

JOHN HENRY MORGAN

ETHICAL NATURALISM IN THE THOUGHT OF EDWARD O. WILSON A CRITICAL REVIEW OF HIS MAJOR WORKS

John Henry Morgan

is currently the Karl Mannheim Professor of the History and Philosophy of the Social Sciences at the Graduate Theological Foundation and is a Senior Fellow of Foundation House/Oxford. He has held postdoctoral appointments at Harvard, Yale, Princeton, and New York University and in 2005 was appointed the Sir Julian Huxley Distinguished Research Professor at Cloverdale College. In 2009, he was appointed a member of the Advisory Board of the Kellogg Centre for Religion in Public Life at Oxford University. Since 1998, he has been teaching a doctoral-level course in the international programs division of Oxford University which has resulted in his latest book, *Beyond Divine Intervention: The Biology of Right and Wrong* (Lima, OH: Wyndham Hall Press, 2010).

Email: Faculty@gtfeducation.org

Abstract: One of the most celebrated biologists of the past century, Edward O. Wilson has received virtually every scientific award and recognition for his provocative and innovative enquiry into the nature of the relationship between moral behavior and biology which the scientific community can offer. For over twenty-five years, his development of a field of study at Harvard University called sociobiology and the analytical concept he created called consilience have revolutionized our thinking about ethics and human behavior. Exploring the interrelatedness of the chemistry of the mind and the genetic bases of culture, he has challenged the philosophical, theological, and sociological world to embrace a creatively converging view of science and ethics, of biology and human behavior. This essay is a critical review of Wilson's major works written during the past three decades which have caused both international exuberance among scientists and an exclamation of outrage among many in the philosophical and theological world. This is the first comprehensive review and critical assessment of his major works.

Key Words: ethics, religion, naturalism, E. O. Wilson, critical review, major works, evolution, sociobiology, cosmocentric, humanism, biodiversity

Ethical Naturalism defines ethics as coming from within the cosmos as an internally generated code of behavior. Ethics is what is prescribed by the world (natural environment). Morality is doing the right thing because it is best for the world. Moral behavior is doing the right thing because it is the right thing to do for the world. What will be done in this essay is to critically review the key works of the leading environmental biologist today, Professor E. O. Wilson of Harvard University, with special attention given to the emergence of an ethical school of thought¹. This school of thought, based upon evolutionary biology, is called “ethical naturalism” and provides an alternative to “ethical humanism” in the tradition of Sir Julian Huxley and “ethical theism” in the monotheistic traditions of Christianity, Judaism, and Islam.

Wilson’s inquiries into the new science called “sociobiology” argue that social animals, including humans, behave largely according to rules written in their very genes. The theory sparked controversy because it not only appeared to contradict cherished beliefs about free will, but also, according to critics, harked back to retrograde ideologies charging that some human groups were biologically superior to others. He and his colleagues have over the years defended and refined sociobiology such that at this point it is now a dictionary word. Of this new discipline and the resulting book he says:

“It was a new discipline that I was proposing, which was the scientific study of social behavior in all kinds of organisms on a foundation of biology. It was a very successful attempt in the study of animal behavior. It succeeded immediately. But I also decided to apply it to that special species of animal, *Homo sapiens*, and when I did, I just suggested that maybe there were some implications of this for human beings as well....I said that maybe there is such a thing as instinct and human nature and maybe this is the way to study it, with this new discipline. And in the middle seventies that was not an idea permitted in most of the social sciences on American campuses.”

Wilson’s book, entitled, *On Human Nature* (1978), is concerned with the further extension of these same principles to the human species. Not intending to alienate the philosophical community, Wilson nevertheless and necessarily must challenge their age-old reflective methodologies, especially since they seem consistently not to have employed an evolutionary perspective regarding human moral behavior. With scientific evidence testifying so convincingly that moral behavior is directly linked to biogenic brain function and the inevitability of those functions producing a survival-based moral code of ethics, philosophers along with

everyone else must ultimately come to face the reality that consulting the personal human emotional responses to moral challenges is hardly either scientific or responsible. Since morality has evolved from an instinctual response to the necessity of species survival, then discussions of ethics and morals must have an evolutionary and biological foundation.

Wilson is profoundly aware of the actual “human” dynamic of moral decision-making and that it lies with the human person and the human community to determine, rationally and without any sense of an outside spiritual force, what should and should not be done, what is right and wrong, what is good or evil. It lies with the human community to make the determination, based upon the biogenically-derived moral censors, just “how human we wish to remain!” The human community cannot, like the ethical theists, presume to “let go and let God” for, in the absence of any outside source of moral conduct, it is we ourselves who must decide what to do and the basis upon which that decision is made must consult and be informed by the biological foundations of our own moral behavior.

Here Wilson has made his historic call for an “integrated” science of human nature dependant upon the natural sciences, social sciences, and the humanities. But this new integrated science of human nature must be “scientific” rather than philosophically reflective and consultative with those who claim a source of knowledge and wisdom outside the realm of human reason! He says a “guru” cannot help us nor can politicians making decisions about scientific matters of which they know little or nothing. Because we and the cosmos are faced with the inevitabilities of evolutionary process, we must, therefore, consult the evolutionary sciences in order to have real factual information relevant for the making of sound decisions which will affect the future of the world, and of humanity itself. Only ethical naturalism can embody the natural and social sciences in the ethical formulations of moral decisions. Ideologies and faith-based pontifications become not only irrelevant but dangerous.

While being generous in attributing to recent research psychologists a serious contribution to the understanding of moral development among children of the human species, Wilson is fully aware that they, of course, have based their work upon the monumental work of Jean Piaget. Wilson is eager to demonstrate that when the social and behavioral sciences base their findings upon empirically demonstrable scientific studies, the biological community is ready to embrace those findings. What is not allowed is a faith-based science which begins with doctrine and ends in apologetics.

The brilliance of Wilson’s agenda is reflected here in his explication of the role of biology and its efforts to circumscribe and articulate the physical components of ethical decision-making. Going beyond philosophical speculations, biology through its “neurophysiologic and phylogenetic reconstructions of the mind” has set for itself the scientific study of the generative work of the mind in evolving “an enduring code of moral

values.” Though the social sciences will be radically reoriented, Wilson believes their role in the human sciences will eventually be elevated rather than demoted.

In my own work, entitled, *Naturally Good: A Behavioral History of Moral Development from Charles Darwin to E. O. Wilson* (2005), I have attempted to address this problem and commenced the work by quoting a statement from Darwin in his *Descent of Man*: “...as far as I know, no one has approached it (moral development) exclusively from the side of natural history.”² This is precisely what Wilson is now doing by calling attention to the reality of genetic evolution to moral development. With Darwin, Wilson contends that a biological understanding of the origins of human moral behavior will actually enrich and deepen our moral behavior and ethical formulations. If we understand the biological origins of our decision-making powers and processes in determining right and wrong, then our decisions can be more rationally based and less linked to outside interventionist ethics which are based upon dogmatic ideologies derived from mythological cosmologies of ancient, pre-scientific origins.

Wilson’s *The Diversity of Life* (1992), which brought together knowledge of the magnitude of biodiversity and the threats to it, had a major public impact, and still today he continues entomological and environmental research at Harvard’s Museum of Comparative Zoology. However, *Consilience: The Unity of Knowledge* (1998), has proven to be the bombshell it was predicted to be. Here he draws together the sciences, humanities, and the arts into a broad study of human knowledge. His premise in this controversial book is that a common body of inherent principles underlies the entire human endeavor. Again, following the controversies of his work in sociobiology, his “consilience” work has again placed him at the center of debate and controversy.

