists and the naturists are making factual assertions that must transcend the chasm to values, as is also true of the Lockeans who, in countering the demands for the state, depreciate both nonautonomous influences on character. Whether a person is self-made, nurture-made, or nature-made, or some combination thereof, political theory still has a substantial burden in justifying prescriptions based on this. Nevertheless, the Lockeans and Burkeans would seem to have an intuitively easier case than would the strong naturists. Insofar as a person is self-made, that easily leads to the proposition that she is prior to the state with rights arising accordingly, and insofar as she is culture-made, that suggests the state is prior to her, but to the extent she is nature-made, the intuition regarding her relationship to the state remains vague. The state cannot claim credit for her nature, as it might for her enculturation, but neither can she. Perhaps the Lockean would be satisfied with using the naturist argument to simply undermine the state's claim. If the state cannot take credit for the individual's character, it cannot ground obligations accordingly.

Smithians. The Smithian conservatives take their lessons from Adam Smith's notion of the invisible hand. With their concerns centering on economics, they typically elevate efficiency over individual liberty, unlike the Lockeans. Efficient allocation of the factors of production proceeds through the largely unfettered marketplace. Individuals govern the allocation by means of their purchasing decisions. Demand and supply interrelate. Yet there are limits to the free market. The government must sometimes intervene, as where there are shortfalls from ideal market conditions, thus justifying such regulations as antitrust laws,²⁸⁵ or where there are needs for public goods, such as highways or national defense, that will not be met by the private market alone because of, among other things, freerider and holdout problems.²⁸⁶ Concentrating on market principles, some economists see their discipline

²⁸⁵ See generally RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 271-341 (4th ed. 1992). For libertarian approval of antitrust regulation, see RICHARD A. EPSTEIN, *BARGAINING WITH THE STATE* 50-54 (1993); HAYEK, *supra* note 270, at 265-66.

²⁸⁶ See, e.g., EDWIN MANSFIELD, *MICROECONOMICS* 381-85 (3d ed. 1979). Some economists are not happy about letting the government in this door, and are eager to keep the crack as small as possible. See, e.g., BUCHANAN, *supra* note 270, at 22-26; Harold Demsetz, *The Exchange and Enforcement of Property Rights*, in *THE ECONOMICS OF LEGAL RELATIONSHIPS* 362, 370-76 (Henry G. Manne ed., 1975). Hayek, the libertarian economist, would even allow government intervention when production conditions are harmful. See, e.g., HAYEK, *supra* note 270, at 224-25.

as essentially applied utilitarianism.²⁸⁷ In this, they entirely diverge from Lockean who elevate the justice claims of liberty above any regard for social or private welfare.

From this brief description, it should be apparent that the philosophical orientation of Smithians coincides with the worldview of evolutionary biology. Both systems work in a bottom-up, individual-oriented process, rather than the top-down approach of economic central planning, as in collectivism, or a group-centered theory of evolution, as was commonly conceived before the modern synthesis in biology. For both Smithians and sociobiologists, the individual's self-interest is the salient, controlling ingredient.²⁸⁸ Individuals, by pursuing their own affairs, ultimately govern the allocation of resources and the constitution of the gene pool. Both mechanisms often lead to the same destination. According to E. Donald Elliott, one of the founders of the law and

²⁸⁷ See FRANK H. KNIGHT, *Some Notes on the Economic Interpretation of History*, in FREEDOM AND REFORM 246, 251 n.4 (1947) ("[U]tilitarianism and pragmatism virtually reduce all ethics to economics."). Posner wrote: "Bentham's utilitarianism, in its aspect as a positive theory of human behavior, is another name for economic theory." RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 356 (1972). While later editions of this book omit this assertion, and Posner explicitly denies their identity, see Richard A. Posner, *Utilitarianism, Economics and Legal Theory*, 8 J. LEGAL STUD. 103, 103 (1979), he does thereafter notice their kinship. See RICHARD A. POSNER, *THE ECONOMICS OF JUSTICE* 60-115 (1981); Richard A. Posner, *The Ethical and Political Basis of the Efficiency Norm in Common Law Adjudication*, 8 HOFSTRA L. REV. 487 (1980) [hereinafter Posner, *Efficiency Norm*].

²⁸⁸ This is referred to as "methodological individualism." See FUKUYAMA, *supra* note 50, at 161. Fukuyama observes that biological findings "in many ways undermine many of the behavioral premises of economics." *Id.* at 161-62. This is because the evolutionary advantages of some types of altruism, having become genetically predisposed, lead to more cooperation than the game theoretic, self-interest economic models of economists would suggest. See *id.* at 162. Elliott asserts that, while they "are at least first cousins," the theory of human motivations in evolutionary biology is more complex than that of economics, such as in its sophisticated theory of altruism. See E. Donald Elliott, *Evolutionary Models in Law: Pros and Cons*, in LAW AND EVOLUTIONARY BIOLOGY, *supra* note 255, at 111, 119-20. The economist, Robert Frank, under his "commitment model," borrows much from evolutionary theory to broaden the notion of self-interest to reach the "irrational behavior" that economists have difficulty explaining. See FRANK, *supra* note 34; Robert H. Frank, *Economics*, in THE SOCIOBIOLOGICAL IMAGINATION, *supra* note 7, at 91. Frank observes that even Adam Smith used the moral sentiment of sympathy to explain "irrational" failures of trading partners to defect at times. See Robert H. Frank, *Regulating Sexual Behavior: Richard Posner's Sex and Reason*, in LAW AND EVOLUTIONARY BIOLOGY, *supra* note 255, at 149, 156. Fukuyama looks to natural selection for the major thesis of his book that disruptions in the social order, such as the ongoing one stemming from the transition from the industrial age to the information age, are repaired by a bottom-up, spontaneous process of evolving community norms. For a good synopsis and interesting review, see Jones, *supra* note 197 (reviewing FUKUYAMA, *supra* note 50).

biology movement, “[t]here are many areas in which ‘Law and Biology’ and ‘Law and Economics’ overlap and would reach exactly the same results in analyzing human motivations.”²⁸⁹ Law and economics scholars often see parallels between efficiency and the theory of evolution,²⁹⁰ as well as do biologists.²⁹¹ Elliott anticipates a developing synthesis between the two subjects, many of the early participants in the law and biology movement being economists.²⁹² Stephen Jay Gould,

²⁸⁹ Elliott, *supra* note 7, at 610. Among the significant differences between the two, Elliott identifies the analysis of preferences. Economists see them as exogenous and relatively fixed, whereas biologists see them as dependent on the particular context. *See id.* at 610-11. Hirshleifer ascribes to evolutionary theory the suggestion “that at least some aspects of preferences are not accidental [as economists would have them], but have evolved as ways of restraining freedom of choice where such restraint can conduce to advantageous cooperation.” Hirshleifer, *supra* note 32, at 36.

²⁹⁰ “The classical evolutionary paradigm has a strong grip on law and economics scholarship. What survives is presumptively efficient: if it were inefficient, the practice, the law, or the custom would be challenged by its more efficient competitors.” Mark J. Roe, *Chaos and Evolution in Law and Economics*, 109 HARV. L. REV. 641, 641 (1996). “It is clear that an extensive analogy may be drawn between economic systems and biological systems, with economic analogies of such notions as reproductive survival, adaptation, exploitation of resources, predation, reproduction, mutations and diversification readily forthcoming.” VON SCHILCHER & TENNANT, *supra* note 18, at 115. “[A]t an early point in time, Hirshleifer pointed out the parallels between biology and economics, e.g. competition, the battle for survival, optimization, selection, reciprocity, adaptation and territorial behavior.” Michael Lehmann, *Evolution in Biology, Economics and Law*, in LAW AND EVOLUTIONARY BIOLOGY, *supra* note 255, at 297, 305 (citing J. Hirshleifer, *Economics from a Biological Viewpoint*, 20 J.L. & ECON. 1 (1977)); *see, e.g.*, Fried, *supra* note 163; Masters, *supra* note 36, at 11 (“Properly understood, therefore, the formal models in behavioral ecology or ethology are akin to economic theories.”); Posner, *supra* note 224, at 1647 (“Economics is a body of theory closely related in both form and content to the theory of evolution; concepts of maximization, competition, unconscious rationality, cost, investment, self-interest, survival, and equilibrium play parallel roles in both theories.”); George L. Priest, *The Common Law Process and the Selection of Efficient Rules*, 6 J. LEGAL STUD. 65 (1977); Paul H. Rubin, *Why Is the Common Law Efficient?*, 6 J. LEGAL STUD. 51 (1977). On the other hand, one commentator argues “that Darwinian theory is a remarkably inappropriate model, metaphor, inspiration, or theoretical framework for economic theory.” ALEXANDER ROSENBERG, *Does Evolutionary Theory Give Comfort or Inspiration to Economics?*, in DARWINISM IN PHILOSOPHY, SOCIAL SCIENCE AND POLICY 172, 172 (2000).

²⁹¹ *See, e.g.*, ELDREDGE, *supra* note 11, at 93 (“Darwin’s choices for the ‘limiting factors’ on population size . . . are exclusively economic in nature. . . . Though natural selection is a filter of genetic information, most of that information pertains to the economic lives of organisms.”).

²⁹² *See* Elliott, *supra* note 7, at 619. For a rich example of the interplay between economics and evolutionary theory, *see* Hirshleifer, *supra* note 32. By way of criticism, Rose asserts that “[s]ociobiological analysis in the hands of E.O. Wilson and others employs identical mathematical models to those used by a particular school of monetarist economics based in Chicago (and the compliment is returned by economists who have created a new discipline called ‘evolutionary economics’).” ROSE, *supra* note 11, at 53. Rose finds that monetarism,

who is certainly far from a Smithian conservative, sees a similar parallelism: "I believe that the theory of natural selection should be viewed as an extended analogy—whether conscious or unconscious on Darwin's part I do not know—to the laissez faire economics of Adam Smith."²⁹³

Nevertheless, Smithians and Darwinians have some principles that diverge. While the economic goal of efficiency can, in principle, be grounded on deontological reasoning, as where the members of society, through an actual or hypothetical social contract, unanimously agree to embrace efficiency as the dominant social policy,²⁹⁴ more realistically, the goal of efficiency is teleologically grounded. The Smithian does not see the individual as the sole center of value, but instead believes that by granting individuals autonomy, the social, consequentialist goal of efficiency is best achieved. Posner's aim for wealth maximization reveals this.²⁹⁵ But perhaps this perceived rejection of individualism is too quick. To step back, the standard goal of market moves is the condition of Pareto optimality. In this state, no person can be made better off without making another person worse off.²⁹⁶ Pareto superior moves towards optimality allow changes of resources in which at least one person is made better off and no person is made worse off.²⁹⁷ Both of these standards suggest deontology. The proscription against making another person worse off implies that individual rights are respected. In Kantian terms, no person is being used as a means only to another's (or society's) ends. If left to Pareto standards, economics would look Kantian. But many economists recognize that the Pareto standards are

"a cornerstone of Thatcherism and Reaganomics . . . and now, surrounded by the wreckage of the economies it has destroyed, is largely discredited." *Id.*

²⁹³ STEPHEN JAY GOULD, *Darwin's Middle Road*, in *THE PANDA'S THUMB*, *supra* note 31, at 59, 66. At the turn of the last century, conservatives embraced Social Darwinism for two reasons, according to Hofstadter, the first being that the popular catchwords of Darwinism, such as "survival of the fittest," "suggested that nature would provide that the best competitors in a competitive situation would win, and that this process would lead to continuing improvement." HOFSTADTER, *supra* note 2, at 6. This idea, not new as economists would testify, "g[a]ve the force of a natural law to the idea of competitive struggle." *Id.*

²⁹⁴ For example, Rawls, in his Kantian-based tract, considers whether the parties in the original position behind the veil of ignorance would embrace classical utilitarianism. See RAWLS, *supra* note 64, at 161-92. But he decides they would not, instead preferring his two principles of justice. See *id.* at 183-84.

²⁹⁵ See POSNER, *supra* note 285, at 12-16. Posner equates wealth maximization to Kaldor-Hicks efficiency. See *id.* at 13.

²⁹⁶ See JULES L. COLEMAN, *MARKETS, MORALS AND THE LAW* 71-72, 97 (1988).

²⁹⁷ See *id.* at 72, 97; POSNER, *supra* note 285, at 13.

too stringent, as when producing public goods. For example, identifying all the potential losers from a significant government project, such as the construction of a military base or a highway, and fully compensating them to their own satisfaction, is entirely unrealistic. Thus, economists commonly advance the principle of Kaldor-Hicks efficiency. Under this standard, a move is efficient if all the winners could pay off the losers and still come out ahead. While the winners need not actually pay off the losers in practice, in principle they must be able to.²⁹⁸ This standard is clearly utilitarian and not deontological.²⁹⁹ If necessary, individual interests will be sacrificed for the greater good, i.e., efficiency.³⁰⁰ In sum, then, Darwinians are individual-oriented, while most Smithians, at bottom, are not.

Burkeans. The Burkean, communitarian conservatives see the social contract as producing an obligation to one's ancestors, fellow citizens, and descendants to maintain the traditions of society. As mentioned above, the state's consideration for the contract is its predominant role in shaping an individual's character. Far from being autonomously self-made, a person from birth is embedded in, and defined by, her communities, including the religious, social, and political ones. Her perceptions and values are informed by her environment. She thinks of herself in terms provided to her by the conceptions of her communities. Value inheres in them. (Notice the leap over Hume's chasm.) With respect to the political community, in recognition that a person's very self-conception and outlook is rooted in her relationship to it, she must accept the common aims of her society (the Good) and acknowledge its legitimate claims against her.³⁰¹ (Another leap.) There can be no

²⁹⁸ See COLEMAN, *supra* note 296, at 98; POSNER, *supra* note 285, at 13-14.

