

Problematic Worldviews of Evolutionary Ethics

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The understanding and meaning of ethical judgment are of greatest importance, but should ethics be based on intuition, religion, or scientific knowledge? Is there a relation between ethics and evolution? Can moral behavior and motivation be genetically controlled, and does ethics evolve? If so, can a system of evolutionary ethics be perceived as a legitimate subject of analysis?

In the past these questions either have been answered in the positive or have been vehemently opposed. Evolutionary ethics derived its origin from Herbert Spencer's work in the 1850s and blossomed as Social Darwinism in the later part of the nineteenth and the beginning of the twentieth centuries. Spencer, in his 1892 *Principles of Ethics*, and Haeckel, in his 1899 *Die Weltr thsel*, further developed the notion of evolutionary ethics. These ideas were almost immediately attacked by Thomas Huxley (below) and by G. E. Moore in his 1903 *Principia Ethica*. Huxley objected to Social Darwinism, while Moore's "naturalistic fallacy" claimed that *ought* cannot be derived from *is*, or *ethics* from *facts*.

In the 1940s and through the 1950s, Waddington, Dobzhansky, and particularly Julian Huxley attempted to resurrect evolutionary ethics. Now, probably strengthened by sociobiology and the associated controversies, there is a renewed interest in, and a reexamination of, the possibilities of evolutionary ethics. Presently a rigorous (and emotional) rethinking of evolutionary ethics cuts across political and feminist positions. On the one hand there exists an evolutionary, conservative political view based on evolutionary biology which supports the conservative views of evolutionary ethics (Wilson 1975, 1978, and 1984 sees a good connection between evolutionary ethics and the developments in human sociobiology), but, on the other hand, socialists and even communists have claimed an evolutionary moral ground.

Evolutionary ethics is as urgent now as it was a century ago. The more unknown, complex, and difficult the question is, the harder it becomes to resolve. Disagreement thus occurs before the resolution is reached. Evolutionary ethics is one of those eternal problems that is a subject of great conflict. While our daily ethical difficulties appear easy to resolve, evolutionary ethics stubbornly produces awkward problems, models and worldviews. In fact it is problematic. Different ethical views

may represent different desires and not different values. Questions asked of evolutionary ethics are terribly complex, and many may be without answers, or at least without answers today. What greatly complicates the resolution of the controversies surrounding evolutionary ethics is the misconception that ideas, questions, the meanings of terms and our concepts of the cosmos remain unchanged, while in fact they age and evolve with time. When we will reject or change evolutionary ethics or our explanations of it is philosophically unimportant—that it will change or be rejected is, however, a historical certainty. Questions always change, or become extinct.

Birth of Inquiry

If we accept the theory of evolution, we cannot escape its philosophical conclusions. The origin of species (or rejection of creationism) and natural selection are now accepted concepts, but moral corollaries of the theory of evolution—in the deepest sense its most significant aspects—are still fiercely debated. The contribution of Darwin to biology must not overshadow his influence on ethics. Already in the late eighteenth century morals and behavior were beginning to be considered as subject to natural rather than divine laws, and after the Napoleonic wars the radical physiologists began to biologize ethics and to consider morality a subject for naturalists to examine (Desmond 1989). Thus, there were others before, but it was unquestionably Darwin who, implicitly in the *Origin* and explicitly in the *Descent of Man*, started the great ethical debate (see Richards 1988, 1989, and below). However, it was only in the second half of the twentieth century that Wilson (1975) finally biologized ethics. Now as we approach the end of the century, evolution is heavily influencing all aspects of our life, including ethics.

Thomas Huxley, the first major opponent of evolutionary ethics, sees humanity and the humblest weeds as products of the cosmic process. This process is the blind fury of the unethical universe, "the struggle for existence, the competition of each with all, the result of which is the selection, that is to say, the survival of those forms which, on the whole, are best adapted to the conditions which at any period obtain; and which are, therefore, in that respect, and only in that respect, the fittest" (this volume, p. 32). Humanity, ethics (meaning sympathies and cooperation), and aspirations are antithetic to the cosmic process. His ethical process is the "gradual strengthening of the social bond, which, though it arrests the struggle for existence inside society, up to a certain point improves the chances of society, as a corporate whole, in the cosmic struggle"

(this volume, p. 46). He claims that once this process proceeds far enough, the struggle for existence (or the cosmic struggle or process) stops. He sees the "evolution of society" as an entirely different process from the "evolution of species." His two worldviews, "cosmic process" and "ethical process," are in mortal combat. The meaning of human life is to combat this cosmic process, whose purpose is the survival of the fittest, and to replace it with the human ethical process in which the victory will go to the *survival of ethically the best*. Man must work for the "State of Art" and build the artificial world of ethics within the cosmos, which is hostile to humans and to the human State of Art.

Leslie Stephen, best remembered for his later *The Science of Ethics* (1907), argues against Huxley's terribly pessimistic worldview. Like Huxley, he breaks down the world into macrocosmos versus microcosmos—evolution against human emotions. His reasoning and arguments foretell Dewey. He deals, differently from us, with many present-day problems: the anthropomorphism of terms, altruism and cooperation. His "typical" nineteenth-century racist attitudes are unfortunately similar to those now appearing in the letters-to-the-editor sections.