“The gist of this book,” says Wilson, “is that, contrary to the widespread views coming out of what’s called postmodernism, truth is relative, each discipline, each person is a little universe unto itself. Contrary to that -- and it still has strong influence on many campuses today -- we really can unify knowledge. Science has done it from physics all the way to biology of the mind and ecology, by cause and effect relationships, and it’s time now the book argued to look into the possibility that we can take that network of explanations, that unity of knowledge, on into the social sciences and even into the arts.”³ One of the main reasons for writing this book, he explains, is to bring about a convergence of environmentalists working with philosophers on the major ethical issues affecting the world and the human community. Environmentalism, according to Wilson, is the convergence particularly of the study of the environment with the ethical issues which surround it. Here, then, of course, is the obvious justification for the development of an ethical school of thought called “ethical naturalism.”

The word itself was coined in the last century and refers to long-separated fields of inquiry that come together and create new insights. For instance, the marriage of chemistry and genetics this past century created the powerful new science of molecular biology, the basis of genetic engineering. The controversy surrounds Wilson's belief that all human endeavor, from religious feelings to financial markets to fine arts, is ripe for explaining by hard science. Philosophers and artists, to say nothing of theologians and religious leaders, bristle at what Wilson calls his "unification agenda," his attempt to show, as he puts it, that "the greatest enterprise of the mind has always been and always will be the attempted linkage of science and the humanities."

"I believe that the Enlightenment thinkers of the 17th and 18th centuries got it mostly right the first time," he says. They assumed a lawful, perfectible material world in which knowledge is unified across the sciences and the humanities. Wilson calls this common groundwork of explanation that crosses all the great branches of learning "consilience," and he argues that we can indeed explain everything in the world through an understanding of a handful of natural laws. The world he envisions is a material world that is organized by laws of physics and evolves according to the laws of evolution.

Wilson makes his point by means of a fascinating tour through the Enlightenment and the age of scientific specialization. Among his topics of interest are "professional atomization," which works against the unification of knowledge, and cultural relativism, that is, "what counts most in the long haul of history is seminality, not sentiment," he says with amusement. In examining how a few underlying physical principles can explain everything from the birth of stars to the workings of social institutions, he offers fresh insight into what it means to be human.

Determined to keep the argument squarely on target regarding the origins of ethics and moral behavior, Wilson doesn't allow the speculative thinkers to embrace a domain assumption without calling it what it is, namely, human surmising. The scientific community is going to insist upon clarity of choice -- either the ethical code is God given or man made. Either the ethical code which the human community employs to govern our moral behavior has its origins "outside" of the cosmos from an intervening source or it comes from "inside" the cosmos from a source intrinsic to the evolutionary process. Either a theology of ethics from God or a biology of ethics from the cosmos -- one must choose for both can't be operative simultaneously. The appeal to "natural law," according to ethical naturalism, is fallacious for either it draws its validity from an interventionist deity, and thus is merely theologizing, or it draws its validity from the evolutionary process itself, something I have chosen elsewhere to call "systemic integrality," which, then, is biological. God made (ethical theism) or man made (ethical humanism) -- one must decide and the decision is based either on science in the latter instance or

theological musings in the first. Later we will see Wilson move further into the cosmic validation by employing what I have chosen to call *ethical naturalism*, that is, calling upon the cosmos itself as the validating source of moral decision-making.

Wilson's genuine interest in mollifying and engaging the religious community in his quest to mobilize the human community in earth-saving endeavors is strengthened by his readiness not to dismiss theism outright. Of course, as a scientist, he must certainly dismiss any semblance of a fickle God who periodically, episodically, and erratically intervenes in the affairs of the world and of humanity. For most theists, this dismissal of a "personal" God makes conversation difficult if not impossible, Wilson is ready to concede that science is not now prepared to make an empirical argument against the possibility of a "cosmological God" who created the universe. And, he is not inclined to embrace the Huxley agenda of redefining religious nomenclature such that a creator God concept might simply mean the evolutionary process itself. Fundamentally, the issue of the human code of ethics and moral behavior still resides in the question as to whether or not moral conduct has been revealed by an intervening God or evolved from a self-generative biological process within the cosmos. This question is not at all compromised by Wilson's disinclination to embrace atheism or his willingness to concede the possibility of a deistic cosmic creator.

Wilson's major contribution to the interdisciplinary dialogue going on now within the behavioral and natural science communities is the direct results of his call for an "interlocking of causal explanation across disciplines," what he has called "consilience." The notion, timely but disappointingly still perceived by some in the retrograde backwaters of the social and behavioral sciences as radical, seems amazingly mundane and matter-of-fact. That the biological and social sciences should work together in the plotting of the human species emergence and place within the cosmos is, says he, to be the mandated agenda for the 21st century. And, though some of the perimetric boundary issues are still left to relativistic speculations, the scientific perimeters of the issues of moral behavior are so much more narrowly refined than those within the religious community which relies always upon an interventionist transcendentalism, as to make the scientific agenda so much more reasonably viable now than the religious.

At the end of the day, Wilson is keen to continually remind us of our biological origins. Humans came, not from heaven, but from the earth and are directly a product of the evolutionary process which, necessarily, links us directly and irretrievably with all living things in the cosmos. As social critique and social commentator, few are better than E. O. Wilson. And his scientific pedigree only contributes to that high place maintained by him and his critical assessment of the present state of humanity in the world. There is presently, to no one's denial and to many's dismay, a major

confrontation between the two worldviews of religion and science, between a “religious transcendentalism” and “scientific empiricism.” That transcendentalism continues, after nearly two centuries, of maintaining the high ground in religious thought is amazing to some and baffling to others. That scientific empiricism has not become the standard rule of thumb in all daily activities and discussions is a total mystery to those immersed in scientific work and thought. The behavioral intricacies of ethics and religion, says Wilson, are sufficiently complex as to have not yet been deciphered by scientific analysis. Yet, both ethics and religion are quite decidedly more intricately involved in the evolutionary process of human development than the religious community has been willing to admit or acknowledge. Their denial of such dependence on the biologically evolving process of human emergence continues to exacerbate attempts at meaning dialogue between science and religion. In order to stay viable as a moral source, religion will be forced to seek out ways of creatively and positively incorporating scientific insight into its own work and mission. The use of “poetic forms” of integration of scientific fact with religious mythos will prove helpful if not central to that process. In the meantime and throughout the process, the religious exponents of an interventionist transcendence must count on continual and unrelenting scrutiny by the scientific community of the religious message of the traditionalists.

Wilson is not shy in pronouncing an eventual outcome of the competition between science and religion. Religion will recede into the archives of human history like the ancient mythologies of past cultures and the secularization process which is carried by scientific empiricism will continue to reveal to the human community its origins, its present status, and the prospects of its eventual future, a future, I might add, which will call upon the human community to relinquish its “primacy” and to embrace its “systemic integrality” with the rest of the created and evolving cosmos. In other words, leaving ethical theism behind and moving through and beyond ethical humanism to a fully developed ethical naturalism.

Wilson’s books on sociobiology and human nature gave rise to a storm of controversy that has somewhat abated as the evolutionary behavioral ideas as suggested by Wilson have gained more acceptance. Both within and beyond academic circles, it was inevitable that ideas that are effectively concerned with fundamental questions of human life: its meaning and its inherent dignity, would have the potential to be enormously controversial. In the first paragraph of his book on sociology, he states his view of life in quite unequivocal terms as follows: “In a Darwinian sense the organism does not live for itself. Its primary function is not even to reproduce other organisms; it reproduces genes, and it serves as their temporary carrier ... Samuel Butler’s famous aphorism, that the child is only an egg’s way of making another egg, has been

modernized. The organism is only DNA's way of making more DNA." The overall message carried, namely, that various kinds of social behavior are genetically programmed into all species, including our own, and that this programming is particularly true of the social behavior human beings label "altruism," which Wilson defines as "self-destructive behavior performed for the benefit of others." People are animals, their behavior has evolved just like that of the animals, and our culture has a biological component, he announced.