²⁹⁹ In justifying Kaldor-Hicks efficiency, Posner tries to augment the reliance on utilitarian principles by offering Kantian-based "consent" and "interest" arguments. See Posner, *Efficiency Norm*, *supra* note 287, at 487, 488-97. For brief discussion, with criticism, see RAYMOND A. BELIOTTI, *JUSTIFYING LAW* 109-13 (1992).

³⁰⁰ Hirshleifer observes that "potentially Pareto-preferred" changes may override dissent, "open[ing] the gates even to rather brutal social processes." Hirshleifer, *supra* note 32, at 6.

³⁰¹ Edmund Burke rejects the notion of natural rights. Burke's argument is that "we have to support the institutions of society as they stand, as we have learned them—since these are all we have. They are our rational bulwark against irrational (innate) passions." FOX, *supra* note 88, at 46. Even if we find persons to be fully autonomous, rational, responsible, free agents, they still may have obligations and duties to the innumerable social groups to which they belong, often by chance, merely by virtue of their membership. See, e.g., NICHOLAS RESCHER, *What Is a Person?*, in *HUMAN INTERESTS*, *supra* note 145, at 6, 9-10.

neutrality with respect to the Good.³⁰² While the society may not be ideal, it reflects the inherited wisdom and demonstrated values of proven experience.³⁰³ Changes beyond the incremental are likely to have unpredictable results, reverberating beyond the foreseeable to disrupt and perhaps even destroy that which has proven itself of enduring value in the unforgiving crucible of history. Yes, the culture, mores, laws, traditions, and other normative institutions may be jerry-built in some respects, erected without blueprints, but nevertheless they have endured and made us what we are today. Leave well enough alone. Hence, Burkeans are conservatives in the sense that they wish to conserve the traditions of the community.

Unlike the neo-Darwinians, and for that matter, the Lockean and the Smithian, the Burkeans do not center their attention on the individual and work bottom-up. Quite to the contrary, their attention is focused on the community and its claims against the individual, or rather, the obligations of the individual to the community, in a top-down manner.³⁰⁴ Recall that under Darwinian theory, evolution operates at the level of the genes, the process driven by the survival and reproductive advantage of the individual, not the group. The effects of evolution on

³⁰² There is no neutrality because, as mentioned, one's values arise from one's community. See BRIAN BARRY, *POLITICAL ARGUMENT* 75 (1965) (the "sociological theorem"); MICHAEL SANDEL, *LIBERALISM AND THE LIMITS OF JUSTICE* 11-14 (1984) ("the sociological objection"). Furthermore, value neutrality is itself a normative theory about the good. See RONALD DWORKIN, *A MATTER OF PRINCIPLE* 191-92 (1986). Though perfect neutrality may be impossible, "[w]riters in the liberal tradition, for example, Bruce Ackerman and Ronald Dworkin, argue persuasively that the political decisions of a good society are as neutral as possible among conceptions of the good life." Mark Sagoff, *Values and Preferences*, 96 *ETHICS* 301, 310 (1986); see RAWLS, *supra* note 64, at 94, 325-32. Rawls wrestles with the limits by distinguishing various definitions of "neutrality." See John Rawls, *The Priority of Right and Ideas of the Good*, 17 *PHIL. & PUB. AFF.* 251, 260-63 (1988). See generally James S. Fishkin, *Can There Be a Neutral Theory of Justice?*, 93 *ETHICS* 348 (1983); Cass R. Sunstein, *Legal Interference with Private Preferences*, 53 *U. CHI. L. REV.* 1129, 1129 (1986).

³⁰³ That institutions, social structures, legal procedures, and so forth, evolve in "a process of variation and 'selection'" supports "a conservative plea for tolerance of the institutions we have. For they may, in ways perhaps difficult to understand or 'read off,' embody an evolutionary wisdom exceeding that attainable by a wise man in a normal lifetime." VON SCHILCHER & TENNANT, *supra* note 18, at 114-15.

³⁰⁴ "True freedom, to a communitarian, lies not in the primacy of individual rights, but in the capacity for self-rule, involving 'a willing identification with the polis on the part of the citizens, a sense that the political institutions in which they live are an expression of themselves.'" Catherine Lu, *Images of Justice: Justice as a Bond, a Boundary and a Balance*, 6 *J. POL. PHIL.* 1, 5 (1998) (quoting Charles Taylor, *Cross-Purposes: The Liberal-Communitarian Debate*, in *LIBERALISM AND THE MORAL LIFE* 159, 166 (Nancy L. Rosenblum ed., 1989)).

the group is a mere by-product of individual self-interest, entirely independent of the interest of the community as a group.³⁰⁵ Even moral codes are said to be the product of the self-interest of those who have been influential in formulating them, irrespective of their expressed concern for the greater good of the community.³⁰⁶ Arguably, then, insofar as morals are "natural," they should be embraced with skepticism, for behind them may well be special pleading.³⁰⁷ But for those communitarian conservatives who are religious fundamentalists, we need not worry about whether they understand the challenge of evolution to their political beliefs. It sufficiently challenges their religious beliefs to be well beyond the pale for them.³⁰⁸

While the Burkeans' elevation of the group over the individual diverges from Darwinian mechanisms, other crucial planks in the Burkean construct align with some of the central principles of Darwinism. As evolutionists see the evolved organism as a satisfied,³⁰⁹ path-dependent cobbling together of available genomic materials coping

³⁰⁵ Cf. WRIGHT, *supra* note 8, at 257-58 (concluding that the evolutionary tendency for social hierarchy cannot be advanced as a means to keep the group strong, thereby justifying social inequality for the sake of the greater good, because the hierarchies result from individual, not group, interest).

³⁰⁶ See *id.* at 361-62. Ruse posits that since our normal feelings are limited by the evolutionary advantage of self-interest and immediacy, moral sentiments are biologically needed as an inducement to cooperative actions (facilitating reciprocal altruism) and even as "a spur to make us change a diaper in the middle of the night." RUSE, *supra* note 30, at 251.

³⁰⁷ See WRIGHT, *supra* note 8, at 361-63.

³⁰⁸ The religious fundamentalists strongly object to (many of the) implications that have been found in Darwinism: the challenge to the literalness of the biblical creation story and hence other biblical lessons, the threat to the notion of a soul, the death of God, the absence of absolute moral principles, the contingency of moral feelings, the lack of complete freewill, and the abyss upon death. See PINKER, *supra* note 11, at 128-32 (religious fundamentalists and some neoconservative intellectuals); THIESSEN, *supra* note 107, at 382-83. Even Dugatkin, a respected evolutionist and animal behaviorist with strong religious beliefs, see LEE DUGATKIN, CHEATING MONKEYS AND CITIZEN BEES 32-33 (1999), is appalled by the notion that the human emotions such as sympathy, guilt, and the sense of morality may be partially a product of natural selection that may change with environmental circumstances, see *id.* at 35-36. "This is an unacceptable thought for anyone with a sense of absolute right and wrong." *Id.* at 36. Meaning, religious, moral scientists should avoid such topics or research?

³⁰⁹ The term "satisfice" was coined by Herbert Simon: "In the face of even moderate uncertainty, it seems almost hopeless to strive for 'optimal' courses of action. . . . [In these circumstances it] becomes somewhat easier if we adopt a *satisficing* point of view: if we look for *good enough* solutions rather than insisting that only the best solutions will do." HERBERT A. SIMON, REASON IN HUMAN AFFAIRS 85 (1983); see Michael Byron, *Satisficing and Optimality*, 109 ETHICS 67 (1998).

with environmental pressures, and without any aim for final ends beyond reproduction, so do the Burkeans see society in a parallel manner, at least for those aspects not driven by religious tenets. As Darwin perceived the evolution of organisms to operate in a slow, incremental process, so do the Burkeans see the evolution of society.³¹⁰ And as Darwin discerned substantial mutations that spawned “hopeful monsters” as overwhelmingly likely to emerge dead on arrival, or at least, seriously maimed and degraded,³¹¹ so do Burkeans consider utopian society-building.

Before continuing, there is strand of politics, often, but not exclusively, associated with communitarian conservatism, that should be addressed at this point because of its occasional invocation of Darwinian notions. I refer to a groupist, “we-they” mentality that typically generates an intolerance or deprecation of members of another group based on their race, religion, ethnicity, sex, class, sexual orientation, or other salient distinguishing quality.³¹² A common justification for these

³¹⁰ The second reason conservatives embraced Social Darwinism was because of the “familiar idea in conservative political theory, the conception that all sound development must be slow and unhurried.” HOFSTADTER, *supra* note 2, at 6-7. The conservative conclusions, whether pessimistic or optimistic, “suggested that all attempts to reform social processes were efforts to remedy the irremediable, that they interfered with the wisdom of nature, that they could lead only to degeneration.” *Id.* at 6-7. Notice that these two reasons stem from different, sometimes incompatible, schools of conservatism, an inconsistency often neglected in the free fire zone of politics. But Hofstadter, without explicitly making the distinctions among conservatives advanced here, notes that Social Darwinism lacked qualities found in some conservative systems in its secularism and independence from authority and emotion. *See id.* These are difficulties mainly for the Burkean, to a much lesser extent the Lockean, and not at all for the Smithian. For Hofstadter’s discussion of the underlying differences, *see id.* at 8-11.

³¹¹ “Hopeful monster” is a term coined by the biologist Richard Goldschmidt to describe a “megamutation” supposedly originating new major evolutionary groups. *See, e.g.*, JOHN T. BONNER, THE EVOLUTION OF COMPLEXITY 18 (1988); MAYNARD SMITH, *supra* note 76, at 316-19.

³¹² “[V]arious ‘we-regarding’ motivations, such as ethnic pride and shame, patriotism, and friendship . . . do not sharply distinguish the welfare of the agent from the welfare of the group.” Elizabeth Anderson, *Beyond Homo Economicus: New Developments in Theories of Social Norms*, 29 PHIL. & PUB. AFF. 170, 174 (2000). For the frightful ease at which humans place themselves in groups and become biased against other groups, apparently with evolutionary underpinnings, *see* DUGATKIN, *supra* note 308, at 137-39; RICHARD WRANGHAM & DALE PETERSON, DEMONIC MALES 193-98 (1996). In the 1970s and 80s, the National Front of England and the New Right of France embraced the authoritarian and racist lessons they found in sociobiology. *See* PROMETHEAN FIRE, *supra* note 5, at 42; Vincent S.E. Falger et al., *Introduction to 6 RESEARCH IN BIOPOLITICS: SOCIOBIOLOGY AND POLITICS*, *supra* note 83, at ix, xiv-xv.

attitudes is the claim that the other group is, as a matter of fact, physically or morally inferior.

In making this claim of the inferiority of another group, the nurture side of the nature-nurture dichotomy may ground the reasoning of the denigrators. They might argue, for example, that another race or religion is wanting because its members are socialized in an uncivilized or Godless manner. As troubling and unwarranted as this contention may be, at least it allows for the rebuttal that the "flaws" turn on historical contingency that may be overcome by "proper" socialization in a "civilized" or "God-fearing" environment. There is nothing inherently inferior about the group members.

On the nature side of the ledger, there are two types of arguments from the denigrators. First, they may contend that nature has pushed a group beyond the point of no return to superior traits. Historic circumstances and natural selection have produced inherent group differences.³¹³ For example, women are said to be inferior in some ways because of the prehistoric selection forces stemming from the different reproductive investment requirements of male and female. They did not develop sufficient aggressiveness or leadership qualities, say, because they were anciently relegated to home base to nurture their children while men were out in the greater world struggling against the genetically refining forces that rewarded these qualities. Or, as another example, another race or religious group evolved in an impoverished or unchallenging environment that effected a deficient gene pool by reducing the competitive pressure for superior traits.³¹⁴ Second, another type of denigrating Darwinian argument turns on the claim that a group

³¹³ The denigrators may look to group selection for support. "Whether or not [group selection] endowed us with generosity toward the members of our group, it would certainly have endowed us with a hatred of the members of *other* groups, because it favors whatever traits lead one group to prevail over its rivals." PINKER, *supra* note 11, at 259. While negative emotions, or indifference, towards other groups may be predicted, Pinker's ascription of "hatred" seems unnecessarily strong.

³¹⁴ Hence, it is argued that intelligence increased as prehistoric peoples moved farther out of Africa to increasingly challenging environments. See J. Phillippe Rushton, *Race Differences: A Global Perspective*, in 6 RESEARCH IN BIOPOLITICS: SOCIOBIOLOGY AND POLITICS, *supra* note 83, at 119, 134. One group of authors "speculate[s] that the long alleles of the DRD4 gene were selected by migration because they had adaptive value in migratory societies," research having shown a linkage between the long alleles and "novelty-seeking personality, hyperactivity, and risk-taking behaviors." Chuansheng Chen et al., *Population Migration and the Variation of Dopamine D4 Receptor (DRD4) Allele Frequencies Around the Globe*, 50 EVOLUTION & HUM. BEHAV. 309, 320 (1999).

is inferior because it does not follow "nature's way." For example, gays are said to be defective because they are handicapped, or handicap themselves, in the unrelenting race for reproduction. These arguments and others based on the principles of Darwinian evolution are mustered to justify, at worst, a disdainful declaration of inherent physical or moral inferiority, or, at best, a supposedly wistful concession to the "true realities" that explain why another group is beyond help or merit in certain regards.