I have no objection to the use of anthropomorphic terms. Consider the word "parent." A turtle lays eggs; a bird sits on eggs; a domestic cat nurtures the young; a human remains a parent throughout the entire life of the offspring; all are parents, but each in a different sense. We know exactly what human parenting means, just as well as what fish parenting means. Many words, in all languages, have more than one meaning which can be deciphered only from the context they are used. By themselves most words are ambiguous. The fuss raised about their use from one discipline (or meaning) to another is nitpicking. The word most attacked is "altruism." But even human actions have many shades and scales of altruisms. We give Nobel Prizes for saving many lives, not for only one. So there is a "good" and a "very good" altruism. A more important problem is an a priori assumption that nonhumans do not "know" that they are altruistic. I, for one, do not know *whether animals know or do not know* whether they are altruistic. It is possible that many nonhumans "know" what they are doing, and if so their actions are purposeful, and their altruism real.

I am a Deweyan, and I find John Dewey's analysis of Huxley's arguments on evolutionary ethics most convincing. It is surprising how little known Dewey's article is. See, for example, the scholarly book by Rachels who thinks that Dewey "had little to say" about Darwinian evolution (1991:71). To Dewey, Huxley's ethical process is not opposing *all* cosmic purpose, but only that *part* of cosmic process which concerns human behavior in society as against the prehuman evolution. He interprets Huxley's

argument of the garden and the gardener differently and reaches different conclusions. He agrees with Huxley that in ethics as in the garden there must be a constant struggle, but in the garden man is not against the entire state of the nature, but utilizes one part of nature to control another. Everything that gardener introduces—light, water, plants—may be foreign to the particular spot, but they are part of nature as a whole. The conflict is not "between the garden and the gardener; between the natural process and the process of art . . . [but] of reading the possibilities of a part through its place in the whole. Human intelligence and effort intervene, not as opposing forces but as making the connection . . . man is an organ of the cosmic process in effecting its *own* progress . . . making over a part of the environment by relating it more intimately to the environment as a whole; not . . . in man setting himself against that environment" (this volume, p. 98).

In the cosmic process fitness depends on the conditions which include the social structure and, therefore, unfit is antisocial. The struggle for existence and the survival of the fittest *do not* eliminate the weak and the insane, but, on the contrary, looking after the helpless develops those habits "to husband our means, which shall ultimately make us the most skilled in warfare. We shall foster habits of group loyalty, feelings of solidarity, which shall bind us together . . . that no [one] will be able to, withstand us" (this volume, pp. 98-99). It is fallacious to interpret fitness with reference to the past environment; the conditions have changed and "fit" must be now defined in the social environment. Dewey turns from the idea of *fitness* to the process, the *struggle for existence*, which is controlled by the environment where that struggle for life is constantly modified by the conditions.

Problems are usually not solved, but are left behind "not because any satisfactory solution has been reached; but interest [in them] is exhausted" (this volume, p. 95). Other things attracted attention, and the judgment and solutions reached are psychological, not logical. "Old ideas give way slowly; for they are more than abstract logical forms and categories. They are habits, predispositions, deeply ingrained attitudes of aversion and preference. Moreover, the conviction persists—though history shows it to be a hallucination—that all the questions that the human mind has asked are questions that can be answered in terms of the alternatives that the questions themselves present. But in fact intellectual progress usually occurs through sheer abandonment of questions together with both of the alternatives they assume—an abandonment that results from their decreasing vitality and a change of urgent interest. We do not solve them; we get over them. Old questions are solved by disappearing, evaporating, while new questions corresponding to the changed attitude of endeavor and preference take

their place. Doubtless the greatest dissolvent in contemporary thought of old questions, the greatest precipitant of new methods, new intentions, new problems, is the one effected by the scientific revolution that found its climax in the 'Origin of Species'" (Dewey 1910:19).

New Believers

Almost one century separates us from Thomas Huxley, and while the concept of evolutionary ethics has changed, the controversy over it continues. The tone of the discussion is also different. Huxley's English is beautiful, literary, and even emotional, but he is considerate of others and avoids all personal references and attacks. In our next two sections, whether due to the ethos of the time or the personalities involved, the words are fighting and the tone is heated and polemical. The questions have changed so much that the meaning of evolutionary ethics is different. Not natural selection, but sociobiology, is a subject of disagreement.

To an evolutionary ethicist no organism exists alone; two or more organisms together generate a relationship, which when beneficial to the two (or to the group) is "good," and when disruptive is "bad"; the boundaries between the conscious and unconscious behavior are very hazy, or at least not clearly delineated; humans are not subject to any biological or physical law not applicable to other organisms, and all humans obey all biological and physical laws; no human society exists without a system of ethics, which is an internal societal system of control; and, therefore, all human behavior can be reduced to biology. Thus, to an evolutionary ethicist, an animal is comparable to a cell that lives a double life as an independent individual and as an unseparable component of the organism. Humans also lead a "free" life as individuals and a life constrained by society. Neither a cell nor a human can survive alone and neither is independent or free. A cell must obey the rules of the organism, and a human those of the society, including the moral rules. Neither can violate the rules. Moral rules cannot exist among solitary organisms, and are fully developed only in the social life. How an individual (or a cell), ought to behave is determined by the society (or the body). Therefore, to the evolutionary ethicist, humans are, at least in this sense, *animals*.

Robert J. Richards, who has written extensively on evolutionary ethics (1986a, 1986b, 1988, 1989 and references therein), thinks that some contemporary biologists, Gould and Lewontin for example, detect Social Darwinism in evolutionary ethics for

good reason. The interpretation of evolutionized ethics by sociobiologists Wilson, Ruse, and Alexander is not entirely logical to him. However, their feelings about the human condition are humane and their goal of bringing evolution to bear on moral behavior perfectly reasonable. Although Richards somewhat doubts their logic, he believes that their logic can be revitalized and the promise of joining ethics with science can be resurrected. He argues that his version of evolutionary ethics can save it philosophically.