Cultures need to accomplish certain things, says Wilson, if they are to survive at all. They must assure effective use of natural resources, for example, which might involve the learning of all sorts of territorial and aggressive behaviors. And they must assure a degree of cooperation, which might involve learning altruistic behaviors, rules for sharing resources and for other social relationships. And they must assure a continuation of the population, which might involve certain courtship and marital arrangements, nurturing behaviors, and so on.

Wilson has argued that the preservation of the gene, rather than the individual, is the locus of evolution, a theme explored in more detail by Richard Dawkins' *The Selfish Gene*, of New College, Oxford, Sir Julian Huxley's old teaching grounds. Wilson has also studied the mass extinctions of the 20th century and their relationship to modern society. He explains: "Now when you cut a forest, an ancient forest in particular, you are not just removing a lot of big trees and a few birds fluttering around in the canopy. You are drastically imperiling a vast array of species within a few square miles of you. The number of these species may go to tens of thousands. Many of them are still unknown to science, and science has not yet discovered the key role undoubtedly played in the maintenance of that ecosystem, as in the case of fungi, microorganisms, and many of the insects." He continues, "Let us get rid immediately of the notion that all you have to do is keep a little patch of the old growth somewhere, and then you can do whatever you want with the rest. That is a very dangerous and false notion."⁴

Wilson inadvertently created one of the greatest scientific controversies of the late 20th century when he came up with the idea of sociobiology. Sociobiology suggests that animal, and by extension human, behavior can be studied using an evolutionary framework. Many critics accused Wilson of racism and he was even physically attacked for his views. However, Wilson never intended to suggest that human nature was static and independent of the environment. Nor did he intend to apply a 'survival of the fittest' model on human society as had been true of social Darwinists in the 19th century. The controversy caused a great deal of personal grief for Wilson and many of his colleagues at Harvard, such as Stephen Jay Gould, were vehemently opposed to his ideas. Nevertheless and in view of his international vindication, he has received many awards

for his work, including most notably the National medal of Science and twice the Pulitzer Prize.

Most recently, his 2002 book, entitled, *The Future of Life*, offers a plan for saving earth's biological heritage and has received a great deal of acclaim as offering a way out of our present dilemma regarding the environment and our role in surviving within it. In this more recent presentation, he draws on his forty years of research to make a passionate and eloquent plea for a new approach to the management and protection of our eco-system. Marshalling arguments from science, economics, and ethics, he demonstrates that proper stewardship of the earth's biodiversity is not an option. Rather, it is a necessity, and a choice we must make if life is going to continue to thrive on the earth.

In *The Future of Life*, Wilson talks about the bottleneck of over-population as it relates to the future of life on earth and suggests that this is what humanity is currently experience. "We all, or most all," he explains, "realize that humanity has pushed its population growth pretty close to the limit. We really are at risk of using up natural resources and developing shortages in them that will be extremely difficult to overcome, and yet we have this bright prospect down the line that humanity is not going to keep on growing much more in population, that it is likely, if we can use the United Nation's projections at this stage, to top out at perhaps nine to ten billion, fifty percent more people than exist today, and then begin to decline."⁵

In our modern context, Wilson goes on to explain, "we've really lowered the death rate and where poor people around the world, all except those in absolute poverty, have access to medicine and social assistance and so on, so their children can survive. In the long haul of history, however, where the well-off, the dominant, elements in the society have co-existed with the poor and the subordinate, it turns out, it's just the result of studies of these types of societies that have been made, that even though the poor having a larger number of children per capita, the children aren't living as long because of their condition, and those who are wealthy and having a smaller number of children are actually producing more children into the next generation."

In view of this demographic configuration, the human community is under ever increasing pressure to push our technological capabilities to the limit. But the fact remains, says Wilson, "that with existing technology, you can show fairly reliably the figures have not been seriously challenged to my knowledge that in order for the whole world, the whole world population to live in American standards, we would need four more planet earths!" This cannot, of course, continue. At the end of the day, Wilson says, he likes to think of that phrase that was used so effectively by the late Abba Eban, during the 1967 War. "When all else fails, men turn to reason."

We now know that natural selection and the evolutionary process constitute the fundamental basis of all modern science and all responsible understanding of humankind's place in the cosmos. That the human species (and all species, for that matter) evolved through a process of genetic change and environmental necessity (natural selection and the survival of the fittest) disavows unequivocally the necessity or the viability of an intervening deity and certainly not a personal being with transcendent powers of creation. Such a deity may, says Wilson, be sought in the philosophical question of "where did it all begin?" but certainly not in the creation of the cosmos for that privilege of place is reserved strictly for evolution. Metaphor, imagery, poetry, and mythos may embellish the creation story of the bible, but they are to no avail when set alongside empirical science.

The great spiritual dilemma created by this fact of evolution is that the human species, like all other living forms, has no place to go. That is to say, this is it, our place and experience in the cosmos is where we are and what we are doing now. There is nothing awaiting us in the "after life." Death is all that follows in the after life. Yet, since this is it, this should really and truly be it, it should be our focus, our passion, or mission to serve the cosmic needs. That the human brain exists to promote the increase and endurance of the human genes means that the human brain is dedicated to special survival and progeneration. That process requires rational thought. The human community must not now only serve ourselves but must look to the cosmos, its own needs, in order to assure our own survival and its survival as well. We must become "less" anthropocentric and more cosmocentric if we are ourselves to survive as a species.

When Wilson speaks of a "new morality," he is speaking of an ethical code of moral conduct which calls for doing the right thing for the cosmos, not just for a single species of living things in the cosmos. In order to discover this new moral code of ethical behavior, the scientific community must set about to track the evolutionary history of the universe and each of its species, particularly the human species, for it is human action which can destroy or sustain the cosmos through the use of rational thought and the mobilization of the empirical sciences. Because the new morality must be recognized as a human construct, the human community will necessarily be confronted with a plethora of behavioral options based upon the biological composite of the human species.

Our first dilemma is that the human species "has no place to go." The second dilemma of the human species is that our "moral behavior evolved as instinct," it is a product of biological evolution. Therefore, we can expect the scientific community to search out and investigate the very origins and meaning of human values, the source of all ethical and, indeed, political pronouncements. The indictment of the philosophical and theological community, suggests Wilson, is that this community of

scholars concentrates its attention upon the “consequences” rather than the “origins” of the human ethical code of moral behavior thereby bypassing the empirical sciences while favoring speculative musings of religious and philosophical orientation.

Unless the social sciences and the humanities, including theology and philosophy, are willing to acknowledge and embrace the empirical contributions the natural sciences have made, are making, and will continue to make in our understanding of the evolutionary origins of human value systems, the human community will not be able to arrive at an integrated understanding of what it means to be human. Our very core understanding of humanity is linked to our knowledge of and willingness to accept our biological mandate. If we are not willing to take full cognizance of our biological composition, we will never be able effectively to implement a rational decision-making process of determining our moral destiny.

The convergence of the natural and behavioral sciences, says Wilson, has already and will continue to offer the human community the best possible avenue to search for a sustainable and empirically-supportable humanity. This “scientific materialism” is our last great hope for arriving at an integrated sense of what it means to be human within a community of ethical codes and moral behaviors, codes and behaviors selected and perpetrated by the community itself following careful and systematic analysis of our biological needs, origin, and destiny.

Ever the naturalist, Wilson is always keen to remind us of our earthly origins, of our relatedness to the earth, of our kinship with all other species on the earth, both living and extinct alike. Failure to recognize and embrace enthusiastically this connectedness with the earth and its other living inhabitants has been the cause, granted often unwittingly, of much of the environmental problems and pending ecosystem crises we face today. An ethical naturalism, based upon the primacy of the earth’s environmental needs rather than a code of behavior based upon either mandates from God or mandate from anthropocentrists, is what we must develop and embrace if the cosmos itself is to survive with the human community as one of its grateful inhabitants.