This strain of "we-they" politics cannot simply be bracketed as an aberrant sport, because these latter, nature-based contentions are the ones that evoke the shrillest responses from critics of sociobiology. The first contention, that a group has not endured, and reaped the genetic benefits of, extreme or particular evolutionary stresses, is a factual claim, typically based on surmised or reconstructed prehistoric occurrences leading to currently identified physical or mental differences. The rebutters counter from various directions, including the following: First, they assail the identified factual support for the claim of inferiority, or its significance. The ongoing IQ controversy is the best example.³¹⁵ Second, they challenge the supposed prehistorical circumstances as mere unproven speculation or unfalsifiable "just-so" stories.³¹⁶ Third, they assert that irrespective of the circumstances in deep time, humans are pushed beyond these molding forces by the emergence of unique qualities, such as intelligence or language.³¹⁷ Finally, of course, the claim being based on factual assertions, Hume's chasm reappears. The second contention, that a group does not subscribe to "nature's way," commonly evokes two responses: First, to the contrary, "nature's way" may well have room for the behavior in question. One must simply uncover the complex workings of nature. For example, homosexual behavior may have reproductive value through kin selection principles.³¹⁸ Second, once again the thrust of the contention violates the naturalistic fallacy. That nature might have a particular way does not mean that it, or we, should pursue this way. But still, unfortunately, as mentioned above,

³¹⁵ See, e.g., GOULD, *MISMEASURE*, *supra* note 138, at 283-85, 338-45; ROSE, *supra* note 11, at 286-88. Notice that at least some of the proponents of IQ differences are located in the libertarian, not the communitarian, political camp. See *supra* note 132.

³¹⁶ See *infra* note 354.

³¹⁷ See *supra* note 14.

³¹⁸ See, e.g., WILSON, *supra* note 23, at 343 ("The celibate monk, the maiden aunt, or the homosexual need not suffer genetically. In certain societies their behavior can redound to improved fitness of parents, siblings, and other relatives to an extent that selects for the genes that predisposed them to enter their way of life.").

the Humean chasm has never halted, or even perceptibly slowed, faulty political or demagogic contentions.

To reconnoiter, I have identified two main features of natural selection that correspond with versions of conservative political groundings: the individual-centered, bottom-up mechanism; and the glacial, jerry-built incrementalism. Lockeans and Smithians emphasize the former, and Burkeans the latter. Liberals, it turns out, generally place less value on either feature.

In sum, I am not contending that Lockeans, Smithians, Burkeans, and Darwinians are all fellow travelers, nor indeed, even that all subscribers to any one of these camps are in total agreement with one another. Far be it. Indeed, it is one of the great wonders of practical politics that the three political orientations are able to sleep together as well as they do in the bed of Republican conservatism. Instead, I am arguing that important aspects of their various weltanschauungs overlap, thereby promoting, it seems, a proclivity for those with strong conservative political orientations to champion sociobiology in its most prominent incarnations. By bolstering particular versions or planks of sociobiology, they reinforce the worldview supporting their own political beliefs. Where does this leave liberals?

Liberals. In speaking of liberals, there is the same risk of overgeneralization as is faced in describing conservatives. The discussion here will cover communitarian liberalism, including Marxism, but will emphasize the most commonly espoused variety of liberalism today: the Rawlsian, welfare-state liberal. Perhaps the unifying feature of liberals in general is, as opined by some, their belief that the worst vice is cruelty.³¹⁹ Liberals distinguish themselves from Lockean and Smithian conservatives in their greater other-regardingness.³²⁰ In the tradeoff between liberty and equality, while treasuring the former, liberals

³¹⁹ See RICHARD RORTY, *CONTINGENCY, IRONY, AND SOLIDARITY*, at xv (1989); JUDITH N. SHKLAR, *ORDINARY VICES* 7-44 (1984) ("Putting cruelty first"). Annette Baier places Hume in this camp, but excludes Kant. See ANNETTE C. BAIER, *Moralism and Cruelty: Reflections on Hume and Kant*, in *MORAL PREJUDICES* 268, 268-69 (1994); cf. SINGER, *supra* note 259, at 8 (Concern about "the vast quantity of pain and suffering that exists in our universe, and . . . [the] desire to do something to reduce it . . . is what the left is all about.").

³²⁰ Liberals tend to be egalitarians. See, e.g., DWORKIN, *supra* note 302, at 183, 205-13. Sociobiology threatens their egalitarian streak. "Obviously the motivation behind a stubborn defense of the idea that all humans begin life with essentially similar emotional and behavioral biases is the wish to support the political imperative [for an egalitarian society]." KAGAN, *supra* note 139, at 14.

nevertheless grant more value to the latter than do these two strands of conservatism.³²¹ Yet, as is true among conservatives, since there are few practicing ideologues, the actual political beliefs of people who identify themselves as liberals may overlap with conservatives and other liberals of different flavors. To alter the example before, one might be a Smithian when favoring privatization in the belief that the marketplace can produce goods and services more efficiently than can the government, a Lockean when supporting human rights and First Amendment rights, a Burkean or communitarian liberal when advocating the protection of religious or cultural traditions, and a Rawlsian liberal when advancing substantial welfare and subsidies to the arts. But still, as in examining conservatism, it remains a worthwhile heuristic to separate out the communitarian and welfare-state liberals.³²²

Communitarian liberals base their systems on a Burkean line of reasoning that, like Burkean conservatism, challenges the notion that individuals are autonomously independent of the community's molding influences.³²³ The group being substantially prior to the individual, each member accordingly has obligations to her communities, familial, political, cultural, or otherwise.³²⁴ The primary center of value is in the

³²¹ Fukuyama puts it this way: "The question of when hierarchical authority ought to intervene to correct a spontaneous outcome in the interests of justice or fairness constitutes the central issue that has historically divided Left and Right." FUKUYAMA, *supra* note 50, at 217.

³²² The radical left has also raised the flag of sociobiology. In France it was taken up by the left "out of a 'neo-rousseauiste' inspiration in an effort to integrate man in nature." DEGLER, *supra* note 255, at 319 (quoting CLAUDE LÉVI-STRAUSS, *LE REGARD ÉLOIGNÉ* 57-58 (1983)). "There was even an anarchist version [of sociobiological political theory], under Kropotkin, that saw as much *mutual aid* implied in evolutionary theory as 'nature red in tooth and claw.'" FOX, *supra* note 88, at 87. There is much in Darwin's writings to support Kropotkin's interpretation. See HOFSTADTER, *supra* note 2, at 90-92. Kropotkin's and other Russian biologists' views may be due to their perceptions of the Russian wilds, since challenged, where humans are forced to unite to fight the elements, unlike highly populated environments in which humans and other animals struggle against one another. See RUSE, *supra* note 3, at 202, 209-10, 213; Adam Urbanek, *Evolutionary Origin of Moral Principles*, in *EVOLUTIONARY ETHICS*, *supra* note 44, at 325, 326-27; see also GOULD, *supra* note 120, at 334-35 (noting that both Kropotkin and Darwin perceived two evolutionary struggles: first, "organism against organism for limited resources"; second, "organism against the harshness of surrounding physical environments").

³²³ See, e.g., Amitai Etzioni, *The Good Society*, 7 J. POL. PHIL. 88, 94 (1999) ("Communitarians suggest that reasonable individuals cannot be conceived of outside a social order; that the ability to make rational choices, to be free, presumes that the person is embedded in a social fabric."); Michael Sandel, *Morality and the Liberal Ideal*, NEW REPUBLIC, May 7, 1984, at 15, 17.

³²⁴ See MICHAEL J. SANDEL, *DEMOCRACY'S DISCONTENT* 341-44 (1996).

community rather than the individual, justifying a teleological, consequentialist morality rather than a deontological, autonomy-oriented one. Nevertheless, where liberal communitarians depart from their Burkean conservative cousins is in their conviction that liberty warrants substantial weight as a value. Personal obligations to the traditional community are not all-encompassing.³²⁵ This is conspicuous in the community values of a modern democracy. Thus, individuals should be free to reconsider and develop the community's values, even forming new ones, such as gay communities, if wanted.³²⁶ But still, value inheres in the community and the individual's relationship to her communities remains primary.³²⁷ This variety of communitarian reasoning has not gained more prominence, in my view, because its proponents have not worked out a strong, coherent scheme to protect the individual from the prospective overreaching of the group, and therefore has scared off others of a liberal bent.³²⁸ Since the advocates of liberal communitarianism have generally avoided the sociobiological debate, their commonalities and differences with Darwinian principles will not be discussed beyond noting that, insofar as it shares common threads with Burkean communitarianism, Lockean libertarianism, and welfare-state liberalism, it also shares similar pulls and pushes.

³²⁵ For a bugle call for liberal communitarians, see *The Responsive Communitarian Platform: Rights and Responsibilities*, in RIGHTS AND THE COMMON GOOD 11 (Amitai Etzioni ed., 1995).

³²⁶ See Etzioni, *supra* note 323, at 94 ("[M]ost people in contemporary free societies are able to choose, to a significant extent, the communities to which they are psychologically committed, and can often draw on one to limit the persuasive power of another.").

³²⁷ Among the best known liberal communitarians are Amitai Etzioni, Michael Sandel, Charles Taylor, and Michael Walzer. See, e.g., AMITAI ETZIONI, *THE SPIRIT OF COMMUNITY* (1993); SANDEL, *supra* note 302; CHARLES TAYLOR, *MULTICULTURALISM AND "THE POLITICS OF RECOGNITION"* (1992); MICHAEL WALZER, *SPHERES OF JUSTICE* (1983). Notice that insofar as communities are formed of kin groups, the principle of kin selection would evolutionarily favor commitments to them, the more so as the members are more closely related. The principle of reciprocal altruism would support commitments even to groups of nonkin. Driven by these principles alone, we might expect "[o]ur moral concern can expand to ever-wider circles to include our extended kin, our clan, our group, our nation, all of humanity, and perhaps even all life forms. But the expansion to the wider circles will occur only in those cases where our provisioning of the inner circles is secure." ARNHART, *supra* note 42, at 147.

³²⁸ See, e.g., Steiner, *supra* note 264, at 107-08. In private conversation, Michael Sandel acknowledged to me that this was a problem that must be met by liberal communitarians. For gallant attempts, see RIGHTS AND THE COMMON GOOD, *supra* note 325; Etzioni, *supra* note 323, at 88.

Marxists, on the contrary, have been among the most vocal critics of sociobiology,³²⁹ and, ironically, among the most important founders.³³⁰ The relevant tenets of Marxism include a metaphysics whereby matter, not mind, is the basic substrate of reality. Matter evolves in a dialectic process towards complexity and improvement by means of revolutionary jumps. The norms and social structures of a society are determined by the material conditions of life, that is, by the nature of its productive forces and economic organization. Society has evolved through the economic historical epochs of primitive communism, ancient slave-ownership, feudalism, and capitalism. The internal contradictions of capitalism will induce the proletariat to wrest control of the state from the bourgeoisie, terminate capitalism, and thereby dissolve class conflicts. The need for the state will then be eliminated and the people will be liberated from the shackles created by the channeling forces of the means of production, thus, free of economic determinism, being empowered to consciously and rationally choose their own values and life styles. The self-realization of every individual will lead to the greatest flowering of mankind.³³¹

While Darwin's ideas of a natural struggle and the absence of design appealed to Marx's vision of a class struggle in a nonreligious world,³³² from this brief description of Marxism, several differences with Darwinism are readily apparent. First, in positing occasional revolutionary jumps in the evolution of matter, Marxism rejects the

³²⁹ See Regina Karpinskaya, *Marxist Thought*, in THE SOCIOBIOLOGICAL IMAGINATION, *supra* note 7, at 243, 244-47 (contending that Marxist thought does find some place for natural propensities).

³³⁰ Rather than giving "ammunition to dangerous rightwing maniacs. . . . a review of the politics of leading sociobiologists would lend more credence to the contention that sociobiology is a Communist conspiracy." van den Berghe, *supra* note 258, at 406 (reviewing SOCIOBIOLOGY EXAMINED, *supra* note 134, and mentioning the ties to Communism of J.B.S. Haldane and John Maynard Smith and to radical black politics of Robert L. Trivers).

³³¹ See JON ELSTER, AN INTRODUCTION TO KARL MARX 25, 43-49, 194-95 (1986) (including analysis and criticism).

³³² "In a letter of 1861, Marx wrote that 'Darwin's book is very important and it suits me well that it supports the class struggle in history from the point of view of natural science.'" CARTWRIGHT, *supra* note 7, at 322 (citation omitted). On the other hand, "[t]he [Marxist, Russian] revolutionaries regarded natural selection as tainted with capitalist notions of competition." *Id.* at 325. Darwinism's "additional appeal for Marx was that it eliminated teleology and design from nature. Marx saw that evolution could be used to undermine his ideological enemy — organized religion." *Id.* at 322.

undeviating incrementalism of Darwinism.³³³ Second, contrary to Marx's teleological precept of an inexorable march to human history, nothing about Darwinism implies necessary superior fitness value in complex life forms,³³⁴ nor that evolutionary changes are "improvements" beyond the tautological sense of being better able to survive and reproduce.³³⁵ Third, the Darwinian method of reductionist explanations of the natural and social world runs counter to the ineluctable complexity found to emerge from the Marxist dialectical process.³³⁶ Fourth, Marxists, with their utopian vision of the future, insist that humans, under proper conditions, are entirely free of nature and nurture, becoming self-directed, autonomous, free-willed persons.³³⁷

³³³ See NISBET, *supra* note 265, at 82 ("The Marxian concept of revolutionary change is held by . . . critics to be their model for criticism of Darwinian gradualism."). For example, Gould and Eldredge advance a theory of punctuated equilibrium, whereby evolution is said to go through long periods of stasis interrupted by concentrated episodes of (revolutionary) branching speciation. See ELDREDGE, *supra* note 11, at 140-45; Niles Eldredge & Stephen Jay Gould, *Punctuated Equilibria: An Alternative to Phyletic Gradualism*, in *MODELS IN PALEOBIOLOGY* 82 (T.J.M. Schopf ed., 1972). This was suggested to Gould by his Marxist background. See RUSE, *supra* note 8, at 144.

³³⁴ Gould here rejects his lessons from Marxism by championing the view that evolution does not necessarily move towards complexity. See GOULD, *supra* note 76.

³³⁵ See, e.g., *id.* at 136 ("The basic theory of natural selection offers no statement about general progress, and supplies no mechanism whereby overall advance might be expected."). "[T]he gravest shortcoming of Darwin's theory from Marx's point of view was its emphasis on the random and indeterminate nature of variations, which made progress beyond the social world of brutes 'purely accidental' and not 'necessary,' as Marx desired and his theory required." KAYE, *supra* note 258, at 25. See generally RUSE, *supra* note 83.