He thinks evolutionary ethics is now a legitimate subject for ethical analysis. He attempts to overcome the objections of the naturalistic fallacies and to show how evolutionary *is* can proceed to moral *ought*. His "revised version" does not commit a naturalistic fallacy and his evolutionary properties motivate us to abide for the good of the community; each person abides for the community good, thus each ought to act altruistically. Moral sense plus social instincts equal moral animals. He links morality to altruism in order for evolutionary *is* to lead to moral *ought*. For a spirited discussion of Richards's (1986a, 1986b) views, see Cela-Conde (1986), Gewirth (1986), Hughes (1986), Thomas (1986) and Trigg (1986).

I would go further than Richards. It is assumed by the opponents of evolutionary ethics that we cannot extrapolate human ethics from animal behavior. But we never do that anyway. Our observations on nonhumans are based on a model that we have of human behavior, which we later extrapolate and apply to animals. Just as the terms inheritance and heredity came to biology from law and tradition, and not the other way around, so the term altruism came from humans to termites.

Michael Ruse, who has produced a great share of ideas on evolutionary ethics (Ruse 1984, 1986a, 1986b, 1987; Ruse and Wilson 1985, 1986, etc.), again argues that the time has come to take the biological origins of morality seriously. Ethics is nothing but a collective illusion of our genes, put in place to make us successful cooperators. This has serious implications for our sense of obligation to strangers.

Michael Ruse proposes that in biology, morality has no rational justification but is used to make us good cooperators. Morality has no objective foundation; we objectify—we think it is objective. He claims that there is an impassable gulf between *is* and *ought*, because our system of ethics is merely an *illusion* used to justify the strong moral objections we feel towards individuals in our own group. Like Richards, Ruse confines evolutionary ethics mostly to altruistic behavior.

Richard Alexander enlarges his earlier ideas (1980, 1987) further. He deals with the biological analysis of morality and the history of sociobiological conflict, and how evolution can be applied to humans and their ethics. He discusses group selection and

ontogeny in depth, and also the nature of organisms, the evolutionary view of morality, and the problem of intent. Efforts by evolutionary biologists to understand human tendencies and abilities encounter many obstacles. The workings of natural selection and the underlying ontogenetic and physiological mechanisms of behavior are difficult and imperfectly understood topics. Students of human behavior typically have little training in biology, and may reject natural selection as a guiding force in the evolution of humans even though accepting it for other organisms. Human efforts for self-understanding are convoluted not only because the properties to be analyzed must be used to conduct the analyses, but because selection seems to have designed human motivation in social matters to be resistant to conscious analysis. Oh, how right he is that moral behavior sometimes demands absence of conscious knowledge or intent, and those who seek to discover how kindness, beneficence, and good fellowship might have been reproductively selfish may be viewed as unduly crediting the dark side of human motivation. The most difficult problems in understanding morality may turn out to be the play between conscious and nonconscious motivation, especially as revealed in expressions of the emotions. Therefore, Alexander's thesis is that evolution poses great problems for ethics. First, how selection serves the interest of others; second, how evolved tendencies can be moral and how to understand them; third, how is ethical intent related to behavior; and fourth, since emotions have evolved why is our control over them so poor? He defends his ideas logically and persuasively argues for the role and control of natural selection.

I believe that learning, observations, and experience are as imprinted upon our minds as genetic factors, and for an equal length of time. However, how they are imprinted and how retained is unknown. What and how we know, and what and how we remember, are secrets we have not yet deciphered. Yet the mind is the only source of knowledge of the cosmos and of our inner world. The knowledge is transmitted to our mind by sense organs; we know a lot about them and about transmission of the information, and we even know the speed with which this transfer is accomplished. But how these are transferred into the "image" of the mind, into the "understanding," the "knowledge" of the cosmos we do not know. Was calculus invented from experience or reason? In fact we are most ignorant of the mind and how it works, and of the nature of our mental life. We cannot tell which of our thoughts are conscious and which subconscious; of which we have control, and which we do not; which are learned and which are rational; and which are free and which are not.

Eddington (1929) taught us that our common sense and our observations may not be right after all, that the cosmos is different from the reality that our senses com-

prehend, and that the table on which we write is an illusion. Dawkins (1976) told us that what matters is within the gene. What was complexity to early observers, for example, the metamorphosis of the flea to Leeuwenhoek, is simplicity today. Now Dawkins resolves the human complexity to the simplicity of genes. These are microscopic explanations of macroscopic phenomena.

Our knowledge of the "minds" of other species is an even greater *tabula rasa*. Unless we learn more about the workings of minds of animals we cannot be certain whether ethics is the sole property of humans. The cosmos may not be as it seems to us at all, perhaps it is only our imperfect interpretation. Everything that we know of cosmos we know only through our senses, and *we understand and interpret the behavior of other species in terms of, and in comparison with, our own behavior*. The interpretation of the behavior of nonhumans, therefore, depends on how well we understand the human mind, and how closely we relate animals to us.

Old Skeptics

Sociobiologists search for the ethical universals in biology. It is certainly now a received wisdom that there are biological bases to human behavior. What is questioned by the opponents of evolutionary ethics is whether human ethical behavior can be reduced to biology, and whether it can be compared with nonhuman behavior. Humans and apes may be similar enough for this comparison to be acceptable, but comparisons with termites, bees, colonial bryozoans, or sponges is a taboo to them.