Wilson is reconciled to the power, be it irrational, of religious belief and acknowledges that, in spite of all the scientific community has done over the past two centuries to educate the general public, religion continues to have the upper hand, the overall control of large masses of the human species. Wilson approaches but comes short of despairing over the power of a mythic confluence of irrational cosmologies in the face of empirical science. The power of religion is demonstrated in the human species’ ready willingness to embrace any religious ideology rather than face the realities of finitude.

The scientific agenda in the study of religion, of course, is to identify and describe those biological components of human behavior called

“religious.” Wilson is fully aware of the explosive nature of this agenda, socially and culturally, and equally aware of the “scientific” problematic imbedded in the inquiry as well. One of the most provocative of characteristics of religious behavior, of course, is that the human animal is the only animal known to us to have such behavior. It’s not enough to merely quote the ancient divines who explain that the human animal is the only living thing in need of religion for, as they are eager to point out, we are the only animal that sins! Scientifically and particularly biologically, what interests us is the empirically demonstrative behavior called “religious” and we can find no parallel analogy in any other animal.

Wilson’s suggestion of a “deep structure” analysis is quite indicative of his confidence in the biological sciences. The genetically motivated religious behavior must be gotten at through the laboratory research which has the capacity to cut through the “self-deception” of those professionals who propagate the religious ideology. Natural selection, he suggests, can be analyzed at three levels -- *ecclesiastical*, which includes the binding and bonding power of ritual which are devised by the religious leaders for the purpose of emotional captivity; ecological by which is meant the environment within which this kind of captivity is operative; and *genetic*, shifts where cultural evolution and populations are fluctuating.

Wilson’s rather bold claim that genes have a role in the development of the learning process itself within human beings is applied here by suggesting that gene frequencies are altered by ecclesiastical selection. We are wired to be religious, apparently! The genes influencing religious behavior are thought to constrain behaviors and motivate behaviors. Behavior, he suggests, is influenced by interaction with other learned behaviors, all of which are influenced by genetic constructs. This reliance upon genetically motivated behavior suggests that religious constructs of behavior are genetically linked. We behave religiously, not because of the reality of the ideology but because of the strength of the genetic coding. Wilson is not suggesting that religion is true. Far from it. He is suggesting, however, that the genes which favor survival are functionally operative within any ideology which favors the endurance of the species, whether that ideology is true or not. The issue is survival and religious behavior that favors survival, say the continuity of cohesion of the group, will inevitably be incorporated into the genetic composition of the organism.

With the ethical naturalists, Wilson is arguing that religion is genetic in the sense that the survival behaviors which assure the endurance of the human species are genetic and religious behavior functions in that way by virtue of enhancing and nurturing the cohesion of the group’s own internal identify. In my book, *“In the Beginning...”: Paleolithic Origins of Religious Consciousness*, I defined religion as follows: “Religion is a complex of behaviors and ideologies consisting of rituals and myths which appeals to a transcendent legitimacy embodying a worldview and ethos addressing

the verities of life and existence and conveying a dynamic level of psycho/social reality which is self-validating to the individual and community.”⁶ Wilson has gone even further. Beyond my argument for the psycho-social origins of religious behavior, Wilson argues that genetics itself favors the fostering of religious behavior. Not that religion itself is actually true in terms of its dogma or code of beliefs but that religion functions as a component of special survival. And, this behavioral complex fostered by the will to survival inevitably creates institutional forms for its continuance in human society.

This argument of Wilson’s favors my own psycho-social definition of religion. The creation of a world that seems so unequivocally real and indisputably extant constitutes the religious institutions’ primary agenda. No one dare question its reality lest by doing so one question the actual meaning of life itself. As my definition of religion suggests, religion consists of rituals and myths which appeal to a transcendent legitimacy. This legitimacy is fostered by a genetic drift to self-survival and to question the transcendent legitimacy of religion is to question the very meaning of life. To question the religious basis of social commitment is to question the legitimacy of the community. The genetic composition of the individual precludes such a frontal attack upon the community whose function is to foster the bonding of its members around a worldview and ethos designed to assure allegiance to religious authority.

Ethical naturalism, as a system of thought, is keen to point out that “religious behavior” and “moral behavior” are not synonymous, and, whereas the religious tendency to worship a monotheistic god is prevalent among human beings, it is not, however, universal. What is universal is moral behavior, behavior requiring the exercise of doing the right thing because it is the right thing to do for the community rather than because God said do it.

Though aware of and sensitive to the psycho-social and cultural infrastructural composition of religious behavior, Wilson is true to his own science when he focuses upon the “psychobiological” origins and explanations of faith. A belief in God, or an intervening deity, is fundamentally characteristic of religious faith and exemplifies the essential dependence upon myth even in the modern world. Whether or not the human animal is genetically dependent upon myth to function socially is yet to be established or determined but that myth still functions as an essential ingredient in the affairs of human life is without question. Much work is yet to be done in this provocative field of thought and the expectation is that it will prove most productive in further understanding the biological nature of faith.

Religionists, says Wilson, are not bound to an ideology restricting their mobility in the explaining of their faith. If the Marxists are tied to the ideology of dialectical materialism, the religionists are free to roam the world using first this, then that, explanation of their faith-based

understanding of the world without any particular restrictions on pragmatic utilitarianism. The use of the creation myth -- an intervening outside deity who creates the universe but is exempt from its rules -- is the last and great refuge for the religious mind for it defies logic and reason and yet cannot be dislodged due to the power of its mythic import. Even the integration of a shallow understanding of evolutionary biology with a traditionalist understanding of an intervening yet transcendent and illusive deity is possible with a religious thought system called "process theology" which, on the surface, sounds both scientific and religious but when, upon closer analysis, it is not scientific but employs a naïve scientism to compliment and flatter a traditionalist theology.

Wilson makes the somewhat problematic insinuation that scientific materialism is itself a "myth." Though the religious establishment will jump all over this as a self-indictment of credibility, one must understand that Wilson is using the term "myth" in its historic "mythopoeic" meaning, namely, the realization that first-cause arguments are not demonstrably provable. What the religious establishment fails to realize is that good science is always operating on propositional laws and developmental hypotheses unlike religion which operates strictly on "faith-based" convictions. Wilson argues persuasively that the evolutionary epic can be as captivating to human imagination, if not more so, than any religious myth and is, unlike religious mythology, based upon empirically demonstrable evidence of historical development. One does wonder if Wilson has not inadvertently opened himself and the biological sciences up for naïve and simplistic dismissal by the religious community for having used the term "myth" to describe what in modern science we take as an historical given. Yes, honesty and integrity will assuredly take the day in time.

The boldness of Wilson is both humbling and intimidating. His quest to "divert the power of religion" for humanistic and scientific purposes is admirable, especially since his desire is to mobilize this strength of religious passion for the purpose of addressing the present and future demands of the world, for its continuance, for the quality of the life it nurtures in the universe, and for the prospects of a scientifically understood universe. Without doubt, scientific naturalism (and, by implication, ethical naturalism) will eventually and inevitably win over its current chief competitor in the spinning of mythic cosmologies. But whereas religion, and the passion it mobilizes, will endure in some capacity, albeit without an interventionist deity shackled to it, theology as a discipline, Wilson surmises, will not be able to survive the onslaught of scientific evidence which is systematically dislodging and debunking much of that discipline's stock in trade. In the process of unpacking the biological origins of religious ideology and behavior, scientific naturalism will be fully aware of the difficulties in not having ready to hand an irrational but powerfully gripping mythology of individual immortality or

a god-mandated rightful place for human beings in the world. This kind of mythic imperialism exercised for so many generations by religion, such that it now is genetic, is not available to modern science, and may not be anytime in the foreseeable future. The “mythic imperialism” of a religion which promises eternal life to individuals and provides a worldview mandated by the social grouping’s own deity is a hard competitor, especially when modern science relies, not upon irrational passion but upon empirical demonstration.