³³⁶ See PINKER, *supra* note 11, at 127-28; Segerstråle, *Colleagues in Conflict*, *supra* note 258, at 59-60.

³³⁷ Marx asserted that "if you can totally change the 'ensemble of the social relations,' you can totally change human nature." SINGER, *supra* note 259, at 5 (quoting KARL MARX, *THESES ON FEUERBACH VI* (1888)). "This claim goes to the heart of Marxism and of more broadly marxist (with a small 'm') thinking. As a result, it affects much of the thought of the entire left." *Id.*; see ALCOCK, *supra* note 13, at 20 (Because Marxism "is founded on the premise of the perfectability of human institutions . . . , persons with Marxist views were particularly unresponsive to the notion that an evolved 'human nature' exists, fearing that such a claim would be interpreted to mean that human behavior cannot change."); PINKER, *supra* note 11, at 155-58. But contrary to the neo-Marxist position, some "traditional Marx readings are concerned with the human 'species being', obviously a fixed entity." Segerstråle, *Colleagues in Conflict*, *supra* note 258, at 84 n.53; see SEGERSTRÅLE, *supra* note 6, at 204-05. To summarize, "[a]lthough it does not go uncontested in Marxist writings, nor even in Marx's writings, the 'official' Marxist position is that there is no universal human nature, only the various human natures determined by specific historical-material conditions." DONALD E. BROWN, *HUMAN UNIVERSALS* 60 (1991). A related problem with natural selection for Marxists is that, "[b]ecause Darwin viewed the struggle in nature as in large part between individuals, his theory seemed to undermine the very possibility of class solidarity and the final elimination of human conflict." KAYE, *supra* note 258, at 25.

The sociobiological contention that individuals have genetic predispositions generates great heat among Marxist critics who, overreading the asserted effects of natural predispositions, accuse sociobiologists of being outright determinists.³³⁸ On the other hand, Marxists and Darwinians are both materialists who believe that reality is undergirded by matter, rather than the mentalism of idealists.³³⁹ But in sum, unlike the Lockean, Smithian, and Burkean, several of the main tenets of Marxism, if not of Marx himself, appear to conflict with Darwinian principles.³⁴⁰

³³⁸ See *supra* Part III.B. "Marx's own views on human nature were ambiguous, but most Marxists have adopted the view that human nature is plastic in the sense that 'being determines consciousness.'" CARTWRIGHT, *supra* note 7, at 322. On the other hand, Midgley finds Marxists with "an enthusiasm for determinism generally," even beyond economic and social determinism. MIDGLEY, *supra* note 13, at 63 n.13. She quotes Engels: "Freedom is the recognition of necessity. . . . Freedom does not consist in the dream of independence of natural laws, but in the knowledge of these laws, and in the possibility that it gives of systematically directing the work towards definite ends." *Id.*; see FREDERICK ENGELS, ANTI-DÜHRING [HERR EUGEN DÜHRING'S REVOLUTION IN SCIENCE] 125 (Emile Burns trans., C.P. Dutt ed., International Publishers 1939) (1894) (other translation). But, she points out, Marx himself, "though he officially dropped the notion of human nature and often attacked the term, relied on the idea as much as anybody else for his crucial notion of Dehumanization." MIDGLEY, *supra* note 13, at xviii.

³³⁹ On the other hand, "[t]he materialist theory of history implies that there is no fixed human nature. It changes with every change in the mode of production." SINGER, *supra* note 259, at 23. Perversely, Trofim Lysenko, who Stalin put in charge of the Soviet biological sciences, perpetuated grievous consequences on the Soviet economy and sciences by ignoring Marxist materialism as applied to heredity, suppressing classical genetics, and espousing an idealist, Lamarckian inheritance of acquired characteristics that led to agricultural disasters. See SAGAN, *supra* note 241, at 261-63.

³⁴⁰ Thus the Soviets via Lysenko's mandate, disastrously for their genetic sciences, vehemently rejected Darwinian principles in favor of Lamarckian ideas of acquired characteristics. See, e.g., MORRIS, *supra* note 243, at 84-92; Smith, *supra* note 256, at 374, 378-79. Lamarck's theory offered a teleology agreeable to Marxist views of progress that Darwin's did not. See KAYE, *supra* note 258, at 25. Perhaps if Karl Marx had lived, it would have gone differently. He contemplated dedicating *Das Capital* to Darwin, who demurred in order to avoid the political labeling of his science. See GEORG BREUER, SOCIOBIOLOGY AND THE HUMAN DIMENSION, at xiii (1982). Moreover, Nisbet declares it "comical to present Marx and Darwin as at different poles." NISBET, *supra* note 265, at 82. "Marx had vast admiration for Darwin's *Origin* and compared his own *Capital* to it, down to the very details." *Id.* "The only striking difference between Marxian and Darwinian conceptions of evolution is that Marx, in respect to social evolution, was very much the preformationist: 'higher relations of production never appear before the material conditions of their existence have matured in the womb of the old society.'" *Id.* at 82-83. Yet to Lysenko, Lamarckian principles "seemed to accord better with Marxism than did the orthodox . . . Mendelian doctrine." Smith, *supra* note 256, at 378-79. For an introduction to the Marxist reaction to Darwin, see SINGER, *supra* note 259, at 20-28.

Turning to Rawls, he constructs his liberal, welfare-state vision on a Kantian, and therefore individual-centered, framework. Placing society's hypothetical founders behind a veil of ignorance to construct the social contract, he finds that they would reject outright utilitarianism and instead agree to two basic principles of justice: first, an equal right to justice; and second, the "difference principle" whereby social and economic inequalities are allowable only when they benefit the least advantaged and derive from fairly equal opportunities.³⁴¹

While it might seem that Rawls's first principle would place him in the camp of the Lockean with the emphasis on individual justice, his skepticism about personal claims of desert move him outside the core Lockean campgrounds. Under Locke's labor principle of justice, one is entitled to, that is, deserves, the fruits of one's labor.³⁴² Rawls demurs to this implicitly in terms that are familiar to the sociobiological debate: nature and nurture. He contends that one's natural endowments and nurtured virtues are largely a matter of "moral luck." That a person has "good genes" or "bad genes" is not a result of anything that she or her ancestors did in a manner that would support a claim of personal desert. That she was raised in an environment that encouraged or discouraged her worldly successes is again not anything that would support a claim of personal desert. She was just plain lucky or unlucky to get what she has. While there remains a place for one's due in this viewpoint, the strong claims of personal desert, and the individual-centered orientation it engenders, certainly recede from center stage. Hence, the redistributive principles of the welfare state do not run afoul of any strongly defensible, Lockean assertions based on personal desert.³⁴³ Equality is to be promoted without unduly weighing the counterclaims of individual liberty. For the wherewithal to exercise one's liberty, for example, wealth and power, is not simply the just reward for one's desert. And the willingness of the welfare-state liberal to grant a function to the government beyond that of the minimal nightwatchman state and market protector reflects a comfort with top-down intervention

³⁴¹ See RAWLS, *supra* note 64. For an evolutionary theory on the development of the capacity to enter into contracts, including social contracts, see Cosmides & Tooby, *supra* note 162, at 163. See also WILSON, CONSILIENCE, *supra* note 5, at 171 ("Contract formation is more than a cultural universal. It is a human trait as characteristic of our species as language and abstract thought, having been constructed from both instinct and high intelligence.").

³⁴² See LOCKE, *supra* note 283, at 170 ("Justice gives every Man a Title to the product of his honest Industry").

³⁴³ See PINKER, *supra* note 11, at 151.

to promote the flourishing of society that most Smithians, as well as Lockean, reject.³⁴⁴ For example, redistributive taxation and affirmative action manifest policies advanced by liberals in the name of equality and the general welfare despite the power and discretion they grant government agents and their disparate impact on particular individuals. Indeed, human foibles, whatever their source, raise the costs of implementing government programs, such as by relying on “leaky buckets” when redistributing wealth,³⁴⁵ but again the objecting cries of liberty are perceived as muted by the realities of personal desert. Finally, since the Rawlsian state is to remain, as much as possible, neutral with respect to the Good,³⁴⁶ unlike the Burkean community, there is no clause in its constitution preserving the status quo as reflecting presumptively better values than what might be wrought by significant, considered change.

Therefore, while the opening gambit of the Rawlsian is, by seeking a hypothetical social contract, individualistic along Kantian lines, and would therefore seem, like the Lockean and Smithians, to fit comfortably with the individual-centered principle of Darwinian evolution, the Rawlsian, contesting a strong conception of personal desert, retreats from granting dominant political value to personal liberty. Equality and the interests of the community, the general welfare, weigh heavily. There is a substantial role for the government which, after all, is grounded on the supposed consent of the governed. Contrary to the mechanisms of evolution alone, the group as a group is a major player in the political arena. As far as the Burkean and Darwinian principles of incremental, unplanned evolution, the Rawlsian seems rather indifferent. Having much faith in the reason of the imagined founders behind the veil of ignorance, and believing in the excellence of the political processes channeled by the formal and substantive constraints emerging from the social contract, the Rawlsian sees little

³⁴⁴ Most, perhaps, but certainly not all. There obviously are liberal economists. The invisible hand is directed at the allocation of the factors of production, not at the distribution of society's goods beyond this. For example, Adam Smith himself found room in his system for welfare. See ADAM SMITH, *THE WEALTH OF NATIONS* 156-63 (Edwin Cannan ed., Modern Library 1994) (1776) (complaining that the restrictive English poor laws impeded the free circulation of labor and violated the poor's “natural liberty and justice”). Even Hayek, chief guru of the conservative Austrian school of economics, recognizes a place for redistributive government activity. See, e.g., HAYEK, *supra* note 270, at 257-58.

³⁴⁵ See ARTHUR M. OKUN, *EQUALITY AND EFFICIENCY* 91-95 (1975).

³⁴⁶ See RAWLS, *supra* note 64, at 395-99.

reason to posit that the past, by virtue of its timing alone, has a political wisdom greater than the present. Yes, they may have gotten it right back then, but not just because it was back then. If, in fact, they got it wrong, let us not hesitate to change it. Nor does the Rawlsian raise the red flag when considering social change beyond the incremental. Though substantial change requires rigorous analysis, the Rawlsian is not dispositionally timid about the endeavor.

Liberals struggle with the self-interest of human nature found in evolutionary analysis and libertarian precepts. While Rawls copes with this by placing society's founders behind a veil of ignorance that keeps from them knowledge of their own self-interest, once the social contract is in place, the self-interest of government agents and private citizens still must be managed. Insofar as human foibles are the product of nature, they seem more difficult to counter. We are not about to reprogram genes. Not yet, anyway. On the other hand, to the extent that behavior is a product of nurture,³⁴⁷ then the maintenance of cultural influences to counter antisocial conduct appears, intuitively, more within reach. Not that environmental inputs to human development are easy to control, but, on first impression, they seemingly are easier to affect than are genetic inputs.³⁴⁸ In a proper environment, suitable behavior by citizens and governmental agents will flourish.³⁴⁹

Elementary Rawlsian and evolutionary premises have little in common. On the surface, the Rawlsian finds nothing about evolutionary principles that particularly supports or parallels liberalism. As noted, while Rawls begins his theory with a Kantian, individualistic premise,

³⁴⁷ While "[t]he nature-nurture problem is the central and essential issue that has to be settled for every aspect of human behaviour and psychology," PLOTKIN, *supra* note 5, at 70, the interrelationship between nature and nurture makes it misleading to refer to one or the other factor in isolation, *see id.* at 36-71. In sum, as nested hierarchies "[n]ature and nurture are inextricably enfolded within one another because nurture has nature, and yet nature must be nurtured and nurture is a part-cause of nature." *Id.* at 68-69.

³⁴⁸ This assertion is a bit conclusory. Since the beginning of the Darwinian revolution, there have been commentators and politicians who claim, under the label of "eugenics" ("good genes"), that regulating whose genes remain in the gene pool is a realistic undertaking. The most infamous of these persons is, of course, Hitler. With Hitler as the best known champion, the eugenics movement is pretty much moribund. For an extended elaboration of the often sorry, misguided mission of eugenics, see KEVLES, *supra* note 233, for a brief summary, see POSNER, *supra* note 153, at 429-31, and for a nuanced examination of the current pros and cons, see ALLEN BUCHANAN ET AL., FROM CHANCE TO CHOICE: GENETICS AND JUSTICE (2000).

³⁴⁹ Later I question whether natural dispositions are always harder to temper than are nurtured ones. *See infra* note 389.

thereby possibly implying a Darwinian individual-centered, bottom up social structure, his social contract turns away from this orientation towards egalitarianism and public choice. There is no special virtue in historical solutions to social problems, or cautious, incremental change. Nor does the Rawlsian believe that the overreaching of self-interested governmental agents is so great a problem as to disable proper public projects. On the other hand, a deeper examination of evolutionary theory may well afford support for liberalism. For example, insofar as group selection comes into play,³⁵⁰ or cooperation proves beneficial to individual reproduction,³⁵¹ liberalism may find grounding. But this requires sophisticated analyses and extended arguments that appear rarely, if ever, in the political wars fought in the popular media, where it counts most. A ten second sound bite will not suffice. Perhaps it is because liberals find so little in common with the basics of evolutionary theory that they are the most vocal critics of sociobiology.

In the end, it seems that most politically sophisticated observers have things to like and dislike about sociobiology.³⁵² But some have much more to like or dislike than others. To summarize, below is a chart of the way in which the main threads of evolutionary theory relate to the four general political orientations discussed above: Lockean libertarianism, Smithian political economics, Burkean communitarianism, and welfare state (Rawlsian) liberalism. Because some of the leading critics are Marxist, this orientation, though communitarian, is also charted, but separately. The main threads identified are that selection takes place at the level of the individual or gene, and that the evolutionary process is path dependent, satisficing, jerry-built, and incremental. It will be seen that liberalism finds nothing

³⁵⁰ See *supra* note 235.