We recognize and understand intuitively what ethics is; the meaning of the word is clear, and irrespective of the language we speak, we understand it in similar ways. We know and agree what is, and what is not, ethical. Ethics of all people are very similar. Arab ethics is not different from Jewish. There is very little variation and little difference from one people to another in the use and application of ethics, except that humans possess an "inventiveness" in many aspects of ethical behavior which can be called "ethics acquisition." While we learn in childhood to differentiate good from bad, we are able to make ethical judgments on *all* ethical questions only later in life when we make this judgment irrespective of their novelty or complexity. We may either have an *innate* built-in mechanism to make future judgments, or they may be learned, or they may only represent potentialities which develop later in life. But the ability to recognize ethics must be a common property of all humans, a universal property of human mind. There may be ethical criteria and issues that are shared by all

humans and at all times. Therefore, these may be called *universal properties* recognizable by all human beings.

Anthropologists also search for universals. Goldschmidt (1957:67) does not find universal ethics in any culture, except perhaps the universal "general-welfare principle," that is the universal forbidding of anything inimical to the general welfare of the society. Linton (1957), however, accepts the almost unlimited variety of ethical principles, and a fundamental uniformity underlying human cultures, the uniformity of the basic physiological needs. All human societies are based on the same societal organization, operation and perpetuation of the community. While there are differences, Cortez and Pizarro were impressed with the presence of familiar ethical principles. In universal ethical principles the frame of reference must be on society and not on the individual. When society has a particular ethical stand it means that the large majority of the people, and not individuals, accept it. It is the society, not individual who are units of ethics, and "the ethical system functions only in terms of in-groups" (Linton 1957:75), the smaller the social unit, the greater the ethical considerations of the unit. There is a hierarchy of emphasis—the nuclear family, distant relatives, village, etc.—and the ethical standards and enforcement are also hierarchical. Ethical standards are a function of closeness of the group, or its members. Sexual behavior, marriage, parents and children relationship, obligation of siblings, the respect of property, and finally a united front toward outsiders are universal ethical principles. These universals basically concern sexual and family behavior. "Thou shalt not kill" seems also to be a universal ethical property (Linton 1957:82).

Ethical behavior is the behavior which is considered good (that is, approved) at the time of judgment, and, therefore, ethics also differs from one time to another. It was morally wrong for Adam and Eve to eat from the tree of knowledge, but is mandatory now. It was morally right for Abraham to sacrifice his son, but Abraham's obedience to the voice of God would be today considered hallucinations, or an attempted murder, as it is no longer acceptable to sacrifice human beings. Abraham's God was vengeful, and this kind of God is today unacceptable. Can we imagine our baseball or soccer players replaced by gladiators? In the past it was ethically correct to arrange marriages for financial considerations, today we disapprove. All of us respond differently to our ethical demands, however, the pool of the responses is limited by nature and nurture.

Ethical judgments also differ geographically. Consider the opposing views of Israelis and Palestinians. Menachem Begin, a patriotic terrorist, was elected a Prime Minister of Israel, and Yasir Arafat is his Palestinian counterpart. The same action, the

infinita, is held evil by some and virtuous by others. There are no absolute rights or wrongs, but only differences in community ethics at the particular time and place.

Thus, I think that despite the most persuasive and logical arguments of Degler (1991), ethics can be considered universal only in a sense that all humans have ethics. One can argue that all ethics has a common pattern, and that the differences are only superficial reflections of time or geography. Each time and place may superimpose its own function, but not the structure, of ethics. Ethics evolves through time, but ethics of primitive peoples are not qualitatively different from ours; they are only different responses to different needs expressed differently in different times. There are thus many ethics, and many degrees of relatedness and responsibilities, and many hierarchies of these relationships. There may be basic "ethical principles," "ethical instincts," and "wills to ethics." Ethics prescribes the behavior of individuals necessary for the stability and survival of society. Whether ethical thoughts have evolutionary origins, and whether an evolutionary mechanism, or model, can explain the origin of ethics still remains open. Our minds are the same, whoever we are, thus human ethics must be the same. This does not imply universal ethics, but rather common human characteristics.

Elliott Sober has also thought deeply about evolutionary ethics (1984, 1988), and he believes that evolutionary biologists use the terms "altruism" and "selfishness" in a very different way from the way those terms are used in everyday life. The evolutionary concepts have to do with survival and reproduction, but do not imply that the agent has a mind. In contrast, the everyday concepts are psychological in their subject matter and have nothing essentially to do with survival and reproduction.

After having separated the two ideas, Sober considers how they are related. Psychological egoism is the thesis that people are selfish (in the everyday sense of the term). Some recent evolutionary theorists have argued that a characteristic that is altruistic (in the evolutionary sense of the term) cannot evolve and be maintained in a population of organisms. Does this evolutionary thesis imply that psychological egoism is true?

What does it mean to attribute a moral code to someone, and is having a morality the same as being inclined to act altruistically? Sober's general goal is to clarify the question of whether evolutionary theory can help explain facts about human motivation and morality. He is concerned with the relevance of the evolutionary discussion of units of selection to the origin of ethics. He also argues about taboos. In human beings, the behavior is frequently mediated by a system of beliefs, by an incest taboo. An important distinction is between simple altruism and true ethics, and Sober is pulling the rug from beneath the logics of Richards and Ruse by arguing that ethics

cannot be confined to altruism alone.