Yet, Wilson is optimistic about the long-term future of human reason. If humanists and scientists can’t rely on the emotional power of conversion and divine obedience to mobilize the human intellect, thereby precluding scientists becoming secular priests, they can imagine an agenda of directing and guiding that religious and mythic energy towards a more responsible and meaningful address to the problems confronting the human community and the cosmos in which we live. Here is where Wilson and the Dawkins crowd part company. The ethical naturalism of Wilson seeks to engage the religious community for help in addressing the major issues confronting the cosmos whereas Dawkins dismisses that community as necessarily dysfunctional by design and intent. I have argued elsewhere in my book on Huxley, *In the Absence of God: Religious Humanism as Spiritual Journey (with special reference to Julian Huxley)* that “Huxley’s desire to utilize, through re-definition, religious nomenclature could be of some value in this effort to mobilize religious people for a humanistic agenda.”⁷

We behave as a result of genetic evolution and yet those behavioral options are themselves the product of natural selection processes. The human species has survived and continues to survive owing to the configured genetic elements which make up our nature, a nature that is forever embracing, integrating, adopting and adapting our hormonal feedback into the existential inevitabilities of on-going life. Wilson’s insightful genius is here most evident. His talk of a biology of ethics, thus the basis of our present discussion employing the title of my new book, *Beyond Divine Intervention: The Biology of Right and Wrong* (2010), is based upon evolutionary biology’s understanding of the moral code of behavior which has evolved within the human species as a necessary survival mechanism. Rather than revealed by an outside deity, the human moral code of conduct has evolved within the DNA of the species itself. And, says Wilson, the study of this phenomenon through the parallel efforts of evolutionary biology and cultural evolution, that is, both the behavioral and natural science communities working together, will produce great results in the near future regarding the fundamental biological origins of human moral behavior.

At this point, Wilson takes a giant step beyond the early work of Sir Julian Huxley whose efforts on the part of a naively contrived eugenics devoid of a substantive understanding of the genome led him into both

uncharted and troublesome waters. Wilson suggests that a “democratically” devised eugenics awaits the humanistic and scientific community once we have sorted out the complexities of human heredity dictated by the genome enterprise. The elevation (without God) of human rights as a primary value is central to Wilson’s scientific prognostications. His work suggests that human beings embrace and perpetrate human rights as a fundamental ingredient of our species because it serves well the individual and the group. We do the right thing because it is the right thing to do, for the individual and for the group, not because God said do it.

The pontificating tendencies of the religionists are balanced by the humble prognostications of E. O. Wilson. Human moral behavior has surely evolved due to a process of natural selection which served special survival. Yet, says Wilson, “genetic fitness” perpetrated by fundamentally utilitarian motives of individual, family, and group survival does not complete the story. Neurophysiology will eventually decipher the genetic code of moral conduct, allowing us not only to understand the primary factors dictated by biology but the secondary factors dictated by social and cultural history. Wilson’s hope and claim is that the epic of cosmic evolution will one day reach a level of literary sophistication such that in the telling of the tale, the human animal will be stirred in the same emotive ways as we are now by religious myths which are rapidly becoming devoid of credibility due to scientific and historical research. To tell the evolutionary epic with imagination and creativity, while staying on track with the empirically demonstrable facts, can inculcate and nurture a spirit of awe, wonder, mystery, and reverence which will convey the energy needed for the human community to finally recognize and embrace our connectedness to the cosmos. Ethical naturalism will be the inevitable code of moral conduct generated by such an eventuality.

The indictment of intellectuals within the social sciences and the humanities is stinging in Wilson’s assessment of the present state of Western popular knowledge. Science, the physical and natural sciences, has yet to be embraced and embodied in the culture of industrialized nations all the while those nations and cultures exist primarily and fundamentally owing to the contributions of those sciences. The irony is palpable! Scientific naturalism is now demanding and dictating a redefinition of the social sciences and humanities owing to the empirically demonstrable fact that human nature and human behavior are being understood by the biological sciences in ways that now preclude the social sciences and humanities, particularly philosophical speculations, from continuing their work in the same old traditional manner. If and only when the social sciences embrace the findings of the physical and natural sciences, particularly neurobiology and sociobiology, will the social sciences be able to continue to contribute to a scientific understanding of the human species and its place within the cosmos. Until that time, the

social sciences and humanities are destined to continue their mantra of ancient formulas based upon now debunked myths and legends.

Wilson is not one to ignore or deny the emotional power, even the psychological addiction, which the myths of religions, even those which have long been abandoned or redefined in an effort to salvage them from scientific invalidation. The promise of eternal life and national glorification which comes from the intervening deity is itself strong enough to continue the function of religious behavior long after the basis of the promise has been deciphered and exposed. When it comes to religious additions, the explanation of the dubious origins of its faith is not sufficient to dislodge it from the human emotional matrix of the social group. Wilson suggests that only when scientific naturalism is able to grasp and enrich human imagination with the story of the epic of cosmic and special evolution will science be able to compete with the dead and dying mythos of religious cosmologies.

For one who has spent a lifetime studying the works of the Huxleys, it does this author good to see Wilson himself acknowledge and own his relationship to Huxley's great humanistic work. Scientific humanism and scientific materialism converge, however, in the work of Wilson, a work which goes beyond the historical limitations of the Huxleys. Wilson's awareness of the biological complexities of human genetics itself has caused him to acknowledge the Huxleys while admonishing us to move further in and higher up in our understanding and use of the biological sciences in deciphering the human moral code. Wilson believes that the energies now held captive by religionists will one day be released for the service of scientific and ethical naturalism as the more convincingly correct mythos of the universe. When this happens, the human community will seek to do the right thing because it is the right thing to do for the universe, and not just because God said do it or because it serves the fundamental interests of the human species.

More than in any other place in Darwin's distinguished corpus of scientific writing, Wilson is here profoundly anticipated. Contrary to religionists' argument that without an external source of the moral code, humanity would be devoid of any sense of right and wrong, and, thus, would be reduced to savagery and violence. Often, when religious people enquire of the non-religious as to why they are good, these religious people are somewhat baffled to learn that non-religious people are good, that is, they do the right thing, because it is the right thing to do rather than out of fear of Divine retribution or punishment! The old 19th Evangelical slogan, "No morality without immortality," which suggests that people are only good in hopes of securing heaven, is, according to Darwin, the lowest form of human depravity. Darwin, Huxley, and Wilson had all rather claim that the moral code for humanity has been genetically generated through natural selection. Other words, the human moral code of conduct has evolved because it serves the best interest of the human

community. Ethics and the moral code of human behavior have evolved directly in relationship to the need for special survival and, therefore, we do the right thing because it is the right thing to do. Ethical theism says we do right because God commanded it; ethical humanism says we do right because it serves the human agenda; but ethical naturalism says we do right because it serves the interest of the cosmos.

Wilson's entire career has been occupied with the task of integrating the sciences and humanities, particularly biological sciences and philosophy. His contention is that the separation of these trends in thought processes, in the search for knowledge, has been artificially created by the practitioners when the subject matter suggests integration, not separation. The term "consilience" is rarely used, until now thanks to Wilson, and dates from a time when the biological sciences and Darwin were just beginning to demonstrate the fundamental principle embodied in the term. While the Collier-Macmillan's *The Encyclopedia of Philosophy* fails to mention the term, Dagobert Runes' *Dictionary of Philosophy*, published by Littlefield, Adams in 1959, does mention the term and defines it as follows: "Consilience of inductions occurs when a hypothesis gives us the rule and reason not only of the class of facts contemplated in its construction, but also, unexpectedly, of some class of facts altogether different."⁸ While Wilson doesn't tell us how he found such a term, its redeployment in the service of integrating the various schools of human knowledge is a stroke of brilliance. His fascination with the concept is unbounded and his use of it to attack the arcane practice of discipline purity within the academy is outstanding.