³⁵¹ See, e.g., BUSS, *PSYCHOLOGY*, *supra* note 8, at 254; FRANK, *supra* note 34, at 32. Reciprocal altruism may drive cooperation. See, e.g., BUSS, *PSYCHOLOGY*, *supra* note 8; TRIVERS, *supra* note 19, at 361; WILSON, *supra* note 23, at 120-21. See generally CHRISTOPHER BADCOCK, *EVOLUTIONARY PSYCHOLOGY* 72-110 (2000) ("The Evolution and Psychology of Co-operation").

³⁵² Richards maintains that, though "evolutionary theory is not compatible with every social and moral philosophy, it can accommodate a broad range of historically representative doctrines." Richards, *supra* note 44, at 267. Hrdy, rejecting the view that sociobiology is inherently sexist, or that its supporters are more so than other scientists, cautions that "it is all too easy to forget, while quaking, that sociobiology, if read as a prescription for life rather than a description of the way some creatures behave, makes it seem bad luck to be born either sex." SARAH BLAFFER HRDY, *THE WOMAN THAT NEVER EVOLVED* 14 (1981).

particularly attractive in evolutionary theory, and Marxism has much to dislike.

		Threads of Evolutionary Theory	
<i>Political Orientations</i>		<i>Individual (gene) centered</i>	<i>Path dependent, satisficing, jerry-built, incremental</i>
Conservative	Lockean (libertarian)	pro	neutral
	Smithian (economic)	pro	pro
	Burkean (communitarian)	anti	pro
Liberal	Welfare-statist (Rawlsian)	neutral (anti?)	neutral
	Marxist (communitarian)	anti	anti

B. Political Tactics

The main tactic employed by critics of sociobiology is to deny that observed human behavior has been demonstrated to be a product of Darwinian principles.³⁵³ Indeed, the critics may concede, sociobiologists are talented at explicating in evolutionary, adaptationist terms particular conduct, such as the statistical behavioral differences between men and women, but these are simply “just-so” stories conveniently rationalized to fit the perceived facts.³⁵⁴ If the facts turn out differently from those

³⁵³ In his sustained attack on sociobiology, Kitcher identifies the central theme: “The dispute about human sociobiology is a dispute about evidence.” KITCHER, *supra* note 13, at 8 (emphasis omitted); see, e.g., GOULD, *supra* note 14, at 244-45; LEWONTIN, *supra* note 90, at 94-100; Janna L. Thompson, *Human Nature and Social Explanation*, in *AGAINST BIOLOGICAL DETERMINISM*, *supra* note 13, at 30, 35.

³⁵⁴ See, e.g., LEWONTIN, *GENES*, *supra* note 11, at 258-64. Sociobiologists, it is said, are too quick to find behavior adaptive, when, instead, it may simply be neutral with respect to evolutionary pressures, or even disadvantageous. For example, Rose accuses sociobiology of “ultra-Darwinism” which includes, as one of its premises, that “[e]very observable aspect of the phenotype of an organism—its biochemistry, its form, its behaviour—is in some way adaptive.” ROSE, *supra* note 11, at 210. For extended discussion, see *id.* at 209-49. Especially since there have, indeed, been abuses, caution against overly adaptationist explanations is proper. See, e.g., DENNETT, *supra* note 2, at 485-91; FAUSTO-STERLING, *supra* note 142, at 168-73; FRANCOIS JACOB, *THE POSSIBLE AND THE ACTUAL* 20-21 (1982); Frans B.M. de Waal, *A Natural History of Rape*, N.Y. TIMES, Apr. 2, 2000, at 24 (Book Review Section). But some critics, including Gould and Lewontin, have gone too far. See, e.g., ALEXANDER, *supra* note 163, at 17-19. “Just-so” stories have their place in evolution science. See BONNER, *supra* note 163, at 61 (“The only rule that must be obeyed is to make clear one

first theorized or observed, the evolutionary principles are flexible enough to allow new predictions in conformance with the state of knowledge. "You want an explanation? I've got one for you. . . . There, now the principles fit the facts, just-so."

This criticism is frequently well based. Imaginative evolutionary reasoning can often make scrutable the unpredicted or unassimilated.³⁵⁵ In Wilson's words, "[p]aradoxically, the greatest snare in sociobiological reasoning is the ease with which it is conducted."³⁵⁶

Over this gambit of specious verification of sociobiology hangs the specter of using the conclusions for unacceptable purposes. History reveals that, if correct, sociobiology is "dangerous knowledge."³⁵⁷

is making a hypothesis; there can be no certainty until one has provided some real evidence."); DANIEL C. DENNETT, *Julian Jaynes's Software Archeology*, in *BRAINCHILDREN*, *supra* note 155, at 121, 124-25. Even Gould is willing to support an admitted "just-so" story if he finds it sufficiently persuasive, *see* STEPHEN JAY GOULD, *Can We Truly Know Sloth and Rapacity?*, in *LEONARDO'S MOUNTAIN OF CLAMS AND THE DIET OF WORMS* 375, 384 (1998), and "himself has spent much of his professional career producing such just so stories," David Hull, *Historical Entities and Historical Narratives*, in *MINDS, MACHINES AND EVOLUTION*, *supra* note 222, at 17, 32. In sum, "[t]he 'just-so story' epithet is one of the most successful derogatory labels ever invented, having entered common parlance as a name for any explanation about behavior, especially human behavior, that some wishes to dispute." ALCOCK, *supra* note 13, at 64; *see id.* at 64-73.

³⁵⁵ *See, e.g.*, KONNER, *supra* note 18, at 18; Lewontin, *supra* note 18, at 213, 228-30. Even if this is true, nothing crucial to the main thrust of sociobiology requires all traits to be adaptive. Even if most behavior is nonadaptive, that which is in fact subject to evolutionary pressures remains to be confronted.

³⁵⁶ WILSON, *supra* note 23, at 28. "[S]ociobiology has imprecise results that can be too easily explained by many different schemes." *Id.*; *see* STUART A. KAUFFMAN, *THE ORIGINS OF ORDER* 17 (1993) ("facile constructions of 'just-so' stories plausibly positing a use for a feature in the face of no possible tests at all. . . . has truly been one of the major problems in evolutionary biology"); GEORGE C. WILLIAMS, *ADAPTATION AND NATURAL SELECTION* 251-73 (1966) ("The scientific study of adaptation"); Elliott Sober, *Six Sayings About Adaptationism*, in *THE PHILOSOPHY OF BIOLOGY*, *supra* note 34, at 72, 80-82 (discussing the saying that "Adaptationism is untestable; it involves the uncritical formulation of Just So Stories").

³⁵⁷ *See, e.g.*, GOULD, *Cardboard Darwinism*, *supra* note 187, at 29-30 (quoting KITCHER, *supra* note 13); LEWONTIN, *GENES*, *supra* note 11, at 236-43; WRIGHT, *supra* note 7, at 234 ("Each time advances have been made in understanding of the biological links with behavior, ideologues with extreme positions appear, cheer the new findings, then twist them to their own political agendas."); 6 RESEARCH IN BIOPOLITICS: SOCIOBIOLOGY AND POLITICS, *supra* note 83, at 229-81 (Part III: (Socio)Biology and Politics: The Public Debate of "Dangerous" Ideas); Barker, *supra* note 241, at 11 ("[W]e have already seen the beginnings of sociobiology being put to use in support of the Thatcherite backlash in Britain, and of the anti-feminist backlash in America. And I have deliberately avoided mention of Nazism and associated fascisms[!]. *These ideas are weapons in the hands of activists . . .*"); Arthur L.

Insofar as it is incorrect, it still is dangerous, possibly even more dangerous.³⁵⁸ Correct or not, it might well lead, as it has in the past, to unjust, even fascistic, social policies aimed at “improving” the gene pool or relegating genetic “defectives” to their “proper” place.³⁵⁹ A cursory glance at the outrages of the eugenic movement that sprang up shortly after Darwin’s seminal tract demonstrate this threat.

This criticism is properly cautionary. But the genie of knowledge, dangerous or beneficial, habitually pops out of the bottle, sooner or later. Let us prepare for it. We are less likely to ignorantly pursue harmful wishes.³⁶⁰ Furthermore, who does one want pulling at the cork? Only those with objectionable political agendas?

Caplan, *Introduction to THE SOCIOBIOLOGY DEBATE*, *supra* note 7, at 1, 9; Jones, *supra* note 7, at 275-77 (for example, Nazism and racism); Mary Midgley, *Rival Fatalisms: The Hollowness of the Sociobiology Debate*, in *SOCIOBIOLOGY EXAMINED*, *supra* note 134, at 15, 26 (“[S]ociobiology as a movement is a real menace, because it provides simple-minded people who like the jargon of science with an exceptionally slick set of catchwords and formulae for universal explanation.”); Solomon et al., *supra* note 93, at 273. This concern harkens back “to the exclamation of the wife of the Bishop Wilberforce, upon hearing of Darwin’s view of evolution, that we should pray that it not be true and if it be true pray that it not become generally known.” Richard D. Alexander, *Biological Considerations in the Analysis of Morality*, in *EVOLUTIONARY ETHICS*, *supra* note 44, at 163, 189.

³⁵⁸ See, e.g., STEPHEN JAY GOULD, *So Cleverly Kind an Animal*, in *EVER SINCE DARWIN*, *supra* note 190, at 260, 267 (“If you defend a behavior by arguing that people are programmed directly for it, then how do you continue to defend it if your speculation is wrong, for the behavior then becomes unnatural and worthy of condemnation.”). See generally SEGERSTRÅLE, *supra* note 6, at 386-90.

³⁵⁹ Short of this extremism, there are other concerns. For example, “[o]ne seeming danger in questioning the potency of family experience is the possibility that parents will become negligent if they learn that their daily behaviors are not the only, or the most critical, influence on their children.” KAGAN, *supra* note 140, at 15. Or, “[s]ome commentators predict that when a majority believe that molecules in the brain have a major influence on the experiences of love, joy, and sadness, these emotions will become less beautiful.” *Id.* at 17.

³⁶⁰ Sagan opines that we are better off even with dangerous knowledge, “if we keep before us a keen apprehension of the errors our interest group or belief system has committed in the past.” SAGAN, *supra* note 241, at 279. “And again, we are not wise enough to know which lies, or even which shadings of the facts, can competently serve some higher social purpose—especially in the long run.” *Id.* Pinker welcomes the new knowledge as “present[ing] opportunities to sharpen our ethical reasoning and put our moral and political values on a firmer foundation.” Pinker, *supra* note 171, at 208. For example, “[i]t is a bad idea to say that war, violence, rape, and greed are bad because humans are not naturally inclined to them.” *Id.* “These are bad ideas because they imply that either scientists must be prepared to fudge their data or we must all be prepared to give up our values.” *Id.* at 208-09.

True, the study of human nature is not physics. The weaknesses of sociobiological reasoning and verification is endemic to the field.³⁶¹ The scientific probe of behavior cannot be refined by creating control groups. Because we are dealing with humans, not rats, we cannot raise one subject in a controlled environment and its twin in the same environment less one input to see what behavioral differences eventuate. Nor can we raise a number of humans, including separated identical twins, in equivalent environments to examine the range of traits that ensue. Many generations must be observed to discern the glacial evolutionary process.³⁶² In the nature of things, the exactitude of the physical sciences is beyond reach.³⁶³ But with time and careful study,

³⁶¹ Lewontin points out some of the main stumbling blocks. See LEWONTIN, *supra* note 90, at 94-100.

³⁶² In Gould's words, "Natural selection can be observed directly, but only in the unusual circumstances of controlled experiments in laboratories (on organisms with very short generations such as fruit flies) or within simplified and closely monitored systems in nature." Gould, *Fundamentalism*, *supra* note 6, at 34.

³⁶³ See, e.g., BRADIE, *supra* note 87, at 130 (noting there are difficulties in treating humans as scientific subjects for required studies); CARTWRIGHT, *supra* note 7, at 80 (distinguishing "theory-down" from "observation-driven" approaches to science, sociobiology falling within the latter); CAVALLI-SFORZA & CAVALLI-SFORZA, *supra* note 206, at 260; DANIEL C. DENNETT, *Self-Portrait*, in BRAINCHILDREN, *supra* note 155, at 355, 360 ("It is only slowly dawning on philosophers of science that biology is not a science like physics, in which one should strive to find 'laws of nature,' but a species of engineering . . ."); ELDRIDGE, *supra* note 11, at 119 ("[Natural selection is] a very different sort of scientific generalization, or 'law,' . . . than what physicists, chemists, and geologists are accustomed to."); MAYR, *supra* note 76, at xiii ("[B]iology [is] a quite different kind of science from the physical sciences; it differ[s] fundamentally in its subject matter, its history, its methods, and its philosophy."); VON SCHILCHER & TENNANT, *supra* note 18, at 2 ("Scientific theories are not all strongly predictive, and do not all deliver deterministic laws. In the case of evolutionary theory in particular, one is more concerned with inference to the best explanation."); WILSON, NATURALIST, *supra* note 257, at 167 (Unlike the performance by most biologists of controlled experiments, the evolutionary biologist "observes the results already obtained, as learned from studies of natural history, and tries to infer the facts that operated in the past. Where the experimental biologist predicts the outcome of experiments, the evolutionary biologist retrodicts the experiment already performed by Nature; he teases science out of history."); Hull, *supra* note 354, at 17. Gould writes that the most prominent reasons sociobiology is amenable to "just-so" stories are: "(1) We have so little data about a slow-breeding species that cannot be overtly manipulated for experimental purposes. (2) The nongenetic process of cultural evolution often mimics the results of Darwinian (genetic) adaptation. . . . (3) Our inordinate interest in *Homo sapiens* . . ." GOULD, *Cardboard Darwinism*, *supra* note 189, at 33-34. This first reason, he states, creates a "particular dilemma" for studying human sociobiology. *Id.* at 34. Yet one doubting critic notes that "the difficulty of a scientific objective is not a warrant for its abandonment. . . . There are comparable, or greater, difficulties with understanding such problems as speciation, the evolution of sex, and the origin of life." ROSE, *supra* note 6, at 170. "[I]f enough care is taken, there is no

one can make progress in determining the validity of sociobiological principles,³⁶⁴ just as it has been made in the other social and historical sciences. Many sociobiological hypotheses are falsifiable, and others can be challenged by unpredicted statistical anomalies.³⁶⁵ We must proceed slowly with our conclusions, but still, for the sake of knowledge and the

fundamental scientific reason why human behavior cannot be discussed by evolutionary biologists." *Id.*

³⁶⁴ Perhaps I should put the word "validity" in scare quotes, for arguably biology is ultimately grounded on a coherence theory of truth, not a correspondence theory, see RUSE, *supra* note 30, at 202, or perhaps on a combination of coherence and correspondence, see RUSE, *supra* note 8, at 236-37. For a brief discussion of coherence, see Aleksander Peczenik, *Weighing Rights*, in ENLIGHTENMENT, RIGHTS AND REVOLUTION: ESSAYS IN LEGAL AND SOCIAL PHILOSOPHY 175, 194-95 (Neil MacCormick & Zenon Bankowski eds., 1989). For other limitations to biological reasoning, see ALEXANDER ROSENBERG, *Limits to Biological Knowledge*, in DARWINISM IN PHILOSOPHY, SOCIAL SCIENCE AND POLICY, *supra* note 290, at 58. For a noted example of experiments supporting a sociobiological argument (i.e., that the brain is not a general purpose calculating machine but rather a collection of specialized, interrelated modules evolved to cope with recurring adaptive social problems), see Cosmides & Tooby, *supra* note 162, at 163.