I agree. Certainly, Sober *must* be right in claiming that there is much more to altruism than acting on a genetic impulse, or satisfying the selfishness of the gene. It is much more, as being human is much more than being a mammal with a certain dental formula. Humanness is above biology. If altruism is an element of cooperation, then it may have evolved by gradual natural selection. Altruistic behavior, whether giving one's life for another or giving breast to the child, is, by definition, detrimental to the donor; energy to produce milk could be spent in other ways. At a certain stage (in social animals, whether corals, ants or humans) the will to reproduce requires "altruism." Energy is spent for existence of future generations. As Mayr states, "the shift from an instinctive altruism based on inclusive fitness to an ethics based on decision making was perhaps the most important step in humanization" (1988:77). It is this shift that marks the demarcation point between *Homo sapiens* and other animals. But much of altruistic human behavior may be automatic. Soldiers seldom make a conscious choice, neither do army units opposing each other. One will be defeated, the other will be victorious, therefore, one made a more rational decision than the other.

George C. Williams knows Huxley well (see Paradis and Williams 1989). He is as pessimistic as Huxley (above) in accepting that the cosmos is hostile to human ethical standards. Natural selection, as Shaw recognized, is to him a morally unacceptable process. None of the conceptual advances of recent decades ameliorate these conclusions. Williams's examination of animal behavior, tribal human behavior, and other biological processes shows that gross violations of ethical norms are the general rule. This he illustrates by a few examples of mammalian infanticide.

George Williams holds that it is equally true that the cosmos in general, and even the earth in general, is hostile to the origin and maintenance of life. Organisms exist only because of their adaptation to a mainly hostile environment. Henderson's (1913) *The Fitness of the Environment*, and recent works in the same tradition, are based on grossly biased data and failure to appreciate the one-sided nature of biological adaptation. Williams argues this point from the data of physics, chemistry, and astronomy, and from community trophic structure.

Evolution (i.e., natural selection) is not ethical. Williams answers in the negative the big question of whether nature can provide analog and guidance to ethical decisions or, otherwise whether human moral impulses evolved.

Patricia Williams believes that Ruse and Wilson have developed a theory which suggests that at least some human ethical dispositions are the products of evolution. They recommend that we follow those dispositions, at least in part, because our evolved

ethical dispositions are sufficiently strong so that not following them will lead to psychological and social stress. Patricia Williams challenges that recommendation philosophically, in two connected paths. First, if our evolved ethical dispositions are so strong that we are constrained to follow them, then we are not free agents. But beings who are not free cannot be ethical, for freedom to chart one's course is the fundamental requirement for being ethical. Beings who have great difficulty sailing except with the evolutionary current, therefore, can hardly be ethical. Secondly, if we are not strongly constrained to follow our evolved ethical dispositions, then not following them will produce, at most, only minimal psychological and social stress. In this second path, we are free to choose, and, therefore, are ethical. But if we have the freedom to chart our own course, then reason may tell us where to sail, and whether our heading is with or against the evolutionary current need not be relevant to our chosen direction.

I think that we only accept conscious behavior as ethical and rational. However, much human "ethical" behavior may be intuitive, not the result of thoughtful deliberations and, therefore, subject to physiological analysis. There are two components to this problem: behavior, and the interpretation of the behavior. Behavior is not ethical or unethical, it is ethically neutral. What is ethical is our interpretation that assigns ethical values to behavior. Ethics is in the eyes of the judge. The things that are uniquely human are by definition biological properties of *Homo sapiens*. If all humans have them, they have scientific meaning. The unquestionable moral behavior is that which is directed by love, hardly a rational motivation. Therefore, the deep meaning of ethics is not in the behavior, but in thoughtfulness, intentions, or a state of mind. Repentance, and listening to one's consciousness may be enough. Patricia Williams is right that for action to be moral there must be no coercion into doing it, and it must be done on free will. But it is less certain whether, as the critics of evolutionary ethics claim, acting under the constraints of evolution cannot be free because genetic determinants are outside of our control and thus we cannot take responsibility for them. Just because our hearts or our legs may restrain our freedom they are still ours and part of us, and, therefore, whether or not we depend on them they do not deprive us of moral choices. Whether or not we need oxygen to breathe is irrelevant to our moral choice.

It may be an error to think that because biology restrains us we cannot be responsible, or moral. We can be moral whether or not biology controls us. We can be moral whatever sex we are.

Alan Gewirth has thought about ethics for a long time (Gewirth 1978, 1982). To him evolutionary ethics provides, at most, necessary conditions of human morality, and not sufficient conditions. The explanations offered by evolutionary ethics fail to accom-

modate the intentionality that is characteristic of moral *oughts* and to give determinate answers to either the distributive or the substantive questions of human morality.

He describes the discontinuities between evolutionary ethics and human morality. We have evolved the power of choice but what we choose is indeterminate. Since voluntary choice is excluded from natural selection, evolutionary ethics is nonethical because we do retain voluntary choice. He argues that evolutionary ethics can only judge moral conduct by stretching beyond evolution and into culture. He argues against those who impose the human altruism onto animals by pointing out that according to Kant, *ought* implies both *can* and *may not*.