Wilson's belief not just in the word but in its import is of two kinds - first, this sort of integration of human knowledge through the convergence of the various disciplines of the sciences and humanities is directly proportionate to our increase in overall knowledge of the cosmos. The more we practice consilience, the greater our knowledge of the universe will be. And, second, the demonstration of the facility of consilience is the strongest possible argument for the "systematic integrality (my term)" of the universe in which we live. Cosmic order rather than chaos awaits our discovery through the practice of consilience in the sciences and humanities.

The scientific agenda, of course, is the pursuit of empirically validated facts, correct information gleaned through the use of logic, reason, and experiment. The theological agenda, based upon "deep truths," or what C. S. Lewis calls in his *Chronicles of Narnia* "deep magic," falls outside the pail of scientific inquiry. The entire theological agenda, then, is based upon the notion of an outside agitator, an interventionist deity or divine source of caprice which periodically, erratically, and unpredictably operates in the world. Science, needless to say, can have no truck with such irrationality. If the cosmos is to be understood, it must be through the employment of the human mind, a mind governed by reason

and logic, not deep magic. The theological agenda of the 18th century, and before and since, was predicated upon the duplicity of the universe, a dualism which allowed for logic and reason in all walks of life excepting in the world of religion,. In the religious worldview, faith took the place of reason, a faith-based dualism which allowed for the world to operate more or less along reasonable lines until religion substituted magic for reason to explain the will of the Church and that of the intervening deity.

The attempt on the part of the rationalists to keep some sort of transcendent reality while still embracing reason and logic led to a failed metaphysic called "deism." The deists wished to allow for a place in the universal scheme of things for a divine spark though not an intervening deity of the Christian variety. The failure of deism was its inability to mobilize the populous owing to its antiseptic, non-imaginative description of this divine source of all things. A God who doesn't reach down and fix things according to individual requests is hardly worth bothering with. Either God is personal, a Being with which I can have an intimate, personal, and passionate relationship, or God is worth less than a good insurance policy. Furthermore, deism couldn't promise the individual eternal life or salvation in the after awhile! And, finally, the basis of its ethics was sketchy and slight. Not relying on the evolutionary argument of the moral code being genetic and disavowing a personal Being of the nature of God in Christ Jesus, deism lost any attractiveness to those needing a personal relationship with the Creator God and One who would assure them of eternal salvation. Deism was simply too bland. It was a sort of science without evolution and a religion without God and neither option proved convincing, helpful, or nurturing.

The importance of the choice between a belief in the divine source of the moral code and the embracing of the genetic origins of moral behavior is monumental because it determines our understanding of who and what the human animal is and shall become. Either moral behavior is the results of a mandated code of conduct from outside the phenomenal world of biological evolution or it is a result of that biological evolution. If the moral code comes from out side, from an interventionist source derived external to the world, then the human animal is only responsible for following a set of laws handed down from above. However, if the moral code is genetically derived from the evolutionary process of natural selection, then the human animal is actually a participant in the process of its development. We are empowered to exercise jurisdiction over that moral code and to re-write it according to shifting situations in the world, always with an eye to do the right thing because it is the right thing to do for the environment. The first option, namely, an externally-derived moral code, disempowers and even exonerates the human community and the individual from responsibility or accountability beyond doing "what we are told." The second option, an internally-derived moral code, empowers the human community and the individual to decide ourselves

what is the right thing to do based on our assessment of each situation. The subtlety and significance of this distinction cannot be over estimated. Either the moral code comes from outside or it doesn't. We can't have it both ways. Either the human animal is dependent upon the caprice of an interventionist deity or the human animal is responsible for devising its own code of ethics.

Wilson becomes profoundly prophetic in his portrayal of the great 21st debate, namely, whether we are to be transcendentalist or empiricist when it comes to determining the origins and nature of the human moral code, for this decision will determine the human agenda for the foreseeable future. Either moral behavior has biological roots or it has divine roots, and the distinction is monumental. The difference, however, between those who opt for transcendence versus those who opt for science is the difference between an immaturity of needs/wants-based ethics derived from a father-god versus the maturity of the human willingness to accept and embrace our systemic integrality to the universe, wherein we act as a participating member rather than a temporary visitor to the world around us. This monumental distinction seems not only to be consistently true but indicative of a failed system of thought. The refusal or failure to identify the most fundamental "domain assumption" about the foundations of ethics -- whether from biology or from God -- both cheapens the ethicists' agenda and weakens their credibility in the consilient world of science and the humanities. Few would argue with what Wilson has suggested here in terms of the question of deism being fundamentally a "problem in astrophysics." That there is a biological God, a God known personally by individuals, who is intimately and directly, albeit sporadically and erratically, involved in the personal affairs of human beings in the world is most certainly destined to extinction within a very short time as the neurological and biological sciences close in on the last remaining arguments for such a God.

Wilson pits the present state of empirical studies of the relationship between moral behavior and brain function against the argument for a moral code based on transcendentalism using the argument that even though neurological science is still very busily working on the details of this biological reality in the laboratory, it is far removed from the personalistic and radical relativism of the transcendentalist school of religious thought. Here Wilson essentially dismisses the employment of a non-scientific concept called "Natural Law" as used by theologians and religious philosophers. The moral mandate for behavior is biological and genetic and has been codified because it worked, not because God established a "Natural Law" to which human beings must obey. The moral code is biologically generative rather than heaven-sent.

What is, however, exciting and hopeful is that present work within the framework of consilience between the behavioral sciences and biology will more fully development an understanding of the "primary origin" of

moral behavior which evolves out of a dynamic interplay between “cooperation and defection.” What in an earlier time was referred to as “moral sentiment” is now coming more fully into its own as a modern scientific concept again, based upon the realization that the interplay between biology and culture centers around the human animal (with possibly only the apes sharing this development) and our capacity to cultivate moral judgment and manipulate the interplay for the constructing of a complex matrix of codified moral behaviors.

Evolutionary biologists are now demonstrates profoundly the use of consilience in the integration of evolutionary biology and human culture. The interplay, the dynamic operative between the evolutionary emergence of moral behavior demonstrates the creative relationship between “moral aptitude” and the growing social awareness of the effectiveness of such behavior as a contributor to, indeed, a carrier of human survival, social and communal survival based upon and embodying the moral code implicit in such things as honor and justice and compassion. Rather than heaven-derived, these behaviors, which so centrally assure special survival of the human animal, are the product of the creative interplay between genetics and culture, between the biologically derived natural selection of survival behavior and culturally induced levels of cooperation and rejection, inclusiveness or defections.

Selectivity in moral sentiment is one way of accounting for the human animals’ obvious preferences for its own kind, a commonly held worldview and ethos, and, unfortunately, the emergence of racism, prejudices based upon social, cultural, and physical differences within the species as well. The gradual emergence of warfare, national consciousness, political hierarchies, and religious dominations all are linked to this inborn propensity to moral behavior gone wrong. When the raw moral codes of behavior became susceptible to religious, political, and economic manipulation by those inclined to such domination in society, institutions of oversight and control -- religious, political, economic -- all emerged quite easily. Today, when philosophers, politicians, and religious leaders are in a position to dictate what can and cannot be explored in the science laboratory, there is little opportunity to unpack this fascinating matrix of ethics gone bad. The biological exploration of the moral sentiments, says Wilson, will one day give us a great insight into how we got this way and, hopefully, provide answers as to how we might move away from xenophobia and all that it has spawned in the religious, political, economic, and social matrices of human society.

To implement the methodology of consilience will provide a formal convergence of philosophical ethics and biological science to the study of religious behavior and ideologies, their emergence, their endurance, and their demise. When genetics and cultures are studied in their interplay through the use of biology and sociology, the human community will be the great benefactor. We will be better able to address problems and

produce solutions which the interventionist ethicists are not able to provide using their notion of an externally revealed moral code. Natural Law seems not to have answers, only mandates as to what not to do.