³⁶⁵ See ALEXANDER, *supra* note 1, at 202-03 ("[E]volutionary hypotheses can be tested, and, of course, they only become useful when they become testable. Means of falsification exist in many cases, and in others deviations from expectations on the basis of chance can be shown to be highly significant. Both points are demonstrated in this book."); Michael Ruse, *Sociobiology: A Philosophical Analysis*, in THE SOCIOBIOLOGY DEBATE, *supra* note 7, at 355, 364-66 (sociobiology is falsifiable). For an example of a falsifiable study of whether human behavior predicted on Darwinian principles actually occurs, see LAURA L. BETZIG, *DESPOTISM AND DIFFERENTIAL REPRODUCTION* (1986) (predicting that despotism and polygyny will coincide). To overcome the snare of the "advocacy method of developing science," Wilson advocates the employment of the "techniques of postulational-deductive model building" and the utilization of "the procedures of strong inference." WILSON, *supra* note 23, at 28. Lumsden and Wilson acknowledge the need for human sociobiology to satisfy the three scientific services of, first, "deriv[ing] rigorous propositions that are the unexplained axioms of other theories in the social sciences," second, "achiev[ing] a level of predictiveness and testability greater than that provided by other modes of explanation," or at least unifying the underlying assumptions of other social science disciplines, and third, "suggest[ing] new questions and problems," along with "identify[ing] previously unknown parameters and laws" that can be interwoven "into a network of verifiable explanation from genes through the mind to culture." LUMSDEN & WILSON, *supra* note 150, at 343. On the other hand, while Mayr points out that Popper's standard of theory falsifiability "is particularly ill-suited for the testing of probabilistic theories, which include most theories in biology," MAYR, *supra* note 76, at 49, "recent authors . . . have shown not only that the historical-narrative approach is valid but also that it is perhaps the only scientifically and philosophically valid approach in the explanation of unique occurrences," *id.* at 64. "It is, of course, never possible to prove categorically that a historical narrative is 'true', . . . [y]et every narrative is open to falsification and can be tested again and again[!]" *Id.* at 64-65. "In biology a plurality of causal factors, combined with probabilism in the chain of events, often makes it very difficult, if not impossible, to determine *the* cause of a given phenomenon." *Id.* at 68.

benefits it may offer us,³⁶⁶ including the rebuttal of unjust moral claims,³⁶⁷ we must proceed.³⁶⁸

Some critics go beyond the assertions that sociobiology has not been demonstrated, perhaps cannot be demonstrated, and has dangerous implications. They assert that human behavior, because of our power to reason, is no longer subject to the evolutionary forces impinging on less complex life forms. Our brains make us qualitatively different from other organisms, freeing us from at least some of the relentless pressures of evolutionary mechanisms.³⁶⁹ In response, it must be admitted that, while one may doubt humans are qualitatively different from other animals,³⁷⁰ indeed this is possible. But the contention that Darwinian forces impinge on the characteristics of all life forms on earth, perhaps in

³⁶⁶ For example, the "behavioral genetics perceptions" "should change the way each of us thinks about our wants, our decisions, our emotions, our responses—change the way we view all the dynamic mechanisms that make us who we are. It might also have the humbling effect of making us less quick to assume a purely rational basis to our every thought, action, and emotion." WRIGHT, *supra* note 7, at 260. For other prospective benefits, see *infra* notes 387-401 and accompanying text (antepenultimate paragraph).

³⁶⁷ See VON SCHILCHER & TENNANT, *supra* note 18, at 160 ("The proper antidote to neo-fascist abuse of this new theory of human nature [i.e., sociobiology] ought surely to be a fuller understanding of its scope and limits."); cf. PINKER, *supra* note 6, at 47 ("The debate over human nature has been muddled by an intellectual laziness, an unwillingness to make moral arguments when moral issues come up.").

³⁶⁸ In response to the threat of the dangerous knowledge of sociobiology, one commentator observes that "things are as they are no matter what we might wish. We ignore facts and avoid controversy at our own risk." THIESSEN, *supra* note 107, at x. On the other hand, Teiresias famously stated in *Oedipus Rex*, "Alas, how terrible is wisdom when it brings no profit to the man that's wise!" SOPHOCLES, *OEDIPUS THE KING* 99 (David Grene trans., 1942). Thiessen states that sociobiology is not "inherently malevolent" but merely subject to misapplications similar to the environmental and ideological theories that have brought us genocide and misery "for religious, moralistic, political, and ideological reasons." *Id.* In general, "Darwin's Specter is neither an evil ghost, nor an angel. It is instead an ambiguous and troubling apparition, from which we might learn much." ROSE, *supra* note 6, at 4. Owen Jones observes that "the pre-Darwinian myths that *Homo sapiens sapiens* differs from other animals in kind, not just in degree, and that the obvious influence of human mind on behavior means that all human behavior obviously comes from mind" creates a "comfortably closed" system that is convenient for the law. Owen D. Jones, *Genes, Behavior, and Law*, 15 POL. & LIFE SCI. 101, 102 (1996); see GOULD, *supra* note 190, at 251, 258 ("If genetic determinism is true, we will learn to live with it as well.").

³⁶⁹ See, e.g., GOULD, *MISMEASURE*, *supra* note 138, at 354 ("Human uniqueness resides primarily in our brains. It is expressed in the culture built upon our intelligence and the power it gives us to manipulate the world. Human societies change by cultural evolution, not as a result of biological alteration.").

³⁷⁰ For doubts that humans are qualitatively different, see, for example, DONALD R. GRIFFIN, *ANIMAL MINDS* (1992).

the universe,³⁷¹ except for the behavior of those that can reason, advances an exception to the general rule that should carry with it the burden of proof.³⁷² This reminds one of planetary epicycles.³⁷³ Ockham's razor and the aesthetics of parsimony must be parried.³⁷⁴ The avowal that

³⁷¹ That the principles of natural selection are universal, see, for example, GARY CZIKO, WITHOUT MIRACLES: UNIVERSAL SELECTION THEORY AND THE SECOND DARWINIAN REVOLUTION (1995); DAWKINS, RIVER, *supra* note 22, at 135-61; PLOTKIN, *supra* note 20, at 59-101; Richard Dawkins, *Universal Darwinism*, in THE PHILOSOPHY OF BIOLOGY, *supra* note 34, at 15.

³⁷² "[S]pecies chauvinism'—the idea that evolutionary biology applies to every species on the globe except for *Homo sapiens sapiens*—is the modern version of the belief that the Earth is the centre of the universe." JEROME H. BARKOW, DARWIN, SEX, AND STATUS 41 (1989). As one of the leading biologists observes about supposed genetic influences on human behavior, "it would be very odd indeed if this assumption were not true. In other animal species, genetic variance for behavioral traits can be readily found, and I shall assume that the same is true for man until a good reason is provided for supposing otherwise." Maynard Smith, *supra* note 259, at 28. Another leading biologist asserts that, like physical traits, "behaviours and emotions can also be homologous—that is, they can have a common evolutionary origin from which continuous threads of their modification lead to the examples we see. Practically none of our basic behaviour, perhaps only our linguistic behaviour and even that uncertainly, is wholly unique to humans." W.D. HAMILTON, *Altruism and Related Phenomena, Mainly in Social Insects*, in NARROW ROADS OF GENE LAND, *supra* note 107, at 255, 259; see also LIONEL TIGER, MEN IN GROUPS 2 (1969) ("To accept the existence of physical similarities [between humans and other primates] in fact but to deny in principle the behavioural ones involves an unjustified divorce of physical structure from behavioural function."); Jones, *supra* note 7, at 274 ("Yet while it is theoretically possible that humans may somehow have evolved to the point where there is no biological basis for any human behavior, there is no reason—none at all—to establish this self-serving presumption. Deviation from the norm, not conformance with the norm, bears explanation and justification."); Jones, *supra* note 17, at 1154 (Pure environmentalism "requires a theory (to date unarticulated and suspiciously bootstrapping) that could explain the process by which a species could evolve beyond the influence of the processes that shaped it."). However, in elucidating these traits, Maynard Smith urges, in light of the substantial environmental influences on behavior, "we must be modest." Smith, *supra* note 259, at 29. Even Kitcher, one of the harshest critics of sociobiology, concedes that "it is possible that we might some day achieve justified conclusions about the evolution of some aspects of human behavior." KITCHER, *supra* note 13, at 131.

³⁷³ Gould refers to this claim that critics of sociobiology fall into "the oldest of Western cultural traps—the desire to keep humans apart from nature and free from her mechanisms" but responds by noting that "*Homo sapiens* is not the only, simply the most prominent, victim of pop sociobiology." GOULD, *Cardboard Darwinism*, *supra* note 187, at 34. He cautions against "the deepest cultural prejudice of all: our almost desperate desire to make humans special and superior among the animals of our earth." GOULD, *Protagoras*, *supra* note 187, at 69. "We must recognize the elements of continuity that exist between the social behavior of human and other animals Still, we cannot stretch our ladder of extrapolation from amoebae to monkeys and up to people." *Id.* Culture makes us different. *Id.*

³⁷⁴ Owen Jones raises this argument against those who dispute biological factors in rape. See Jones, *supra* note 143, at 899. Elsewhere he contends that the continuation of the

humans are unique suggests a “just-so” story, independent of demonstrated fact, that seems to conveniently satisfy the claimant’s apparent hopes.³⁷⁵ It parallels and smacks of the religion-based claim that humans are special because God made them so. Humans may well be special,³⁷⁶ but the scientific method requires more authority than ancient texts or wishful thinking provide.

Of course, all reputable political theorists, whatever their orientation, assert that behavior is a product of both nature and nurture, but often it is convenient to the persuasion, propaganda wars for conservatives to emphasize nature and liberals to emphasize nurture. For this reason, liberals perceive sociobiology as a threat.³⁷⁷ It pushes the natural components of behavior into the spotlight. Nurture is not moved off stage, but the quick inference from sociobiology is that nature is so prominent as to very substantially raise the cost, perhaps to exorbitant levels, of freeing or moderating certain human conduct.³⁷⁸

How, then, are liberals to defend their platform if the basic sociobiological tenets prove, beyond reasonable debate, to be the case? It

historical influences of evolutionary processes on human behavior is “overwhelmingly” probable. See Jones, *supra* note 17, at 1152-55. For the values behind scientific explanations, see, for example, RUSE, *supra* note 8, at 32-34.

³⁷⁵ That it is also easy to make up anti-adaptationist “just-so” stories, see Sober, *supra* note 356, at 82.

³⁷⁶ One sociobiologist insists that “the total combination of selective pressures has produced an information-processing capacity in *Homo sapiens* which has emergent properties not reducible to any theory of selective pressures.” Barkow, *supra* note 185, at 180. This capacity facilitates the generation of cultures, “which themselves evolve in historical processes that, while perhaps lawful, are not reducible to ‘nothing but’ considerations of inclusive fitness.” *Id.* For “emergent phenomena,” see *id.* at 184-85. See also STEWART & COHEN, *supra* note 137, at 64-65 (mind, consciousness and culture are emergent phenomena not fully subject to reductionist analysis). For a specific rejection of the irreducible, emergent quality of culture, see BONNER, *supra* note 139, at 7-9.

³⁷⁷ One commentator, in concluding a book on the sociobiological input to morality, notes the relationship between scientific sociobiology and conservatism, and opines that, despite the moral disclaimers of sociobiologists, “on the whole, we had better watch out.” B.A.O. Williams, *Conclusion* to MORALITY AS A BIOLOGICAL PHENOMENON, *supra* note 93, at 275, 285.