Because we have relegated progress, and with it the considerations of moral progress to the dustbins of history, I also find it difficult to see the issues of evolutionary ethics clearly. With rejection of progress we reject faith in the future. Questions answered correctly imply progress. For evolutionary ethics to remain alive, we must ask questions, seek answers, and progress intellectually. There are no answers to ethical questions without progress. Ethics, including evolutionary ethics, is based on faith in a better world, and in the belief that humans can act better. Behavior, to be ethical, requires, as Patricia Williams argues, the presence of at least two alternative paths of behavior—existence of choice, and the freedom to make this choice. Those are the prerequisites for ethical action. There must be also a strong temporary block of such powerful instincts as hunger or self-preservation; the chosen path must benefit the recipient (or the group) more than the donor; and the system of behavior that we call ethical cannot be static (or else it will become instinctive like termites). By definition it is "for others," therefore, it must continuously improve and be progressive. Absence of free will, for example, will knock the whole concept down. We believe in correctness of ethical prescriptions only when we see that there will be, or is, progress in human behavior. Thus evolutionary ethics has an unspoken, and hidden, claim to a meaning or a direction to biological process. Since, according to evolutionary ethicists, natural selection is responsible for morality, the more moral will be selected, and hence there is progress in morality. If evolutionary biology rejects progress then it must also reject evolutionary ethics. Just as to remain alive requires regeneration, or repair, so evolutionary ethics requires progress. Progress is a process that produces improvement. It is a process that must continue and cannot end. By definition, the process that ends, dies. Thus progress reflects the drama of the evolutionary intellectual, who must either accept evolutionary ethics *and* progress or must reject both—to many of us a difficult choice. But I am not certain that progress must be rejected.

Biosocial Debate

There is much talk nowadays about ethics. New professions, such as the medical ethicists, advise what should or should not be done, judge and set limits on the medical and biological research, and influence the acquisition of knowledge itself. Evolutionary ethics crosses the boundaries of anatomy, anthropology, biology, ethics, ethology, evolution, genetics, medicine, metaphysics, philosophy, politics, psychology, sociology, systematics, and zoology. Even lawyers call for the involvement of sociobiology in courts and legislations (Beckstrom 1985). This diversity of approaches produces diversity of meanings; almost everyone who studies different aspects of evolutionary ethics narrows the scope and defines evolutionary ethics differently. It also produces a somewhat hazy focus, and makes definition of evolutionary ethics difficult. But perhaps the definition is not possible.

Andrzej Elzanowski, who hunts for evolutionary ethics at the base of the phylogenetic tree, shows why bioethics is important. He combs the vertebrate primordial behavior for bioethics, and claims that humans must have inherited most of their primary, experienced values from their mammalian ancestors. He demonstrates the continuity of the primary value experience in humans and other vertebrates by a number of motivational phenomena such as intracranial self-stimulation and learned avoidance of electrical brain stimulation, effective contrasts, value-dependent interaction and value-dependent categorization of incentives as well as play, curiosity and other evidence for the activity-derived reward.

Through the development of empathy, Elzanowski believes, humans became liable to feel good or bad for other individuals, both human and animal. Vicarious value experience is the primary factor of moral evaluation and motivation in evolution and ontogeny (but not necessarily in microgeny). The exercise of empathy is limited by the preemptive devaluation of others, leading to discrimination of some people and animals and disregarding their value experience. Values specific for humans may counter-balance and sometimes overrule but not supersede the common vertebrate values. By the logic of valuative deduction (Pugh 1977), the value experience provides an objective moral standard applicable to behavior toward people and other higher vertebrates.

Daniel Povinelli and Laurie R. Godfrey climb up the phylogenetic tree to examine primates for evolutionary ethics. Ethical systems are uniquely human, and they show how a primatologist can develop a framework for understanding the emergence of human morality from a comparative perspective. They have been developing a model to do exactly this. They identify shared characteristics of the cognitive-emotional

systems of apes and humans, and reconstruct the cognitive-emotional system of their common ancestor. Certain features of human cognition underlie, or allow for, the expression of the multitude of ethical belief systems that are found cross-culturally. Recent research on chimpanzee cognition suggests that some of these abilities were, in fact, present in the common ancestor of humans and apes. In particular, the ability to project emotions, intentions, and states of belief onto others evolved long before the emergence of *Homo sapiens*, and these attributional capabilities, along with some others that are unique to humans, underlie the expression of ethics in humans. Yet they exist in animals that do not *have* morals in the human sense. Clearly, these attributional skills did not evolve to support ethical systems *per se*. A key evolutionary problem is to discover what behavioral patterns or expressions they do support in chimpanzees and other apes.

Two sets of questions are central to developing an understanding of the evolution of ethics. First, what evolved? What cognitive-emotional abilities can be regarded as supporting or motivating the enormous range of expressed behaviors that comprises human ethical systems? Second, when did these abilities evolve? What can we infer about the distribution of these abilities in humans and nonhuman primates? Can we begin to evaluate these characters as primitive or derived for humans and for hominoids? Positing the cognitive-emotional characters of the common ancestor of humans and apes represents a stage of evolutionary hypothesis formulation that should precede the formulation of more complex explanatory models such as scenarios. Our current state of knowledge does not justify scenario-building for the evolution of ethics. But tackling the problem from an ape's eye view does give us a novel and potentially very productive point of entry into this fascinating evolutionary problem.

Povinelli and Godfrey provide examples of ethical behavior in humans and compare them with nonhuman primates, and place the issue of ethics in a broad perspective of nonhuman primates and in a cross-cultural perspective. Their conclusions are based on comparative primate material. Some of the questions that have been asked about ethics, particularly those equating altruism with ethics, are perhaps oversimplifications. Ethics is based on much more than altruism, for example, power structure and group behavior and how these are used to manipulate and shape morality. Finally can we identify a genetic basis for ethics?