Fear, control, and tribalism (read here xenophobic exclusivity) all serve the mission of the religious drive which is to stave off fear through the use of mythic narratives of tribal histories and protective gods. I have dealt at length with this phenomenon in my book, *"In the Beginning...": Paleolithic Origins of Religious Consciousness*, where I have offered an extended psycho-cultural definition of religion complimented by Wilson's use of the term religion. As has been pointed out earlier in our discussion, religion is defined "as a complex of behaviors and ideologies consisting of rituals and myths which appeals to a transcendent legitimacy embodying a worldview and ethos addressing the verities of life and existence and conveying a dynamic level of psycho/social reality which is self-validating to the individual and community."⁹ This complex of behaviors and ideologies Wilson calls "tribalism."

Wilson's sociological and psychological insightfulness leaves many a sociologist and psychologist aghast by its profundity and simple genius. His critique of religion from both the sociological and psychological perspective easily stands alongside contemporary analysts such as Peter Berger and Clifford Geertz. Huxley strove valiantly but, alas, with little success to compete with the emotive strength and power of the religious myths with his creatively contrived arguments for ethical humanism. Wilson has chosen not to make that attempt but rather to continue steadily to promote the scientific worldview, its explanations based on empirical studies rather than philosophical and theological speculations about various and sundry hypotheses. The sometimes unavoidable sterility of the empirical sciences, competing against the emotionally charged and psychologically shackling power of the mythic tales, is matched by the sciences' use of reason and logic, methodology, and laboratory. Whereas religion has authority derived from the clergy who spin the tales promising eternal life, salvation, protection from the evil one, etc., science has authority derived from the empirical methodology of scientific inquiry. The former is emotional while the latter is rational, and, as Wilson points out, the human animal is an animal and susceptible to the passions and emotions of our own biological makeup.

The fundamental dilemma posed by transcendentalism (ethical theism) and empiricism (ethical naturalism) is not resolvable. It simply cannot be because the worldviews are based upon different and competing premises. The former draws from myth and passion, the latter from scientific inquiry. The evolution of the human mind, explains Wilson, favors belief in the gods because such beliefs serve the survival of the species by drawing groups together in the sharing of a worldview and the development of a mutually agreeable ethos. But of course, this evolutionary process dates from Paleolithic times. In the modern world

where science has demonstrated the biological origins of religious belief, the continuation of a belief-system merely because it once served our needs but now deters maturation of human intellect is absurd.

The humble confidence of Wilson in the capacity of the biological and neurological sciences to explain the origins of moral behavior, indeed, to basically describe the biological nature of the human animal, is refreshing. Science, he says, can eventually teach us what we need to know the most, namely, why it is that human beings have evolved such that the embracing of one belief system rather than another, one moral code of behavior while abjuring another, happens. We need to know this and when we do we will be in a position to more fundamentally address the challenges facing the cosmos in the coming centuries. This we will know when the scientific and humanistic communities bring about a consilience in the study of gene-culture and evolution. The interplay between genetics and culture constitutes the arena for scientific enquiry.

Today's biologists are confident that scientific naturalism is gradually on the move in the mind of modern society and, they believe, the biological and historical epic of evolution, when told with passion, can be as captivating to the human imagination as any story in religious mythology. When awe, wonder, mystery and reverence are nurtured in the telling of the evolutionary epic of the cosmos, a deity will not be necessary to inculcate in the listener a deeply abiding sense of awe and wonder. Divine intervention or intrusion becomes a distraction and distortion rather than a reinforcement of the grandeur of the epic of cosmic evolution. The agenda should be to explore a multiplicity of ways to tell the evolutionary story, to make it come alive in the emotions and imaginations of the average person, to infuse its telling with the excitement known in the laboratories and the field studies of behavioral scientists. The story is tremendous but its telling must be equally so. The challenge of telling the story of biological evolution capable of soliciting such deep emotions is, really, a heuristic and pedagogical one rather than one of credibility. And, finally, the creatively told story must instill within the listener the grandeur of our place in the scheme of things. We are a partner and participant in the furtherance of the cosmos. It is a cosmic sharing which we must embrace, a vision of the connectedness of all reality, a systemic integrality of all things, not a god from outside the experienced world but a world reaching out for partnership with the human species.

Modern science's abiding concern, as we have seen throughout this analysis of Wilson's work and that of biologists everywhere, is towards the future, particularly how the human species finally defines itself on the basis of the two options of interpretation presently available to us, namely, religious transcendentalism or scientific empiricism. This choice, as we have pointed out over and over again, will determine not just the destiny of the human species but probably that of the cosmos itself since

human beings are at least presently in a position to determine that destiny. Though the moral code of human behavior and religion itself are far more complicated than the current state of the natural and behavioral sciences are completely able to analyze, we do know that they are much more dependent upon the evolutionary process and the interplay between genetics and culture than either theologians or philosophers are ready to admit. As the sciences continue their unrelenting encroachment upon the historic domain of the religionists, religion itself will be increasingly forced to retrench, redefine, and reinvent the utility of its mythologies and magic in order to continue to stay viable as an operative worldview and ethos. As the human species becomes more and more scientifically educated and savvy, the perimeters of religion will continue to shrink. Inevitably, science will win and the secularization of the human intellect will necessitate the mobilization of that community in consort with the humanists to creatively construct a convincing mythology of evolution which will be both nurturing to the imagination and stimulating to an agenda of hope for the future of the cosmos. But in the meantime, religion will continue to market its wares of hope for eternal life, salvation, and the escape from planet earth to a heavenly abode with God and his angels. While that continues to hold sway within the human species, the science of evolution will continue its mission to untangle the mysteries of life.

The search for a new environmental ethic is, of course, what I have been suggesting all along, what I am calling “ethical naturalism.” Wilson has not used this term but I am arguing that his science will produce such an ethic. Whatever we as a species finally decide to do with ourselves, our powers of creation and our powers of destruction, it is clear that we must make a choice about our future, whether ethical decisions will be attributed to a revelation from deity, or from our own best interests, or deciphered from the logic of the biosphere.

If we and the cosmos are to survive and prosper, we must turn our backs on ethical theism because it is pre-scientific and inevitably dysfunctional. We must turn our backs on ethical humanism because it places too high a value upon one species of life form in the cosmos. We must embrace an ethic which affirms the connectedness of all living things and our conjoined dependence up on the earth for our mutual survival. We must learn, through the development of a new environmental ethics built upon a genuine sense of the *systematic integrality*¹⁰ of the universe, that if the cosmos is to endure and we as participating members of that biosphere likewise, we must learn to do the right thing because it is the right thing to do for the cosmos, not for God, not just for Man, but for the Earth. We must identify, codify, and embrace an ethical naturalism designed to serve the best interest of the cosmos.

Ethical Naturalism and Cosmological Egalitarianism

Informed by Wilson's biodiversity and sociobiology, we have been suggesting that the primacy of the ecosystem is the fundamental infrastructure of ethical naturalism. It is the survival of the entire biodiversity of the cosmos which must constitute the proper focus of the human community, and not just some naïve fixation on "human survival" at the expense, if necessary, of everything else! By dismissing an archaic magical notion of an intervening God who, episodically, sporadically, and often irrationally, intrudes into the biological functioning of the cosmos, ethical naturalism is able to assert a rationalistic assessment of the proper functioning of ethical ideology and moral behavior. Furthermore, by building upon but going beyond ethical humanism, which determines ethics and morals based solely upon and within the context of humanity's well-being, ethical naturalism is empowered to assert the primacy of the ecosystem of the cosmos over merely humanity's welfare. Granted the high relevance of human worth, given our intellectual capacity to reason and act rationally, ethical naturalism espouses the primacy of the cosmic ecosystem even over the needs of the human person and the human community. Morality as the right thing to do exists because the Earth has said so -- the cosmos first and all else second is the mandate of ethical naturalism.