³⁷⁸ Wilson believes that some behavioral modifications are infeasible. See WILSON, SEARCH, *supra* note 83, at 94 (While “[g]enetic biases can be trespassed, passions averted or redirected, and ethics altered . . . , the mind is not infinitely malleable.”). Even Kant, the unmitigated deontologist, though he “warns political theorists against rejecting theories simply because they appear infeasible, . . . he agrees that, in the final analysis, a reasonable political theory recommends only institutional arrangements that are possible and practicable.” Juha Räikkä, *The Feasibility Condition in Political Theory*, 6 J. POL. PHIL. 27, 27 (1998).

seems to me that liberals must then acknowledge and address the additional difficulties wrought by nature to using government regulation and cultural channeling to control antisocial behavior, encourage beneficial conduct, and facilitate individual autonomy, success, and flourishing.³⁷⁹ In fact, much can be said for biting this bullet before the scientific debate is settled. I say this, first, as one who believes that sociobiology is likely to have much truth on its side. Overstatements

³⁷⁹ This is the clarion call of Singer's recent book. "It is time for the left to take seriously the fact that we are evolved animals, and that we bear the evidence of our inheritance, not only in our anatomy and our DNA, but in our behavior too. In other words it is time to develop a Darwinian Left." SINGER, *supra* note 259, at 6. Wilson takes Rawls to task for this failure: "While few will disagree that justice as fairness is an ideal state for disembodied spirits, the conception is in no way explanatory or predictive with reference to human beings. Consequently, it does not consider the ultimate ecological or genetic consequences of the rigorous prosecution of its conclusions." WILSON, *supra* note 23, at 562. For Singer's Darwinian left platform, see SINGER, *supra* note 259, at 60-63.

Thomas Nagel, acknowledging that "[t]here may be biological obstacles to the achievement of certain kinds of moral progress," as there are psychological ones, concludes that this does not make the obstacles insurmountable. T. Nagel, *Ethics as an Autonomous Theoretical Subject*, in MORALITY AS A BIOLOGICAL PHENOMENON, *supra* note 93, at 196, 204. "They must be recognized and dealt with by any moral theory that is not utopian." *Id.* "[M]orality, like any other process of cultural development, must reckon with its starting points and with the nature of the materials it is attempting to transform." *Id.* Alice Rossi states that "[i]gnorance of biological processes may doom efforts at social change to failure because we misidentify what the targets for change should be, and hence what our means should be to attain the change we desire." DEGLER, *supra* note 256, at 320 (emphasis omitted) (quoting Alice S. Rossi, *Gender and Parenthood*, 49 AM. SOC. REV. 1, 11 (1984)); see also SINGER, *supra* note 259, at 15 ("[A]n understanding of human nature in the light of evolutionary theory can help us to identify the means by which we may achieve some of our social and political goals, including various ideas of equality, as well as assessing the possible costs and benefits of doing so."); Elliott, *supra* note 7, at 606 ("It may be that judges should understand what is built into the biology of the species because it is going to be more difficult, or take more social energy, for the law to go against what is build into us as a species."); Jones, *supra* note 7, at 280 (Even if society chooses to ignore the sociobiologically predicted fact that stepparents are less nurturing than natural parents, "we would by virtue of an evolutionary perspective more accurately perceive some of the potential costs of inaction . . ."). On the other hand, Susan Oyama is unimpressed with such urgings, fearful of the hidden agenda beneath them. She finds that, partially to dissociate themselves from the reactionary strands of biopolitics, theorists commonly "declare their liberal values, deny that biological treatments are necessarily either deterministic or conservative, and emphasize that biological explanation is not the same as moral approval. Then the theorists typically call on us to know our natures in order to transcend them." Susan Oyama, *Essentialism, Women, and War: Protestng Too Much, Protestng Too Little*, in THE PHILOSOPHY OF BIOLOGY, *supra* note 34, at 414, 417. "At the same time, they often warn against trying to challenge the boundaries and constraints our genes set for us. . . . They advise us to learn what the limits are, and to set our goals with them . . ." *Id.* Touché. But Oyama does not reject the biological approach to human behavior, she simply counsels caution and comprehensiveness. See *id.* at 420-21.

and incorrect tenets have doubtlessly been championed by sociobiologists, but this is to be expected within a new discipline, especially one focusing on the human condition with political overtones.³⁸⁰ Past excesses and mistakes do not justify throwing out the baby with the bathwater.³⁸¹ Human nature, and evolution in general, as historically situated, cannot be studied with the scientific objectivity and controls of physics, but that does not mean they cannot be studied successfully.³⁸² Psychology has also gone through Freudian, behaviorist, and other excesses over the last century, but nevertheless progress has been made in understanding the human psyche. Similarly, anthropology, sociology, and other social sciences lack the predictability and falsifiability of the physical sciences, but they remain valuable sciences still.³⁸³ The strands of Gordian, human behavior are bound to be difficult to unravel, but resort to the sword leaves much potentially useful knowledge in shreds.³⁸⁴ Second, as pure political strategy, it

³⁸⁰ See *supra* note 129.

³⁸¹ See Jones, *supra* note 7, at 271.

³⁸² "[E]volutionary explanation is of its nature *historical*, and historical explanation is not like explanation in physics or chemistry. It deals with the singular and the unrepeatable; it is thus *necessarily* incomplete." Ernan McMullin, *Evolution and Special Creation*, in *THE PHILOSOPHY OF BIOLOGY*, *supra* note 34, at 698, 724. "An evolutionary explanation can never be better than plausible; the real problem lies in discriminating between different degrees of plausibility." *Id.* Gould refers to "an unfortunate tradition of self-hate among scientists who deal with the complex, unrepeatable, and unpredictable events of history." STEPHEN JAY GOULD, *Eight Little Piggies*, in *EIGHT LITTLE PIGGIES* 63, 77 (1993). Though unable to meet the standards of "hard science," "historical science proceeds by reconstructing a set of contingent events, explaining in retrospect what could not have been predicted beforehand. If the evidence be sufficient, the explanation can be as rigorous and confident as anything done in the realm of experimental science." *Id.*

³⁸³ In defending the science of evolution, including geology and most of astronomy, against an attack based on the supposition that scientific knowledge is limited by controlled experiment, Gould contends that "[s]cience is a pluralistic enterprise, validly pursued in many modes. . . . Historical science . . . uses methods . . . [that include] search for an underlying pattern among unique events, and retrodiction (predicting the yet undiscovered results of past events) . . ." GOULD, *supra* note 191, at 234 (reviewing RIFKIN, *supra* note 191).

³⁸⁴ See Runciman, *supra* note 129, at 2.

[T]he more complex the pattern of behaviour, the more difficult it is likely to be to disentangle the effects of genetic, ecological, demographic, and cultural variables. But in social, no less than in biological, anthropology, it is a matter of finding evidence which will enable competing hypotheses to be tested against one another.

Id. Like economists who explicitly or implicitly challenge the critics of economics to come up with a more predictive model, see, e.g., MILTON FRIEDMAN, *The Methodology of Positive Economics*, in *ESSAYS IN POSITIVE ECONOMICS* 3, 15, 41 (1953); POSNER, *supra* note 285, at 16-18; Lionel Robbins, *The Nature of Economic Generalizations*, in *PHILOSOPHY AND ECONOMIC*

seems foolish to base one's entire attack on a particular opponent on the basis of a factual assertion that may well, as some critics concede,³⁸⁵ be incorrect. Should sociobiological principles prove correct, the retrenchment of the liberal position would then appear to be a rationalization aimed simply at bolstering a weakened foundation. It would be easy to portray this retrenchment as a "just-so" story designed to justify a stubborn viewpoint established prior to an understanding of the facts.

As is true of subscribers to any political strand that disagrees with Darwinian principles, in my view, the wary liberals should now confront the political implications of sociobiology head on. One approach echoes the discussion above. Yes, the fact that some personality traits are genetically predisposed complicates the process of coping with them. But this simply should harden the resolve of society to take on the task when sufficiently important:

First, even though there are genetic behavioral dispositions, the antisocial ones raising the specter of illiberal government responses,³⁸⁶

THEORY 36 (Frank Hahn & Martin Hollis eds., 1979), we may challenge the critics of sociobiology to do likewise. See VON SCHILCHER & TENNANT, *supra* note 18, at 154 ("Anyone who has ever read Freud or Marx or Sartre, to name a few of the more influential theorists [of human nature], at least one or two of whom were mildly concerned with the problem of empirical evidence, would perhaps agree that sociobiology does not fare too badly.").

³⁸⁵ The best-known critics of sociobiology do not claim that nature plays no role in establishing human traits. Instead, in accordance with the old nature-nurture controversy, they admit to the inputs of nature, but downplay it in favor of the dominant influence of nurture. They may assert that the role of nature has not been adequately demonstrated by the sociobiologists, instead it has been merely espoused by "just-so" stories, and hence imply that enlightened souls would stick to the problems of nurture. See, e.g., LEWONTIN, *GENES*, *supra* note 11, at 243-90. When explicitly addressing the question of the magnitude of the influence of nature, even sympathetic critics of the immoderate sociobiologists who claim that nature plays a role of up to 80% in determining human traits, see, e.g., HERRNSTEIN & MURRAY, *supra* note 133, at 105-08 (IQ between 40% and 80% heritable), will find some role for nature, see, e.g., CAVALLI-SFORZA & CAVALLI-SFORZA, *supra* note 206, at 272 (30%). See *supra* note 186 (heritability). Even positing a small role for nature is enough to bring to center stage the general claims of sociobiologists. Some scientists argue that the interrelationship between nature and nurture is so intertwined as to render meaningless the controversy over the relative inputs of nature and nurture. See ANTONIO R. DAMASIO, *DESCARTES' ERROR* 110-13 (1994); GOLDSMITH, *ROOTS*, *supra* note 20, at 86-87; see also CAVALLI-SFORZA & CAVALLI-SFORZA, *supra* note 206, at 272-76 (discussing "the imbroglia of heritability").

³⁸⁶ For example, Dreyfuss and Nelkin foresee the enhancement of the punishment of the "genetically disordered" because their prospect for reformation may be reduced, or the imposition of "extreme therapeutic measures such as psychosurgery," in effect creating "a

many or even most of the dispositions may well be of enduring social value.³⁸⁷ A deeper understanding of them may enable their reinforcement.

Second, some of these dispositions are probably no longer even beneficial to individuals. They were fired in the prehistoric kiln of small-group life on the savanna, and now that the human environment has greatly altered, they may prove maladaptive even to individuals, let alone social groups. The better one understands the origins of socially detrimental behavior, beneficial to the individual or not, the better one can cope with it.³⁸⁸

sort of status offense." Rochelle C. Dreyfuss & Dorothy Nelkin, *The Jurisprudence of Genetics*, 45 VAND. L. REV. 313, 330-31 (1992); see RIDLEY, *supra* note 128, at 268-69.

³⁸⁷ For example, Pinker points out that biological urges for bad behavior can be counteracted by other biological urges, such as those "to avoid punishment, condemnation, loss of reputation, loss of self-esteem, and mistrust or abandonment by allies and loved ones." Pinker, *supra* note 171, at 203.

³⁸⁸ See ALEXANDER, *supra* note 163, at 9-10; W.D. HAMILTON, *Selection of Selfish and Altruistic Behaviour in Some Extreme Models*, in NARROW ROADS OF GENE LAND, *supra* note 107, at 185, 191; KONNER, *supra* note 18, at 406; WRIGHT, *supra* note 7, at 259; N.A.C. & W.I., *supra* note 246, at xvi; Roger D. Masters, *Why Study Serotonin, Social Behavior, and the Law?*, in THE NEUROTRANSMITTER REVOLUTION: SEROTONIN, SOCIAL BEHAVIOR, AND THE LAW 3, 4 (Roger D. Masters & Michael T. McGuire eds., 1994); Michael T. McGuire, *Evolutionary Theory and the Limits of Law*, in LAW AND EVOLUTIONARY BIOLOGY, *supra* note 255, at 27, 28. Owen Jones is a leading legal scholar advocating this message. See Jones, *supra* note 17, at 1124; Jones, *supra* note 9, at 285-89; Jones, *supra* note 143, at 853, 907, 909-10, 927-29; Jones, *supra* note 197, at 2072-74, 2098-2101 (reviewing FUKUYAMA, *supra* note 50); Owen D. Jones, *The Evolution of Irrationality*, 41 JURIMETRICS 289, 312 (2001) (positing "the law of law's leverage" that "predicts that less legal intervention will be necessary to shift a behavior in ways that tended to increase reproductive success in ancestral environments than will be necessary to shift behavior in ways that tended to decrease reproductive success in ancestral environments"). Jones asserts that evolutionary analysis, carefully handled, "can serve to: 1) refine behavioral models; 2) generate new legal strategies for regulating behaviors; 3) improve the cost-benefit analyses by which society often prioritizes social and legal goals; and 4) suggest important and promising new areas of research." Jones, *supra* note 17, at 1125. For his model of how this works, with the example of child abuse, see *id.* at 1157-1240. Another interesting example relates to males who, without resources or status, have difficulty attracting mates and therefore engage in risky behavior to improve their reproductive prospects. Insofar as this behavior is antisocial, understanding that its "cause" is not simply inflated levels of hormones admits the prospect of modifications through aiding the males to obtain additional resources and status. See Charles Crawford, *Psychology*, in THE SOCIOBIOLOGICAL IMAGINATION, *supra* note 7, at 303, 307-09. On the down side, similar reasoning suggests that sexual harassment and inequality in the workplace may be particularly difficult to root out. See *id.* at 315; Browne, *supra* note 162, at 971.

Third, even regarding predispositions that remain beneficial to the individual, the interests of society as a whole do not begin and end with the individual in isolation. Of course, human flourishing is the linchpin of social action, but the modern, crowded, diverse world requires cooperation and coordination that may interfere with a person's particular desires. Even in a simple world, group defense and policing are recognized by nearly everyone as necessary checks on human behavior. Modern realities necessitate more.