Povinelli and Godfrey maintain that "morality depends on the ability to contribute values, intentions, and motives to others." They have conducted studies on chimpanzees to determine whether social attributions evolved before *H. sapiens*. Their research leads them to the conclusion that "social attribution in chimpanzees does exist but in a

limited form," thus there is a contention that certain features of ethics are common to both humans and apes which may have evolved from their common ancestors. Ethical thought is basically a by-product of the development of cognitive processes. Ethics or altruism were not in themselves competitive advantages, because selfishness and altruism were unavoidably tied together and thus would cancel each other out. There are basic cognitive processes that have served as competitive advantages, and these cognitive processes can be seen in "lower" primates at a somewhat cruder level. These processes allow human choice and ethical thought, but such ethics in themselves have no evolutionary basis. Thus their mechanism for the development of ethics is evolutionary, but does not rely on the idea of altruism or correct ethical action as a competitive advantage. They illustrate a mechanism for ethics without having to use altruism as a competitive advantage. The cognitive capacity for altruism exists in animals which do not live according to any kind of ethical system, such as humans. We will never understand the origin of morality or altruism until we understand "social attributional capacities."

Adam Urbanek claims that human culture may be understood as a species-specific mode of psychosocial adaptation to the environment. It is expressed through a complex system functioning in the sphere of consciousness and in the sphere of material products. Formation of a worldview is one of the adaptive functions of culture, providing a comprehensive insight into the structure and history of the world and suggesting a deeper sense of human life. The worldview also implies the general goals to be achieved and specifies the admissible means to be used. Thus, the worldview determines the general strategy of behavior. Wierciński (1988) believes that, for effective steering of the society, the worldview should be linked with social institutions (i.e., power structures, religious and political organizations, educational systems). It is important that they dispose of material products of culture which may be used as information carriers (art, public announcements, press, and other modern mass media). Both the social institutions and the material products of culture control and support certain moral norms (expressed in characteristic attitudes and beliefs), that, in turn, provide the basis and justification for the norms of conduct of individuals and groups. Due to the educational and normative influence of the worldview, an individual is determined not only by genetic endowment and experience (that is, the past), but in a certain sense also by the future, as defined by the far-reaching goals set by culture. While Wierciński attempted to describe the functioning of the norms within the worldview system, Krzywicki (1951) suggested an explanation of their origin. The primary role of the norms of conduct (and moral principles as their justification) is that of

regulators of individual and group conflicts. They decrease the severity of the conflicts and provide a means for their solution. Hence, the norms of conduct and ritualized behavior minimize the intragroup competition as well as stimulate cooperation. According to Krzywicki, the mechanism of a moral norms fixation involves elimination of nonconformist individuals from the group. The evolution of moral values also implies substitution of the old norms by the new, fitting better the existing level of social organization and development of material culture. Competition, combined with cooperation and controlled by a system of moral norms, is the driving force of cultural evolution.

Urbanek combines the theories of the East European thinkers, Kropotkin, Krzywicki and Wierciński, to create a sociobiological theory of evolutionary ethics in which moral norms control competition and cooperation, and create a force which derives culture through evolution. In this sense, it seems that ethics did not evolve, but rather helped evolution to progress.

To Lawrence Slobodkin, answers to the controversies associated with evolutionary ethics depend as much on the types of questions as on empirical facts or laws. He sees four obvious categories of questions about the association of evolution with ethics. First, are human ethical decisions constrained by a "biological human nature" because of either the nature of evolution itself or particular properties of human phylogeny? To the extent that these questions are empirically posed, he answers "No!" Second, is nature in some sense ethical? This is a projection from human ethics to nature and the answers are nonempirical, contingent on culture-bound definitions, and likely not to be definitive. Third, was the origin or development of the theory of evolution bound by the conscious or subconscious ethical assumptions of the developers? This is answered by the methodology of social and intellectual historians and historians of science. To some degree these methodologies are neither compatible nor even intertranslatable. Fourth, should ethical codes or decisions take cognizance of the facts of evolution and of evolutionary and ecological law? This involves two main subgroups of questions. First, what are the ethical criteria for dealing with the biological world in all its complexity, fragility and diversity? This leads to real questions of biology and management. Second, should we look to natural evolutionary and ecological laws for suggestions in the formulation of general ethical codes? This itself is an ethical question, which, in the context of this book, opens the recursion of how evolution should or should not help us deal with ethical questions, which is an ethical question, and so on.

Slobodkin suggests that the polemics in this area written by biologists, historians of science, philosophers, and historiographers usually relate either to only one of the

above questions, which leaves the studies incomplete, or combines aspects of several of them, which leaves the studies confused. Ethics are culturally bound, and it is coincidental that many cultural differences coincide with genetic differences.

Evelyn Fox Keller and Margaret S. Ewing believe that the difficulties and ambiguities inherent in the common-sense notion of a biological "individual" are notorious, and have been well laid out by Hull (1980). In popular parlance, a biological "individual" is an organism, more or less like ourselves—at the very least, an animal, and usually, a vertebrate. Yet, despite the obvious inadequacy of this definition for the range of living forms encountered in the natural world, it is precisely to this common-sense understanding that biologists (and biology texts) tacitly appeal in their most conventional uses of the term. From its inadequacy, some would argue for the elimination of this common-sense notion of "individual" from biological discourse; from its ubiquity, by contrast, Keller and Ewing argue for further examination. It may not be possible either to salvage or to eliminate the "idea of individuality" from biological discourse; it may, however, be possible to sort out the different ideas which that term, in fact, subsumes, and the ways in which different criteria of individuality depend on disciplinary and other interests. Both what counts and how one counts depend on spatial and temporal stances as well as on the purposes for which one needs to count; they also depend on metaphysical and ideological commitments. Furthermore, by no existing criteria will the resulting tally be unambiguous. Even that paradigm of common-sensical individuality, "man," is an idealization only approximately realized in nature. Neither physiologically nor reproductively autonomous, he is also not necessarily genetically unique.