Concluding Postscript

Questions to ponder: Are humans genetically hard-wired to be religious? Are we hard-wired to be moral? Are these questions different? Does "religious" here mean specifically theo-centric? Might it just mean "eager for and susceptible to" a deep yearning for awe, wonder, mystery and reverence? Why are so many cultures and individuals devoid of a driving quest for a theistic worldview? Are non-theists deficient genetically or, are theists immature in their desire for an interventionist deity? Might theists and non-theists be genetically wired differently? Is it not possible that our genetic propensity to awe, wonder, mystery and reverence is mistakenly thought of in monotheistic cultures as an instinctual desire for "God"? Might we all be simply instinctually drawn to awe, wonder, mystery and reverence but in theistic cultures we misinterpret this drive as God-centered rather than a human derivative?

Maybe "faith in God" as expressed in theistic cultures is really attraction/response to actual experience in the physical and social world of awe, wonder, mystery and reverence. Maybe it is institutionally-oriented religious practitioners who have captured, renamed and redirected our sense of the awe, wonder, mystery, and reverence propensities to service religiously devised institutional controls over the

human community, collectively and individually. Maybe we are genetically wired to seek out and respond to awe, wonder, mystery and reverence and not to faith in a god at all. The question, then, is “Why are we awe, wonder, mystery and reverence-wired?” What purpose, evolutionarily speaking, do awe, wonder, mystery and reverence serve? Personally? Socially? Communally? Culturally? Politically? Paleolithic origins of religious consciousness do not imply a belief in God -- they do explain the origins, however, of our susceptibility to awe, wonder, mystery and reverence.

To suggest that “faith in God” is “inherent to cultures worldwide and throughout history” (as suggested in an Oxford study being sponsored by the Templeton Foundation) is not synonymous with saying either (1) that religious faith in God is true, or (2) that faith in God is instinctual/genetic to the human animal. It only means (if proven) that human culture has evolved a propensity to institutionalize a human drive -- a drive which itself must be explored without theistic prejudices.

The danger in research on religion -- both behavioral composites and belief systems -- is the presumption that religious belief and behavior somehow always and automatically imply or require a deity. If precision is carefully exercised in the defining of terms, it is quite conceivable that religious belief and behavior could imply a pervasive sense of awe, wonder, mystery and reverence on the part of and within the framework of human experience of the world of physical and social environments without a deity at all.

Non-institutional expressions of awe, wonder, mystery and reverence may constitute a fertile ground for inquiry, namely, (religious) sensibilities and sensitivities devoid of a deity. The physical and social world may constitute the impetus for such emotions -- not a deity. Art, music, literature, poetry, community, athletics, politics, architecture, etc., may all provide mechanisms for expressing, fostering, and nurturing awe, wonder, mystery and reverence within the matrix of human experience. Is it possible that religiously devised institutions have misappropriated this human propensity to serve its own institutional interests?

As has been so boldly demonstrated by the work of E. O. Wilson, the biological and historical epic of evolution, when told with passion, can be as captivating to the human imagination as any story in religious mythology. When the deeply felt experiences of awe, wonder, mystery and reverence are nurtured in the telling of the evolutionary epic of the cosmos, a deity will not be necessary to inculcate in the listener such deeply felt experiences. Divine intervention may actually constitute a distraction and distortion rather than a reinforcement of the grandeur of the epic of cosmic evolution.

* *Acknowledgements*: I wish to thank Harvard University where I conducted this research as a Visiting Scholar

Notes:

¹ Edward O(sborne) Wilson was born June 10, 1929, in Birmingham, Alabama, and is an entomologist and biologist known for his work on evolution and sociobiology and, by some, is called the “father of biodiversity.” A childhood accident claimed the sight in his right eye and later, in adolescence, he lost part of his hearing. He struggled with math and a mild form of dyslexia. The accident with the eye, he suggests amusingly, probably pushed him into the study of ants which he could bring up close to his one good eye for careful scrutiny. After earning both a B.A and M.A. from the University of Alabama, he received his Ph.D. from Harvard University and is now a world renowned entomologist, in particular the use of pheromones for communication among ants. Today, Wilson is the Pellegrino University Research Professor Emeritus at Harvard University today and an Honorary Fellow of the Graduate Theological Foundation from which he holds the Doctor of Humane Letters. Hailed as “the new Darwin” by Thomas Wolfe, and one of “America’s 25 Most Influential People” by *Time Magazine*, he has twice received the Pulitzer Prize. He is also famous for starting the sociobiology debate when he wrote his now highly acclaimed *Sociobiology: The New Synthesis* (1975), an enormous volume comprised of 697 extra-sized pages. Wilson sought to extend the understanding he had gained of the principles of the intricate behaviors of social instincts to vertebrate animals. Prior to this landmark tome, he had published *The Insect Societies* (1971).

² Charles Darwin, *The Descent of Man and Selection in Relation to Sex* (London: Encyclopedia Britannica, 1952), 304.

³ Edward O. Wilson, *Conciliance: The Unity of Knowledge* (N.Y.: Vintage Books, 1998), 3.

⁴ John H. Morgan, “In the Beginning...”: *Paleolithic Origins of Religious Consciousness* (South Bend, IN: The Victoria Press, 2009), 59.

⁵ Edward O. Wilson, *The Future of Life* (N.Y.: Random House, 2002), 83.

⁶ Edward O. Wilson, *Conciliance: The Unity of Knowledge*, 47.

⁷ John H. Morgan, *In the Absence of God: Religious Humanism as Spiritual Journey with Special Reference to Julian Huxley* (South Bend, IN: The Victoria Press, 2008), 23.

⁸ Dagobert D. Runes, *Dictionary of Philosophy* (Ames, IA: Littlefield, Adams & Co., 1959), 65.

⁹ John H. Morgan, “In the Beginning...”: *Paleolithic Origins of Religious Consciousness*, 93.

¹⁰ Within the context of the “new morality” in E. O. Wilson’s scientific naturalism, what has been called here “systemic integrality” simply means that the Universe itself is an organic confluence of logically linked functions which is essentially self-generative. Systemic integrality means that all functions within the Universe work systematically for the benefit of the whole -- thus, ethical naturalism simply means doing the right thing for the corporative benefit of the entire integrated system, namely, the Universe.

References

Darwin, Charles. *The Descent of Man and Selection in Relation to Sex*. London: Encyclopedia Britannica, 1952.

Morgan, John H. *Beyond Divine Intervention: The Biology of Right and Wrong*. Lima, OH: Wyndham Hall Press, 2010.

Morgan, John H. *In The Absence Of God: Religious Humanism as Spiritual Journey (with special reference to Julian Huxley)*. South Bend, IN: The Victoria Press, 2008.

Morgan, John H. "In The Beginning...": *Paleolithic Origins of Religious Consciousness*. South Bend, IN: The Victoria Press, 2009.

Morgan, John H. *Naturally Good: A Behavioral History of Moral Development*. South Bend, IN: Cloverdale Books, 2005.

Runes, Dagobert D. *Dictionary of Philosophy*. Ames, IA: Littlefield, Adams & Co., 1959.

Wilson, Edward O. *Biophilia: The Human Bond with Other Species*. Cambridge, MA: Harvard University Press, 1984.

Wilson, Edward O. *The Diversity of Life*. NY: W. W. Norton and Company, 1999.

Wilson, Edward O. *The Future of Life*. NY: Random House, 2002.

Wilson, Edward O. *Naturalist: Edward O. Wilson*. Washington, DC: Island Press/Shearwater Books, 1994.

Wilson, Edward O. *On Human Nature*. Cambridge, MA: Harvard University Press, 1978.

Wilson, Edward O. *Concilience: The Unity of Knowledge*. NY: Vintage Books, 1998.

Wilson, Edward O. *The Creation: An Appeal to Save Life on Earth*. NY: W. W. Norton, 2006.

Wilson, Edward O. *Sociobiology: The New Synthesis*. Cambridge, MA: Harvard University Press, 1975, 2000.