Fourth, even when behavior nonconductive to human well-being is a product of nurture rather than nature, it still may be hard to modify. As a rule, natural dispositions may be no more difficult to manage than nurtured ones.³⁸⁹ Some natural traits may be fairly tractable, as, perhaps, the primal urge to procreate,³⁹⁰ while some nurtured traits may be

³⁸⁹ Gould provides a prime example: "A twenty-dollar pair of eyeglasses from the local pharmacy may fully correct a defect of vision that is 100 percent heritable." GOULD, *MISMEASURE*, *supra* note 138, at 34; *cf.* AVISE, *supra* note 22, at 146 ("[H]igh heritability does not imply unchangeability."); GOULD, *supra* note 186, at 326 ("Heritability simply isn't a measure of flexibility or inflexibility in the potential expression of a trait."). *But cf.* PETER B. NEUBAUER & ALEXANDER NEUBAUER, *NATURE'S THUMBPRINT* 176 (1990) ("Freud held that those pathological states caused by environmental influences, by trauma for instance, yielded better to therapeutic intervention than those determined by biological disposition, which were unchangeable by analytic therapy."). In light of the malleability of human nature, Beckstrom opines that "sociobiologists have little to offer on the issue of what social goals are unachievable because of human behavioral limitations . . ." JOHN H. BECKSTROM, *EVOLUTIONARY JURISPRUDENCE* 39 (1989) [hereinafter BECKSTROM, *JURISPRUDENCE*]. But then he notes that "[n]o goal is achieved without cost, however. Here is where sociobiological accounts of natural science can clearly make a contribution to social planning—by suggesting costs of any contemplated social programs that planners may want to weigh before embarking on the programs." *Id.*; see ALEXANDER, *supra* note 1, at 220; JOHN H. BECKSTROM, *DARWINISM APPLIED* 2 (1993); BECKSTROM, *JURISPRUDENCE*, *supra*, at 36; John H. Beckstrom, *Law*, in *THE SOCIOBIOLOGICAL IMAGINATION*, *supra* note 7, at 41, 41 (sociobiology could be "facilitative").

³⁹⁰ "The fact that evolution has given us a particular food *preference* leaves entirely open the degree to which eating *behavior* may be modified environmentally. . . . [T]here is no *a priori* reason to assume that the taste must always be more compelling than the [culturally fostered desire for health]." SOBER & WILSON, *supra* note 220, at 302-03. (These authors may not have noticed the recent statistics on the increase in obesity.) "The same point applies to parental care." *Id.* at 303 (discussing the variability of the desire of parents that their children do well). See R.L. Cliquet, *Below-Replacement Fertility and Gender Politics*, in 6 *RESEARCH IN BIOPOLITICS: SOCIOBIOLOGY AND POLITICS*, *supra* note 83, at 91, 99-100 (discussing authors puzzling over reproduction levels in industrial societies below that predicted by evolutionary principles); Wilson, *supra* note 95, at 431 ("Some epigenetic rules are relatively rigid, in other words insensitive to variation in early experience; the avoidance of sibling incest is an example. Others, such as choice of diet, are less rigid and can be altered in desired directions by appropriate training."). Browne points out that the natural urge is for reproductive behavior, not producing children *per se*, which until the

difficult to counter, as, say, the criminal tendencies of those raised in a household and neighborhood of dire poverty, despair, drugs, and prostitution.

Fifth, to the extent that personalities and talents are genetically disposed, it becomes easier to promote a meritocracy that ignores the underprivileged and unusual backgrounds of individuals.³⁹¹

Sixth, while there may be genetic components of important traits for human flourishing, such as intelligence, environment nevertheless plays a substantial role in reducing variations, thereby still grounding liberal programs, such as welfare or Head Start.³⁹²

Seventh, whether particular behavior is largely a product of nature or nurture, its management may well be largely unaffected. For example, irrespective of the causes of antisocial behavior, successful existing preventives, curatives, incentives, and sanctions should remain in place. Indeed, as the origins of antisocial behavior become clearer,³⁹³ new means of coping with it are likely to emerge, but it is hard to foresee

modern availability of birth control was closely tied to spawning children. See Browne, *supra* note 162, at 1003-05. Wilson contends that the more broadly a pattern of traits is found among primates, the more it is resistant to change. See WILSON, SEARCH, *supra* note 83, at 91.

³⁹¹ The genetic component of personality "means there is no excuse for discriminating against people from underprivileged backgrounds, or to be wary of people brought up in unusual families." RIDLEY, *supra* note 128, at 86. Furthermore, "if you want to live in a meritocracy, then you had better not believe in nurture alone, or you will give all the top jobs to those who went to the top schools." *Id.* at 262. In other words, "in a world where everybody gets the same education, the best jobs will go to those with the most native talent." *Id.* at 263.

³⁹² For example, Ridley refers to a study that "found that the heritability of IQ depends strongly on socioeconomic status. . . . Among the poorest children practically all the variability between individual IQ scores was accounted for by shared environment and none by genetic type; in the richer families, the opposite was true." *Id.* at 90. "In other words, living on a few thousand dollars a year can severely affect your intelligence for the worse. But living on \$40,000 a year or \$400,000 a year makes little difference." *Id.* at 90-91.

³⁹³ Thiessen asserts that there are no "criminal genes." THIESSEN, *supra* note 107, at 355. "Rather, there are genes for high-risk behaviors, impulsiveness, hyperactivity, poor judgment, mental dullness, hypersecretion of hormones, low enzyme activity, low anxiety, epilepsy, high or low neurotransmitter activity, poor glucose metabolism, and a number of other conditions that predispose individuals toward erratic, careless, and aggressive acts." *Id.* "Although a hard pill to swallow, it is probably the case that many deviant behaviors of today are only distortions of adaptive responses of yesterday." *Id.* at 360. Now that these behaviors are no longer adaptive, not-so-bitter pills for the antisocial would seem to increase their fitness. On the other hand, perhaps those with low reproductive qualities gain fitness by antisocial behavior. See *supra* text accompanying note 24.

a wholesale rejection of current, demonstrably effective methods resulting from the nature or nurture etiology alone. Hardened dispositions will be difficult to influence irrespective of their causes.³⁹⁴

Eighth, because the sociobiology genie is out of the bottle, like it or not, deeper investigation and education are needed to resist misunderstanding and misapplications.³⁹⁵

Ninth, from a political point of view, social responses to biological dispositions may coincidentally align with the liberal agenda, as where the apparent male disposition towards aggressiveness might be countered by granting women some of the highest diplomatic and military positions.³⁹⁶

³⁹⁴ See MARGARET GRUTER, *LAW AND THE MIND: BIOLOGICAL ORIGINS OF HUMAN BEHAVIOR* 20-21 (1991); Jones, *supra* note 143, at 926 ("Quite simply, when the law encourages behavior to which the human brain is already predisposed, it will be more easily successful than when it attempts the opposite.").

³⁹⁵ For example, Dreyfuss and Nelkin worry about the misconstruction of the scientists' use of statistical correlation by lawyers who reduce it to legal "cause," "thereby losing the probabilistic feature of the scientific claim" and turning it into a material status condition independent of whether the risk will materialize. Dreyfuss & Nelkin, *supra* note 386, at 342. Distinguishing predictive uses of genetic information from explanatory applications, they express concern that simple predictions, such as of dangerousness and ineducability, could "create self-fulfilling prophecies by labeling asymptomatic individuals as 'predisposed.'" *Id.* Although, in contrast, explanatory use of the information may be helpful, as by revising the notion of culpability (e.g., regarding homosexual sodomy laws), and by fostering the alteration of the environment to aid those with biological susceptibilities. *Id.* at 342-43.

³⁹⁶ See KONNER, *supra* note 18, at 420; WRANGHAM & PETERSON, *supra* note 312, at 233 ("Among humans and chimpanzees, at least, male coalitional groups often go beyond defense (typical of monkey matriarchies) to include unprovoked aggression, which suggests that our own intercommunity conflicts might be less terrible if they were conducted on behalf of women's rather than men's interests."). Some early feminists asserted that if women got the vote, their natural peaceableness would change the political landscape, see FAUSTO-STERLING, *supra* note 142, at 124, though the natural differences in aggressiveness between men and women can be challenged, *see id.* at 141-43; R. PAUL SHAW & YUWA WONG, *GENETIC SEEDS OF WARFARE* 179-80 (1989) ("Humanity's propensity for warfare is equally prevalent among women and men."). Of course, the range of the naturally disposed aggressiveness of men and women doubtlessly overlaps, so that the most aggressive women far surpass the least aggressive men. Konner further suggests, as illustrations merely to show that social responses may be liberal rather than conservative, that research into the genetics of intelligence may offer the naturally unlucky the best hope of overcoming their learning disabilities, and that the wealthy and powerful who achieve their success partially through exploiting their natural predispositions should be denied the opportunity to pass their wealth and status to their lesser endowed offspring by means of confiscatory inheritance tax. See KONNER, *supra* note 18, at 420-21. Finally, the liberal agenda regarding family affairs may be bolstered by the genetic influences on human

Tenth, by learning that altruism has a genetic component, the sense of justice is given a solid grounding in human nature.³⁹⁷

Eleventh, understanding that certain undesirable behavior is predisposed rather than simply environmentally induced may help the person surmount it,³⁹⁸ as where it was found that telling people that they were naturally shy helped them to overcome it.³⁹⁹

Finally, there are silver linings for liberals in the lessons of sociobiology, including the rationale for greater tolerance and benevolence regarding hurtful behavior, less blame of caregivers for their maladjusted wards, and decreased personal guilt for those with certain behavioral problems.⁴⁰⁰ Better self-understanding may benefit the individual and those around her.⁴⁰¹

temperament: "Decades of studies have shown that, all things being equal, children turn out pretty much the same way whether their mothers work or stay at home, whether they are placed in daycare or not . . . , and whether they have two parents of the same sex or one of each." PINKER, *supra* note 11, at 386.

³⁹⁷ Trivers made this observation. *See id.* at 111. Trivers, a political radical, also took comfort that the insight that people, including politicians, are disposed to act self-interestedly puts others on guard and that the evolutionary advantages of self-deception "encourages self-scrutiny and helps undermine hypocrisy and corruption." *Id.* "Trivers had argued that sociobiology is, if anything, a force for political progress." *Id.*

³⁹⁸ *See id.* at 165.

³⁹⁹ *See* RIDLEY, *supra* note 158, at 166-67.

⁴⁰⁰ Jerome Kagan, "an aging, politically liberal social scientist, trained to believe in the extraordinary power of the social environment," is occasionally saddened by the lessons of recent years about genetically disposed temperaments, seeing it as "unfair" to those who must struggle against their inclinations, but finds himself more forgiving of the moods and idiosyncracies of friends and family members, and pleased to find reason to counter the "undeserved guilt and sporadic anger" of the schizophrenic, depressed and panic-stricken, and their families, arising from the ascription of the ailments to inadequate caregiving. KAGAN, *supra* note 140, at xxi-xxiii. Pinker observes that "sometimes left-wing positions are right *because* the denial of human nature is wrong," as where wartime killing is justified because the enemy does not value individual lives, or when mothers are blamed for the dysfunction of their children. PINKER, *supra* note 6, at 48; *see* GAZZANIGA, *supra* note 157, at 202 ("Extreme environmentalism is cruel because it suggests to the parent that their [imperfect] child has been warped by something they did."); PINKER, *supra* note 11, at x-xi (The denial of human nature has, among other things, anguished parents and distorted city planning by ignoring human needs.); SEGAL, *supra* note 143, at 314 (reporting that while genetic effects on behavior can be deplorable and frightening for parents attempting to change their children's behavior, it "can also be welcome—even comforting—to people learning that their child's depression or timidity may be linked to genes, as well as to parenting."); WRIGHT, *supra* note 7, at 256, 259 (pointing out that among the benefits "to broad acceptance of the genes-behavior dynamic could be greater acceptance of human differences" and the "potential for dispelling guilt on both the part of those with behavioral

IV. CONCLUSION

Predictably, because sociobiology is perceived to be more useful to some political orientations than to others,⁴⁰² there is a general alignment, oftentimes reflexive, between particular political and sociobiological beliefs. But when the moral overtones of sociobiology are studied with objective care, ideology loses much of its power to steer any normative conclusions.⁴⁰³ Pragmatism will, one would suppose, become the predominant lesson. The aim of the law, regardless of the politics that drives it, is to smooth the path to human flourishing. The first requisite is to understand the nature of the human condition.⁴⁰⁴

problems and on the part of parents who, in the environmental paradigm, have been wrongfully accused of causing it"). Early on, one of Wilson's aims was to "help diminish guilt feelings in parents, making them realize that the eventual outcome [of children's behavior] is a product of both their upbringing and the child's own genetic endowment." SEGERSTRÅLE, *supra* note 6, at 193. There may be a dark lining behind this silver cloud. With the increased sophistication of prenatal screening and testing techniques, "responsibility for the social harm [the genetically disordered] cause may lie with those who brought these individuals into being." Dreyfuss & Nelkin, *supra* note 386, at 331.

⁴⁰¹ For example, Buss reports that "men say that knowledge of evolutionary psychology helps them remain faithful. One told me, 'When I find myself attracted to another woman, I realize that it's just my evolved desire for sexual variety; it doesn't mean I don't love my wife.'" David M. Buss, *Where Is Fancy Bred? In the Genes or in the Head?*, N.Y. TIMES, June 1, 1999, at F5.

⁴⁰² "The April 21, 1997, issue of *U.S. News and World Report* quoted Leon Kamin as saying that the simplest way to discover someone's political leanings is to ask his or her view on genetics. Old myths die hard." WRIGHT, *supra* note 7, at 255 n.*. That sociobiology can support both liberal and conservative politics, see Steven A. Peterson & Albert Somit, *Sociobiology and Politics*, in THE SOCIOBIOLOGY DEBATE, *supra* note 7, at 449, 454-55.

⁴⁰³ See ALEXANDER, *supra* note 1, at 98 ("I had always regarded Darwinism as essentially a way of interpreting history, rather than as a basis for ideology. But if its application to human affairs is widely misinterpreted or misused, then it unavoidably becomes ideological in its effect even if not in the purpose of its practitioners."); WRIGHT, *supra* note 8, at 363.

⁴⁰⁴ See Elliott, *supra* note 7, at 612 (also cautioning against "the Panglossian fallacy: to think that biology can explain everything").