I think that there is a difference between the behavior of species and of individuals. We never (or almost never) consider ants as individuals, but instead we think of them as a colony. Ethologists may work with individuals, but sociobiologists study populations. When speaking of the human behavior we think of ourself, or, at best, about an individual. We are thinking statistically about ants, but not about humans. Thinking about human behavior statistically may discover some pattern which, nevertheless, will break down when thinking about individuals. An individual is not an isolated being, but although separate, forms a part of the community. Thus the individual behaves in response to the law of the community and its ethics. If, as cladists claim, a species is an individual, then selection will work on species. Therefore, in species or in individuals certain members (e.g., red blood cells) will always act at a certain time and in certain circumstances (or all the time) for the benefit of other members. Darwin abolished species, and in the *Origin* his species exists only in a particular time slice. It is

strange, therefore, that evolutionists now concerned with species as individuals call themselves Darwinians, and believe species to be not only real, but even individuals.

Keller and Ewing address these basic problems from a somewhat different angle. They are not concerned with "who we are," but they argue that it is difficult to define an individual, and hence humans.

Mary Catherine Bateson claims that the human domain of ethics involves those areas where choice is possible, and this domain is changed both by technical capability and by factors which structure the understanding of these possibilities, such as attention. The evolving pattern of human adaptation involves changes at both these levels. The human capacity to act with ever-increasing impact on the natural environment has led to whole new areas of ethical concern which propose changes in patterns of human attention and in the formulation of purposes.

Her chapter explores the hypothesis, put forward twenty years ago by Gregory Bateson, that the human capacity for conscious purpose involves a structuring of attention such that, in the service of conscious purpose, decisions are made based on a biased selection of environmental information. The focus is on the relationship between a gender-based division of labor and the development of complementary patterns of purposiveness and attention in relation to sex roles. It explores the implications for human adaptation of cognitive differences in how the ethical implications of decisions and the range of phenomena relevant to them are conceptualized.

Who Are We?

Dualism seems to be a part of human nature. The unresolved dichotomy between the rationalists and the empiricists is a subset of the nature versus nurture dichotomy. Nature is innate, unacquirable and unalterable. Nurture is the acquired product of culture. To a rationalist, knowledge is derived from mind or nature, and, therefore, acquisition of knowledge is genetic. To an empiricist, knowledge is derived from experience or environment, and, therefore, is acquired. Who is right cannot be resolved until we learn how our brain works, and how we invented calculus. It is possible that our dual interpretations of nature versus nurture have deep biological bases in bilateral symmetry, two sexes, or in being bimanus. This great dichotomy in our worldview may be at the base of the controversy in evolutionary ethics. I think, however, that the search for evolutionary ethics represents our deep and profound yearning to resolve *who we are*, and thus, to discover our place in the universe. This search has been scientific

and philosophical, but also has involved a myth of the origin and definition of humanity.

First, the question of the relationship of man to "lower animals" had to be asked; in our dichotomous view, either the similarities were seen or the differences were magnifying the big fault between humans and nonhumans. As Dewey (below) shows, one school claimed that our physical, intellectual, and moral characteristics evolved gradually from apes, and, therefore, our ethics also evolved from animals. The other school made the difference between us and all other animals so large that the gap was unbridgeable, and hence morality was a uniquely human trait. This controversy has not been resolved, it has only shifted. There was (and still is, in some parts of the world and in the science fiction of the West) a myth that humans and animals were once a single family, that the metamorphosis from human to animal and vice versa was common, that some were part animal and part human (centaurs), and that they could easily talk to each other. A wolf could assume a human shape; a witch could fly; a devil was half-human and half-animal, often entirely animal, and sometimes with goat feet; an angel had bird wings. This was a traditional, mythical explanation of truths of natural phenomena, events, and beliefs. Because such beliefs were associated with religion, they are now held in low esteem. Society (or population) acts and thinks collectively and for itself. It has its own memory, history, ethics, and myths. While it is true that it is an individual who initiates the first action or behavior that later becomes a myth or a part of the ethical system, it is the population that accepts, modifies, and inherits it by passing it from generation to generation. These myths are passed down without known authorship, are deeply ingrained in social practices and ethics, and become part of the history. They express the population's wishes and thinking. They were the ethics of the day. In the future the red shift of light may become a myth, the big bang itself may become the sterile barrier to the inquiry into the myth of the pre-big bang universe. Our evolutionary ethics may also turn to myth.

Our question, *What is human?*, involves the reduction of ethics to biology. I will try, with some liberty, to rephrase, however simply, Hempel's (1966: chap. 8) argument on reducibility. Hempel argues that reducibility of biology to physics and to chemistry is not easy. For example, you may resolve penicillin to a chemical equation, but not as a substance produced by a living fungus *Penicillium notatum*. Reduction of morality to biology is even more difficult. To say that a person is moral is to say that he acts in a certain way in certain circumstances. But both behavior and circumstances vary in time and in space. We can neither define all possibilities of moral behavior, nor construe a definition that would include all moral behavior. Nor can we define moral